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MATHEMATICS · EAPCET (EAMCET)

Probability

Previous Year Questions with answers

763 questions · **149** papers · **2010–2026** · newest paper first

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What is in this PDF: every Probability question we hold from past AP and TS EAPCET (called EAMCET until 2020 in Andhra Pradesh and 2023 in Telangana) papers, with its options and answer. Where an answer comes from a source other than the official final key, it says so next to the answer.

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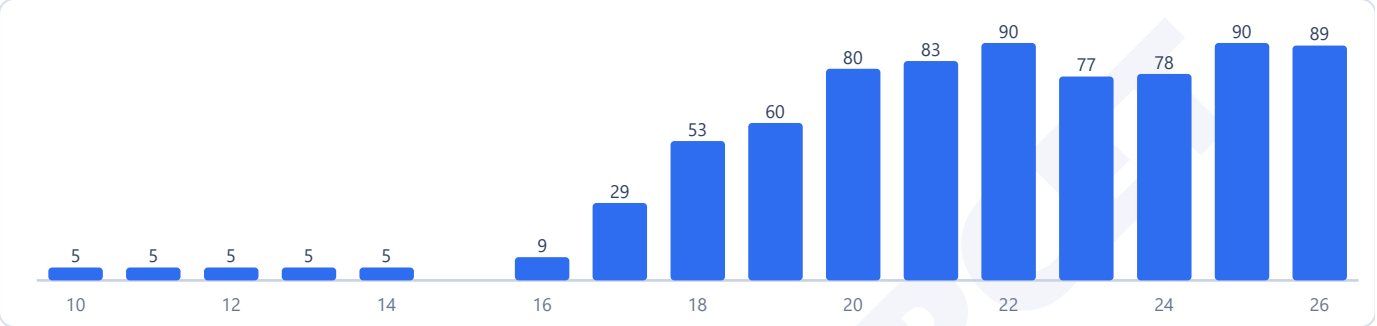
Chapter at a glance

6.9%	763	77 of 77	763 / 0
of Mathematics questions, 2022–2026	questions, 2010–2026	papers asked it, 2022–2026	MCQ / numerical, 2010–2026

Trend. Steady: 5.6 questions per paper in 2024–2026 against 5.4 in 2022–2023.

Questions per year



Counts are the questions we hold: 763 in 149 papers. 6 questions in this chapter came back in more than one paper.

Most-asked topics in this chapter (2010–2026)

Random Variables & Distributions	**298**
Basic Probability	**241**
Conditional Probability	**224**

How often it comes up

Probability commands an exceptionally prominent position in the EAPCET mathematics syllabus, occupying rank 3 of 29 mathematics chapters. Over the total recorded timeline from 2010 through 2026, Probability generated 763 questions across 149 evaluated exam papers, appearing without fail in all 149 papers to maintain an average of 5.1 questions per paper and a 6.4 percent subject share. In contemporary testing between 2022 and 2026, the chapter sustained this flawless record across all 77 sittings, supplying 424 questions (averaging 5.5 questions per paper and a 6.9 percent subject share).

Because it appears in every paper in recent history, every candidate taking an EAPCET examination shift faces five to six probability problems. In the recent three-year window spanning 2024 to 2026, the chapter delivered 257 questions across 46 sittings (all 46 papers, averaging 5.6 questions per test and a 7.0 percent share). During the older examination timeframe from 2010 to 2021, it provided 339 questions across 72 sittings (all 72 papers, 4.7 per test, 5.9 percent share). Long-term trend analysis indicates that comparing early testing with the last three years shows the share is up, whereas comparing recent testing with the last three years shows the share is about the same. In state-level breakdowns from 2022 to 2026, Andhra Pradesh papers accounted for 286 questions across 48 papers (all 48 papers, 6.0 per test, 7.4 percent share), while Telangana examinations included 138 questions across 29 papers (all 29 papers, 4.8 per test, 5.9 percent share).

Most-asked topics

Questions in Probability partition into three extensive conceptual sections:

- **Random Variables & Distributions**: Leading the chapter with 298 total questions, including 157 in recent testing (consistently examined through 2026). Coverage emphasizes probability mass functions, normalizing unknown constant k so that total probability equals one, expectation or mean (sum of x i p i), variance (expectation of x squared minus squared mean), binomial distribution (n, p, q parameters), and Poisson distribution.

- **Basic Probability**: Accounting for 241 total questions, with 146 in recent examinations (tested through 2026). Concepts include classical definitions, sample spaces, addition theorem of probability for two or three events, odds in favor and odds against, combinatorial selections involving dice, cards, coins, and arrangement-based probability.
- **Conditional Probability**: Supplying 224 total questions, with 121 appearing in modern tests (tested through 2026). Prominent themes center on conditional probability P of A given B, multiplication theorem, independent events (P of A intersection B equals P of A times P of B), total probability theorem, and Bayes theorem for posterior probability.

What the questions look like

Examiners test classical combinatorial setups, conditional updates via Bayes theorem, and parameter fitting in probability distributions.

A standard problem presents a discrete probability distribution table with an unknown multiplier k in the probabilities, requiring candidates to first find k by summing all probabilities to one, and then compute the mean or variance. Another frequent format describes balls transferred between two urns before drawing a colored ball, asking for the posterior probability of the transfer event using Bayes theorem. Candidates also regularly encounter binomial distribution questions where mean and variance are specified to deduce the parameters n and p.

How to practise it

Master discrete random variable calculations first, as they represent the most heavily tested segment. When presented with a probability distribution P of X equals x, immediately enforce that the sum of all probabilities equals one to solve for unknown parameter k. The expectation E of X is the sum of x times P of X, and the variance is E of X squared minus (E of X) squared, where E of X squared is the sum of x squared times P of X. For a binomial distribution with n trials and success probability p, recall that the mean is n p, the variance is n p q, and the standard deviation is the square root of n p q, with p plus q equal to one.

For conditional probability, remember the definition: P of A given B equals P of A intersection B divided by P of B. If events A and B are independent, P of A intersection B equals P of A times P of B, and P of A union B equals one minus P of A complement times P of B complement. In Bayes theorem problems, clearly identify the mutually exclusive and exhaustive partition events E one, E two, and the observed outcome event A before substituting into the posterior probability quotient.

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Q1 AP EAPCET 2026 · 18 May · Shift 1 MCQ

In a pack of 6 cards, two cards are marked with 5, two cards are marked with 6, one card is marked with 7 and another card is marked with 8. In another pack of 6 cards, one card is marked with 5, two cards are marked with 6, two cards are marked with 7 and one card is marked with 8. If one card from each pack is drawn at random, the probability that the sum of the numbers on the cards is 12 or 13 is

(A) $\frac{3}{5}$
(B) $\frac{17}{36}$
(C) $\frac{7}{12}$
(D) $\frac{1}{2}$

Answer: (D) $\frac{1}{2}$ · The council's preliminary key

Q2 AP EAPCET 2026 · 18 May · Shift 1 MCQ

Two balls are drawn at random from a box containing 4 white, 6 black balls one after the other without replacement. If it is known that second ball drawn is black, then the probability that the first ball drawn is also black is

(A) $\frac{5}{11}$
(B) $\frac{5}{9}$
(C) $\frac{5}{12}$
(D) $\frac{5}{13}$

Answer: (B) $\frac{5}{9}$ · The council's preliminary key

Q3 AP EAPCET 2026 · 18 May · Shift 1 MCQ

5 letters are randomly selected from English alphabets and they are arranged in alphabetical order. The probability that the 5 letters selected and arranged has M in the middle place is

(A) $\frac{9}{115}$
(B) $\frac{{}^{12}C_2+{}^{13}C_2}{{}^{26}C_5}$
(C) $\frac{{}^{25}C_4}{{}^{26}C_5}$
(D) $\frac{9}{125}$

Answer: (A) $\frac{9}{115}$ · The council's preliminary key

Q4 AP EAPCET 2026 · 18 May · Shift 1 MCQ

Let S be the set of all words formed by arranging all the letters of the word HOMOGENEOUS. If a word is randomly chosen from the set S, then the probability that the word selected has all the consonants together is

(A) $\frac{6!\,6!}{11!}$
(B) $\frac{7!\,5!}{11!}$
(C) $\frac{6!\,5!}{11!}$
(D) $\frac{8!\,5!}{11!}$

Answer: (B) $\frac{7!\,5!}{11!}$ · The council's preliminary key

Q5 AP EAPCET 2026 · 18 May · Shift 1 MCQ

A box P contains 3 white and 7 red balls. A bag Q contains 4 green and 5 blue balls. Two balls are randomly drawn from box P. If both are of same color, one ball is drawn from bag Q and if the two balls are of different color, 2 balls are drawn from the bag Q. If it is known that there is exactly one green ball among the ball or balls drawn from bag Q, then the probability that the two balls drawn from box P are of different colors is

(A) $\frac{35}{67}$
(B) $\frac{21}{62}$
(C) $\frac{20}{43}$
(D) $\frac{32}{67}$

Answer: (A) $\frac{35}{67}$ · The council's preliminary key

Q6 AP EAPCET 2026 · 18 May · Shift 1 MCQ

The following is the probability distribution of a discrete random variable. If its mean is 2.81 then $\alpha\beta =$

$X = x$	-1	-2	1	α	3
$P(X = x)$	$\frac{1}{25}$	β	$\frac{1}{4}$	$\frac{9}{25}$	$\frac{3}{10}$

(A) $\frac{1}{10}$
(B) $\frac{1}{4}$
(C) $\frac{3}{10}$
(D) $\frac{1}{25}$

Answer: (B) $\frac{1}{4}$ · The council's preliminary key

Q7 AP EAPCET 2026 · 18 May · Shift 2 MCQ

From a group of 10 men and 5 women, a four member committee which includes atleast one woman is to be formed. Then the probability for the committee thus formed to have more women than men, is

(A) $\frac{3}{11}$
(B) $\frac{2}{23}$
(C) $\frac{1}{11}$
(D) $\frac{21}{220}$

Answer: (C) $\frac{1}{11}$ · The council's preliminary key

Q8 AP EAPCET 2026 · 18 May · Shift 2 MCQ

From a set containing four positive numbers and four negative numbers, four numbers are chosen at random and they are multiplied. The probability that the obtained product is positive, is

(A) $\frac{1}{2}$
(B) $\frac{1}{4}$
(C) $\frac{19}{35}$
(D) $\frac{23}{35}$

Answer: (C) $\frac{19}{35}$ · The council's preliminary key

Q9 AP EAPCET 2026 · 18 May · Shift 2 MCQ

Three numbers are chosen at random from $\{1, 2, \ldots, 10\}$. The probability that the minimum of the chosen numbers is 3 or their maximum is 7, is

(A) $\frac{11}{40}$
(B) $\frac{3}{10}$
(C) $\frac{3}{4}$
(D) $\frac{13}{40}$

Answer: (A) $\frac{11}{40}$ · The council's preliminary key

Q10 AP EAPCET 2026 · 18 May · Shift 2 MCQ

From a pack of 52 playing cards, one card was found missing. From the remaining cards, two cards are drawn at random and found to be spade cards. The probability that the missing card is a spade card is

(A) $\frac{39}{50}$
(B) $\frac{27}{51}$
(C) $\frac{11}{50}$
(D) $\frac{11}{100}$

Answer: (C) $\frac{11}{50}$ · The council's preliminary key

Q11 AP EAPCET 2026 · 18 May · Shift 2 MCQ

A dice is thrown twice. If getting a number greater than four is considered a success, the variance of the probability distribution of the number of successes is

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(A) $\frac{2}{9}$
(B) $\frac{2}{3}$
(C) $\frac{3}{4}$
(D) $\frac{4}{9}$

Answer: (D) $\frac{4}{9}$ · The council's preliminary key

Q12 AP EAPCET 2026 · 18 May · Shift 2 MCQ

If the mean and variance of a random variable X having binomial distribution are 4 and 2 respectively, then $P(X = 2) =$

(A) $\frac{7}{64}$
(B) $\frac{15}{64}$
(C) $\frac{21}{64}$
(D) $\frac{39}{64}$

Answer: (A) $\frac{7}{64}$ · The council's preliminary key

Q13 AP EAPCET 2026 · 15 May · Shift 1 MCQ

A hunter is firing at a target. He has only 10% chance of firing (hitting) it in one round. The number of rounds he must fire in order to have at least 50% chance of hitting the target at least once, is

(A) 8
(B) 7
(C) 6
(D) 5

Answer: (B) 7 · The council's preliminary key

Q14 AP EAPCET 2026 · 15 May · Shift 1 MCQ

Two symmetric cubical dice are rolled once. Match the items of column-I with the items of column-II

Column-I		Column-II
A Probability that the numbers appearing on them are equal	I	$\frac{1}{12}$
B Probability that the numbers shown on them are all distinct	II	$\frac{5}{36}$
C Probability that the sum of the numbers on their faces is 10	III	$\frac{1}{6}$
D Probability that the sum of the numbers on their faces is 6	IV	$\frac{4}{36}$
	V	$\frac{5}{6}$

The correct match is

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(A) A-III, B-I, C-V, D-II
(B) A-III, B-V, C-I, D-II
(C) A-V, B-IV, C-I, D-II
(D) A-V, B-III, C-IV, D-I

Answer: (B) A-III, B-V, C-I, D-II · The council's preliminary key

Q15 AP EAPCET 2026 · 15 May · Shift 1 MCQ

For a biased die, the probabilities for different faces to turn up are given below

Face	1	2	3	4	5	6
Probability	0.1	0.32	0.21	0.15	0.05	0.17

The die is tossed and you are told that either face 1 or 2 has turned up. Then the probability that it is face 1 is

(A) $\frac{10}{33}$
(B) $\frac{5}{21}$
(C) $\frac{8}{21}$
(D) $\frac{1}{42}$

Answer: (B) $\frac{5}{21}$ · The council's preliminary key

Q16 AP EAPCET 2026 · 15 May · Shift 1 MCQ

Box I contains 30 cards numbered 1 to 30 and Box II contains 20 cards numbered 31 to 50. A box is selected at random and a card is drawn from it randomly. If the number on the card is found to be a non-prime number, the probability that the card was drawn from Box I is

(A) $\frac{4}{17}$
(B) $\frac{8}{17}$
(C) $\frac{2}{5}$
(D) $\frac{2}{3}$

Answer: (B) $\frac{8}{17}$ · The council's preliminary key

Q17 AP EAPCET 2026 · 15 May · Shift 1 MCQ

A random variable X takes values $0, 1, 2, 3$ and its mean is 1.3. If $P(X = 3) = 2\,P(X = 1)$ and $P(X = 2) = 0.3$ then $P(X = 0) =$

(A) $\frac{1}{5}$
(B) $\frac{2}{5}$
(C) $\frac{3}{5}$
(D) $\frac{4}{5}$

Answer: (B) $\frac{2}{5}$ · The council's preliminary key

Q18 AP EAPCET 2026 · 15 May · Shift 1 MCQ

In a binomial distribution consisting of 5 independent trials, the probabilities of 1 success and 2 successes are 0.4096 and 0.2048 respectively. Then the variance of this distribution is

(A) 0.80
(B) 0.75
(C) 0.64
(D) 0.72

Answer: (A) 0.80 · The council's preliminary key

Q19 AP EAPCET 2026 · 15 May · Shift 2 MCQ

If it is known that a woman has two children and she has at least one girl child, the probability that the woman has both girl children is

(A) $\frac{1}{4}$
(B) $\frac{1}{3}$
(C) $\frac{2}{3}$
(D) $\frac{1}{2}$

Answer: (B) $\frac{1}{3}$ · The council's preliminary key

Q20 AP EAPCET 2026 · 15 May · Shift 2 MCQ

From the set of numbers $\{1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12\}$, two numbers are selected at random. The probability that the two numbers selected differ by a prime number is

(A) $\frac{16}{33}$
(B) $\frac{1}{11}$
(C) $\frac{3}{11}$
(D) $\frac{11}{24}$

Answer: (A) $\frac{16}{33}$ · The council's preliminary key

Q21 AP EAPCET 2026 · 15 May · Shift 2 MCQ

A bag P contains 5 white and 4 blue balls. Another bag Q contains 4 white and 5 blue balls. A bag is randomly selected and a ball is drawn at random. If the ball selected from that bag is transferred to another bag, then the probability that bag Q has same number of blue and white balls is

(A) $\frac{2}{9}$
(B) $\frac{1}{9}$
(C) $\frac{5}{9}$
(D) $\frac{4}{9}$

Answer: (C) $\frac{5}{9}$ · The council's preliminary key

Q22 AP EAPCET 2026 · 15 May · Shift 2 MCQ

In a sample space, E is an event associated with the events A and B. If $P(A)\,P(E|A) = l$ and $P(B)\,P(E|B) = m$ then, $P(B|E) =$

(A) $\frac{m}{l+m}$ always
(B) $\frac{l}{l+m}$ only when $P(A) + P(B) = 1$
(C) $\frac{m}{l+m}$ only when $P(A) + P(B) = 1$
(D) $\frac{l}{l+m}$ always

Answer: (C) $\frac{m}{l+m}$ **only when** $P(A) + P(B) = 1$ · The council's preliminary key

Q23 AP EAPCET 2026 · 15 May · Shift 2 MCQ

If the probability function of a random variable X is $P(X = x) = a^x k,\ x = 0, 1, 2, \ldots \infty$, then $k =$

(A) $1 - a$ when $0 < a < 1$
(B) $1 - a$ for all positive a
(C) $a - 1$ when $a > 1$
(D) $1 + a$ for all real a

Answer: (A) $1 - a$ **when** $0 < a < 1$ · The council's preliminary key

Q24 AP EAPCET 2026 · 15 May · Shift 2 MCQ

If $X \sim B\left(n, \frac{1}{4}\right)$, $P(X = 2) = P(X = 3)$ and $\sum_{K=0}^{2} P(X = K) = \frac{3^9}{4^{11}} M$, then $M =$

(A) 97
(B) 38
(C) 128
(D) 152

Answer: (A) 97 · The council's preliminary key

Q25 AP EAPCET 2026 · 14 May · Shift 1 MCQ

If E_1 and E_2 are two events of a sample space such that $P(E_1) = 0.8$, $P(E_2) = 0.7$ and $P(E_1 \cap E_2) \geq C$, then $C =$

(A) 0.5
(B) 0.6
(C) 0.7
(D) 0.65

Answer: (A) 0.5 · The council's preliminary key

Q26 AP EAPCET 2026 · 14 May · Shift 1 MCQ

In a bolt factory, machines A, B, C manufacture 25%, 35%, 40% of the total output respectively. There is a chance of having 5%, 4%, 2% defective bolts manufactured by A, B, C respectively. If a bolt is drawn at random from the output, then the probability that it is defective is

(A) $\frac{69}{2000}$
(B) $\frac{59}{2000}$
(C) $\frac{79}{2000}$
(D) $\frac{89}{2000}$

Answer: (A) $\frac{69}{2000}$ · The council's preliminary key

Q27 AP EAPCET 2026 · 14 May · Shift 1 MCQ

If b and c are numbers chosen at random from the set $\{1, 2, 3, \ldots, 10\}$ with replacement, then the probability that $x^2 + bx + c = 0$ has real roots is

(A) 0.52
(B) 0.54
(C) 0.58
(D) 0.62

Answer: (D) 0.62 · The council's preliminary key

Q28 AP EAPCET 2026 · 14 May · Shift 1 MCQ

Let E_1, E_2 and E_3 be mutually independent events

Statement I: E_1 and $E_2 \cup E_3$ are independent

Statement II: E_1 and $E_2 \cap E_3$ are independent

Which one of the following options is correct?

(A) Both I and II are true
(B) Only I is true
(C) Only II is true
(D) Both I and II are false

Answer: (A) Both I and II are true · The council's preliminary key

Q29 AP EAPCET 2026 · 14 May · Shift 1 MCQ

A pair of dice is thrown independently 3 times. The probability of getting a total score of at least 9 twice, is

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(A) $\frac{925}{5832}$
(B) $\frac{975}{5832}$
(C) $\frac{1025}{5832}$
(D) $\frac{1075}{5832}$

Answer: (B) $\frac{975}{5832}$ · The council's preliminary key

Q30 AP EAPCET 2026 · 14 May · Shift 1 MCQ

The following table gives the probability distribution of a random variable X.

x_i	0	1	2	3
$P(X = x_i)$	0.1	0.3	0.5	0.1

The standard deviation of X is

(A) 0.4
(B) 0.42
(C) 0.8
(D) 0.64

Answer: (C) 0.8 · The council's preliminary key

Q31 AP EAPCET 2026 · 14 May · Shift 2 MCQ

If three cards are drawn randomly from a well shuffled pack of 52 cards, then the probability that all the three bearing a prime number is

(A) $\frac{35}{1105}$
(B) $\frac{28}{1105}$
(C) $\frac{21}{1105}$
(D) $\frac{18}{1105}$

Answer: (B) $\frac{28}{1105}$ · The council's preliminary key

Q32 AP EAPCET 2026 · 14 May · Shift 2 MCQ

If A, B, C are independent events of a random experiment such that $P(A) = 3/4$, $P(B) = 5/6$ and $P(C) = 2/3$, then the probability that exactly one of the events occur is

(A) $\frac{1}{4}$
(B) $\frac{5}{36}$
(C) $\frac{5}{12}$
(D) $\frac{71}{72}$

Answer: (B) $\frac{5}{36}$ · The council's preliminary key

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Q33 AP EAPCET 2026 · 14 May · Shift 2 MCQ

Two persons A and B are alternately throwing two dice indefinitely. If A starts the game and the person who gets a prime number on one die and a composite number on the other for the first time wins the game, then the probability that B wins the game is

(A) $\frac{3}{5}$
(B) $\frac{2}{5}$
(C) $\frac{5}{6}$
(D) $\frac{1}{6}$

Answer: (B) $\frac{2}{5}$ · The council's preliminary key

Q34 AP EAPCET 2026 · 14 May · Shift 2 MCQ

If a number x is to be chosen randomly from the set of numbers $\{1, 2, 3, \ldots 30\}$, then the probability of getting an x that is a multiple of 3 such that $\left(x - \frac{26}{x}\right) > 25$, is

(A) $\frac{1}{15}$
(B) $\frac{2}{15}$
(C) $\frac{1}{3}$
(D) $\frac{1}{5}$

Answer: (A) $\frac{1}{15}$ · The council's preliminary key

Q35 AP EAPCET 2026 · 14 May · Shift 2 MCQ

From the set $\{2, 3, 5, 7\}$ two numbers are selected one after the other with replacement. If X is the random variable representing the absolute difference of the two numbers selected, then mean of X is

(A) $\frac{15}{4}$
(B) $\frac{17}{8}$
(C) $\frac{18}{5}$
(D) 6

Answer: (B) $\frac{17}{8}$ · The council's preliminary key

Q36 AP EAPCET 2026 · 14 May · Shift 2 MCQ

In a binomial distribution $P(X = 2) \div P(X = 23) = \left(\frac{2}{3}\right)^{21}$, then mean of binomial distribution is

(A) 10
(B) 15
(C) 20
(D) 25

Answer: (B) 15 · The council's preliminary key

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Q37 AP EAPCET 2026 · 13 May · Shift 1 MCQ

If five unit squares are selected at random from a chess board, then the probability that they all lie on a diagonal is

(A) $\frac{112}{{}^{64}C_5}$
(B) $\frac{56}{{}^{64}C_5}$
(C) $\frac{448}{{}^{64}C_5}$
(D) $\frac{224}{{}^{64}C_5}$

Answer: (D) $\frac{224}{{}^{64}C_5}$ · The council's preliminary key

Q38 AP EAPCET 2026 · 13 May · Shift 1 MCQ

Let A and B be two non-empty sets with $n(A) = 4$ and $n(B) = 5$. If a mapping is selected at random from the set of all mapping from A to B, then the probability of getting a many-one mapping is

(A) $\frac{101}{125}$
(B) $\frac{96}{125}$
(C) $\frac{921}{1024}$
(D) $\frac{113}{128}$

Answer: (A) $\frac{101}{125}$ · The council's preliminary key

Q39 AP EAPCET 2026 · 13 May · Shift 1 MCQ

Out of the first 20 consecutive natural numbers, 3 numbers are chosen at random. If these 3 numbers are in arithmetic progression with a common difference $d \in N$, then the probability of getting those 3 numbers whose common difference is a prime number, is

(A) $\frac{4}{9}$
(B) $\frac{1}{3}$
(C) $\frac{23}{45}$
(D) $\frac{29}{90}$

Answer: (C) $\frac{23}{45}$ · The council's preliminary key

Q40 AP EAPCET 2026 · 13 May · Shift 1 MCQ

Bag A contains 3 white and 4 black balls. Bag B contains 4 white and 3 black balls. Bag C contains 2 white and 5 black balls. A bag is randomly selected and then a ball is randomly drawn from that bag. If the ball drawn was found to be white, then the probability that the ball is drawn from bag C is

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(A) $\frac{1}{6}$
(B) $\frac{2}{9}$
(C) $\frac{1}{4}$
(D) $\frac{2}{13}$

Answer: (B) $\frac{2}{9}$ · The council's preliminary key

Q41 AP EAPCET 2026 · 13 May · Shift 1 MCQ

Consider the random experiment of throwing a die and tossing a coin. Let $\{(a,b) \mid a \in \{H,T\} \text{ and } b \in \{1,2,\ldots,6\}\}$ denote the outcomes of the experiment. If X is a random variable defined by $X(a,b) = b$, then the variance of X is

(A) $\frac{49}{4}$
(B) $\frac{35}{3}$
(C) $\frac{49}{2}$
(D) $\frac{35}{12}$

Answer: (D) $\frac{35}{12}$ · The council's preliminary key

Q42 AP EAPCET 2026 · 13 May · Shift 1 MCQ

If $X \sim B(n,p)$ is a binomial variate, $8p^2 + 15p - 2 = 0$ and the product of the mean and variance of X is $\frac{7}{8}$, then $P(X=4) =$

(A) ${}^6C_4 \frac{5^2}{6^6}$
(B) ${}^7C_4 \frac{4^3}{5^7}$
(C) ${}^5C_4 \frac{3}{4^5}$
(D) ${}^8C_4 \frac{7^4}{8^8}$

Answer: (D) ${}^8C_4 \frac{7^4}{8^8}$ · The council's preliminary key

Q43 AP EAPCET 2026 · 13 May · Shift 2 MCQ

A, B, C are three independent events of a random experiment such that $P(C) = 2/3$. If probabilities of occurrence of only A, only B and only C are respectively $\frac{4}{60}$, $\frac{3}{60}$ and $\frac{2}{60}$, then the ratio of the probability of the occurrence of A to the occurrence of B is

(A) $16:15$
(B) $4:3$
(C) $12:25$
(D) $2:3$

Answer: (A) $16:15$ · The council's preliminary key

Q44 AP EAPCET 2026 · 13 May · Shift 2 MCQ

S is the set of all 5 digit numbers greater than 60,000 formed from the digits 1, 2, 3, 4, 5, 6, 7. If a number is selected at random from S, then the probability that the sum of the first and last digits is more than 10 in the selected number is

(A) $\frac{1}{7}$
(B) $\frac{1}{2}$
(C) $\frac{2}{7}$
(D) $\frac{5}{7}$

Answer: (B) $\frac{1}{2}$ · The council's preliminary key

Q45 AP EAPCET 2026 · 13 May · Shift 2 MCQ

Let A be the set of 5 distinct prime numbers. S be the set of all possible products of two or more distinct elements of A. If one element α and another element β are selected at random from A and S respectively, then the probability that β is divisible by α is

(A) $\frac{15}{26}$
(B) $\frac{25}{36}$
(C) $\frac{5}{8}$
(D) $\frac{12}{17}$

Answer: (A) $\frac{15}{26}$ · The council's preliminary key

Q46 AP EAPCET 2026 · 13 May · Shift 2 MCQ

If 5 boys and 4 girls are arranged in a row randomly, then the probability of occurrence of the arrangement in which either all boys sit together or no two boys sit together in a row is

(A) $\frac{5}{16}$
(B) $\frac{11}{16}$
(C) $\frac{1}{21}$
(D) $\frac{20}{21}$

Answer: (C) $\frac{1}{21}$ · The council's preliminary key

Q47 AP EAPCET 2026 · 13 May · Shift 2 MCQ

Two balls are drawn at random from a bag containing 3 white and 3 black balls. If the random variable X represents the number of white balls drawn, then mean of X is

(A) 1
(B) $\frac{1}{2}$
(C) 2
(D) $\frac{3}{5}$

Answer: (A) 1 · The council's preliminary key

Q48 AP EAPCET 2026 · 13 May · Shift 2 MCQ

$]t[$ represents the least integer greater than or equal to t.

Suppose $X \sim B\left(n, \frac{1}{21}\right)$ such that $P(X=1)=P(X=2)$ and μ is the mean of X.

If $]\mu[$ is the mean of a poisson distribution Y then $P(Y \geq 1)=$

(A) $1-\frac{1}{e^2}$
(B) $1-\frac{1}{e}$
(C) $1-\frac{1}{e^{41}}$
(D) $1-\frac{1}{e^3}$

Answer: (A) $1-\frac{1}{e^2}$ · The council's preliminary key

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Q49 AP EAPCET 2026 · 12 May · Shift 1 MCQ

If six students, including two particular students A and B, stand in a row randomly, then the probability that they stand in such a way that A and B are separated by one student in between them, is

(A) $\frac{2}{15}$
(B) $\frac{1}{5}$
(C) $\frac{4}{15}$
(D) $\frac{8}{15}$

Answer: (C) $\frac{4}{15}$ · The council's preliminary key

Q50 AP EAPCET 2026 · 12 May · Shift 1 MCQ

If a number x is chosen at random from the set $\{1,2,3,\cdots,100\}$, then the probability of getting that x which satisfies $x+\frac{100}{x}>29$ is

(A) 0.76
(B) 0.77
(C) 0.78
(D) 0.75

Answer: (C) 0.78 · The council's preliminary key

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Q51 AP EAPCET 2026 · 12 May · Shift 1 MCQ

A die is thrown three times. If the sum of the numbers thrown is 15, then the probability that the first throw was a Four, is

(A) $\frac{1}{6}$
(B) $\frac{1}{5}$
(C) $\frac{5}{108}$
(D) $\frac{1}{108}$

Answer: (B) $\frac{1}{5}$ · The council's preliminary key

Q52 AP EAPCET 2026 · 12 May · Shift 1 MCQ

In a college, the heights of 4% of male and 1% of female students are more than 1.8 meters. If 60% of the total students are female and a student selected at random has height more than 1.8 meters, then the probability that this student is a female, is

(A) $\frac{8}{11}$
(B) $\frac{6}{11}$
(C) $\frac{5}{11}$
(D) $\frac{3}{11}$

Answer: (D) $\frac{3}{11}$ · The council's preliminary key

Q53 AP EAPCET 2026 · 12 May · Shift 1 MCQ

If a random variable X has the following probability distribution

$X = x_i$	2	4	7	11
$P(X = x_i)$	$3k^2$	k	$2k^2$	$1 - 2k$

then the mean of X is

(A) $\frac{41}{5}$
(B) $\frac{53}{25}$
(C) $\frac{37}{5}$
(D) $\frac{47}{25}$

Answer: (A) $\frac{41}{5}$ · The council's preliminary key

Q54 AP EAPCET 2026 · 12 May · Shift 1 MCQ

In a binomial distribution $(q + p)^n$, if $q - p = \frac{1}{4}$ and the product of its mean and the variance is $\frac{45}{8}$, then $P(X = 2) =$

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(A) $\frac{(126)\,5^6}{8^8}$
(B) $\frac{(252)\,5^6}{8^8}$
(C) $\frac{(63)\,3^5}{5^6}$
(D) $\frac{(72)\,3^5}{5^6}$

Answer: (B) $\frac{(252)\,5^6}{8^8}$ · The council's preliminary key

Q55 AP EAPCET 2026 · 12 May · Shift 2 MCQ

3 dice are thrown. Then the probability of getting 11 as the sum of all the numbers appeared on the faces of the three dice is

(A) $\frac{13}{216}$
(B) $\frac{5}{108}$
(C) $\frac{1}{8}$
(D) $\frac{1}{16}$

Answer: (C) $\frac{1}{8}$ · The council's preliminary key

Q56 AP EAPCET 2026 · 12 May · Shift 2 MCQ

If A and B are two events of a random experiment such that $P(A) = \frac{5}{6}$, $P(B) = \frac{3}{4}$ and $P(A \cap \overline{B}) = \frac{1}{6}$ then

(A) $P(A \cup B) = 5\,[P(\overline{A} \cap B) + P(A \cap \overline{B})]$
(B) $2\,P(A \cup B) = 5\,P(A \cap B)$
(C) $3\,P(A \cup B) = 11\,P(A \cap \overline{B})$
(D) $P(A \cup B) = 11\,P(\overline{A} \cap B)$

Answer: (D) $P(A \cup B) = 11\,P(\overline{A} \cap B)$ · The council's preliminary key

Q57 AP EAPCET 2026 · 12 May · Shift 2 MCQ

A bag 'A' contains 2 black and 3 white balls. Another bag 'B' contains 3 black and 2 white balls. Two balls are drawn randomly from 'A' and placed in 'B'. Later, if two balls are drawn randomly from 'B', then the probability of getting a black ball and a white ball from it is

(A) $\frac{59}{105}$
(B) $\frac{46}{105}$
(C) $\frac{59}{210}$
(D) $\frac{67}{210}$

Answer: (A) $\frac{59}{105}$ · The council's preliminary key

Q58 AP EAPCET 2026 · 12 May · Shift 2 MCQ

If two cards are drawn at a time at random from a well shuffled pack of 52 playing cards and they are found to be a king card and a card with prime number, then the probability that they are a black king

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card and a card with an odd prime number is

(A) $\frac{32}{663}$
(B) $\frac{12}{663}$
(C) $\frac{3}{8}$
(D) $\frac{5}{8}$

Answer: (C) $\frac{3}{8}$ · The council's preliminary key

Q59 AP EAPCET 2026 · 12 May · Shift 2 MCQ

A random variable X has the following probability distribution

$X = x_i$	1	2	4	7
$P(X = x_i)$	k	2k	2k	k

Then the variance of X is

(A) $\frac{23}{3}$
(B) $\frac{37}{9}$
(C) $\frac{35}{9}$
(D) $\frac{29}{3}$

Answer: (C) $\frac{35}{9}$ · The council's preliminary key

Q60 AP EAPCET 2026 · 12 May · Shift 2 MCQ

If the average number of accidents at a particular dangerous turn on a national highway is 2 per month, then the probability that there will at least one accident in a certain month is

(A) $\frac{3}{e^2}$
(B) $\frac{e^2-1}{e^2}$
(C) $\frac{e^2-3}{e^2}$
(D) $\frac{5}{e^2}$

Answer: (B) $\frac{e^2-1}{e^2}$ · The council's preliminary key

Q61 TS EAPCET 2026 · 11 May · Shift 1 MCQ

If A and B are any two events of a random experiment, then $P\left[(A \cap B^C) \cup (A^C \cap B) \cup (A \cap B)\right] =$

(A) $P(A) + P(B)$
(B) $P(A^C \cup B^C)$
(C) $1 - P(A \cup B)$
(D) $P(A \cup B)$

Answer: (D) $P(A \cup B)$ · The council's preliminary key

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Q62 TS EAPCET 2026 · 11 May · Shift 1 MCQ

If two cards are drawn at a time from a well shuffled pack of 52 cards, then the probability of getting a result containing only one king and only one spade card is

(A) $\frac{8}{221}$
(B) $\frac{49}{1326}$
(C) $\frac{12}{221}$
(D) $\frac{1}{26}$

Answer: (C) $\frac{12}{221}$ · The council's preliminary key

Q63 TS EAPCET 2026 · 11 May · Shift 1 MCQ

Bag A contains 3 red and 5 black balls, bag B contains 5 red and 3 black balls and bag C contains 4 red and 4 black balls. A bag is chosen randomly and a ball is drawn randomly from the bag. If the ball drawn is found to be black, then the probability that it is drawn from bag B is

(A) $\frac{7}{12}$
(B) $\frac{1}{4}$
(C) $\frac{5}{12}$
(D) $\frac{1}{3}$

Answer: (B) $\frac{1}{4}$ · The council's preliminary key

Q64 TS EAPCET 2026 · 11 May · Shift 1 MCQ

The probability distribution of a random variable X is given below. If V is the variance of X, then $k + V =$

$X = x_i$	2	3	5	7
$P(X = x_i)$	$4k$	$3k$	$2k$	k

(A) 2.84
(B) 2.64
(C) 2.74
(D) 3.40

Answer: (C) 2.74 · Checked by our team

Q65 TS EAPCET 2026 · 11 May · Shift 1 MCQ

If the mean and variance of a binomial distribution are $\frac{10}{3}$ and $\frac{10}{9}$ respectively, then the probability of having atleast one success is

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(A) $\frac{232}{243}$
(B) $\frac{242}{243}$
(C) $\frac{1}{243}$
(D) $\frac{11}{243}$

Answer: (B) $\frac{242}{243}$ · The council's preliminary key

Q66 TS EAPCET 2026 · 11 May · Shift 2 MCQ

Let $A = \{1, 2, 3, 4, \ldots, 20\}$. If three distinct elements are drawn from the set A at random, then the probability that the three numbers drawn are in increasing G.P. with common ratio as a non integral rational value is

(A) $\frac{2}{255}$
(B) $\frac{3}{20}$
(C) $\frac{1}{380}$
(D) $\frac{2}{19}$

Answer: (C) $\frac{1}{380}$ · The council's preliminary key

Q67 TS EAPCET 2026 · 11 May · Shift 2 MCQ

A pack of cards has one card missing. Two cards are drawn randomly and are found to be spade cards. The probability that the missing card is not a spade card is

(A) $\frac{39}{50}$
(B) $\frac{52}{867}$
(C) $\frac{3}{4}$
(D) $\frac{22}{425}$

Answer: (A) $\frac{39}{50}$ · The council's preliminary key

Q68 TS EAPCET 2026 · 11 May · Shift 2 MCQ

Let E and F be two events such that $P(\overline{E}) = \frac{1}{3}$, $P(E \cap F) = \frac{1}{3}$, $P(\overline{E \cup F}) = \frac{1}{6}$. Which of the following is correct?

(A) E and F are not equally likely but independent
(B) E and F are mutually exclusive and independent
(C) E and F are equally likely but not independent
(D) E and F are independent and equally likely

Answer: (A) E and F are not equally likely but independent · The council's preliminary key

Q69 TS EAPCET 2026 · 11 May · Shift 2 MCQ

Let X be a discrete random variable. If $P(X = r) = \frac{3}{7}a^r$, $r = 0, 1, 2, \ldots, \infty$ and $0 < a < 1$, then $a.P(X = 2) =$

(A) $P(X=1)$
(B) $\frac{3}{7}P(X=2)$
(C) $P(X=3)$
(D) $\frac{4}{7}P(X=1)$

Answer: (C) $P(X=3)$ · The council's preliminary key

Q70 TS EAPCET 2026 · 11 May · Shift 2 MCQ

Which of the following is not the correct data of a binomial distribution?

(A) Mean 6, variance 2
(B) Mean 16, variance 12
(C) Mean 20, variance 16
(D) Mean 15, variance 5

Answer: (D) Mean 15, variance 5 · The council's preliminary key

Q71 TS EAPCET 2026 · 10 May · Shift 1 MCQ

Two persons A and B are playing a game of rolling 2 dice alternately. The person who first gets the sum of the numbers appeared on the dice as a prime number will win the game. If A starts the game, then the probability of B to win the game is

(A) $\frac{12}{19}$
(B) $\frac{5}{19}$
(C) $\frac{7}{19}$
(D) $\frac{14}{19}$

Answer: (C) $\frac{7}{19}$ · The council's preliminary key

Q72 TS EAPCET 2026 · 10 May · Shift 1 MCQ

Three persons A, B, C planned to have a running race among themselves. If the probability that A wins the race is thrice that of B and the probability that B wins the race is $\frac{3}{2}$ times that of C, then the difference in probabilities of A and C to win the race is

(A) $\frac{2}{3}$
(B) $\frac{1}{2}$
(C) $\frac{5}{14}$
(D) $\frac{3}{7}$

Answer: (B) $\frac{1}{2}$ · The council's preliminary key

Q73 TS EAPCET 2026 · 10 May · Shift 1 MCQ

A dealer bought a fixed number of laptops from 3 different companies A, B and C. Among these laptops 28% are bought from A, 32% are bought from B and 40% are bought from C. 2.5% of laptops

bought from A, 1.5% bought from B and 1% bought from C are likely to be defective. If a customer found that the laptop bought by him is defective, then the probability that it was from B is

(A) $\frac{12}{39}$
(B) $\frac{49}{158}$
(C) $\frac{17}{78}$
(D) $\frac{24}{79}$

Answer: (D) $\frac{24}{79}$ · The council's preliminary key

Q74 TS EAPCET 2026 · 10 May · Shift 1 MCQ

The probability distribution of a random variable X is given below. Then the mean of X is

$X = x_i$	0	1	2
$P(X = x_i)$	$3k^2$	$2k^2$	$k^2 + k$

(A) $\frac{7}{9}$
(B) $\frac{5}{9}$
(C) $\frac{10}{9}$
(D) $\frac{13}{9}$

Answer: (C) $\frac{10}{9}$ · The council's preliminary key

Q75 TS EAPCET 2026 · 10 May · Shift 1 MCQ

If the difference of mean and variance of a binomial distribution $B(n, p)$ is $\frac{4}{7}$ and their product is $\frac{20}{7}$, then $P(X = 1) =$

(A) $\left(\frac{5}{7}\right)^6$
(B) $2\left(\frac{5}{7}\right)^6$
(C) $2\left(\frac{3}{4}\right)^6$
(D) $\left(\frac{3}{4}\right)^6$

Answer: (B) $2\left(\frac{5}{7}\right)^6$ · The council's preliminary key

Q76 TS EAPCET 2026 · 10 May · Shift 2 MCQ

If 2 coins are tossed and 2 dice are thrown at a time, then the probability of getting atleast 1 head and the sum of the numbers appeared on the dice as atleast 9 is

(A) $\frac{5}{36}$
(B) $\frac{1}{6}$
(C) $\frac{1}{8}$
(D) $\frac{5}{24}$

Answer: (D) $\frac{5}{24}$ · The council's preliminary key

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Q77 TS EAPCET 2026 · 10 May · Shift 2 MCQ

A card is drawn randomly from a well shuffled pack of 52 cards. If A is the event of getting a diamond card and B is the event of getting an ace card, then the probability that exactly one of the events among A and B to occur is

(A) $\frac{15}{52}$
(B) $\frac{4}{13}$
(C) $\frac{17}{52}$
(D) $\frac{5}{13}$

Answer: (A) $\frac{15}{52}$ · The council's preliminary key

Q78 TS EAPCET 2026 · 10 May · Shift 2 MCQ

Bag A contains 4 white, 3 red and 2 black balls and bag B contains 2 white, 4 red and 3 black balls. If a bag is chosen at random and two balls are drawn at random from that bag, then the probability of drawing a white ball and a black ball is

(A) $\frac{7}{18}$
(B) $\frac{2}{9}$
(C) $\frac{7}{36}$
(D) $\frac{1}{6}$

Answer: (C) $\frac{7}{36}$ · The council's preliminary key

Q79 TS EAPCET 2026 · 10 May · Shift 2 MCQ

If the probability distribution of a random variable X is $P(X=k)=c\left(\frac{2}{7}\right)^k$, $k=0,1,2,\ldots$, then $P(X=2)=$

(A) $\frac{12}{343}$
(B) $\frac{20}{343}$
(C) $\frac{4}{35}$
(D) $\frac{4}{49}$

Answer: (B) $\frac{20}{343}$ · The council's preliminary key

Q80 TS EAPCET 2026 · 10 May · Shift 2 MCQ

If $X \sim B\left(n, \frac{1}{2}\right)$ is a binomial variate, then the minimum number of trials required so that the probability of getting at least 2 successes is at least 0.6 is

(A) 6
(B) 3
(C) 5
(D) 4

Answer: (D) 4 · The council's preliminary key

Q81 TS EAPCET 2026 · 9 May · Shift 1 MCQ

Bag A contains 5 white and 2 black balls. Bag B contains 2 white and 5 black balls. Two balls are randomly chosen from bag A and placed in bag B. Now a ball is drawn randomly from bag B and found that it is white. The probability that the two balls drawn from bag A are of different colour is

(A) $\frac{10}{21}$
(B) $\frac{10}{63}$
(C) $\frac{5}{12}$
(D) $\frac{2}{189}$

Answer: (C) $\frac{5}{12}$ · The council's preliminary key

Q82 TS EAPCET 2026 · 9 May · Shift 1 MCQ

If A, B, C are three mutually exclusive and exhaustive events such that $P(A) : P(B) : P(C) = 1 : l : m$, then $P(A \cup B) + P(B \cup C) + P(C \cup A) + P(A \cup B \cup C) =$

(A) $\frac{1}{3}$
(B) 3
(C) $\frac{3}{4}$
(D) 1

Answer: (B) 3 · The council's preliminary key

Q83 TS EAPCET 2026 · 9 May · Shift 1 MCQ

If $P(A) = \frac{3}{8}$, $P(\bar{A} \mid B) = P(\bar{B} \mid A) = \frac{3}{5}$, then $P(A \cap B) + P(B) =$

(A) $\frac{21}{40}$
(B) $\frac{2}{13}$
(C) $\frac{3}{14}$
(D) $\frac{5}{12}$

Answer: (A) $\frac{21}{40}$ · The council's preliminary key

Q84 TS EAPCET 2026 · 9 May · Shift 1 MCQ

Probability for a person A to have success in one trial is $\frac{2}{5}$. In 7 Bernoulli trials, if the probability that A has k successes is to be highest probability, then $k =$

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(A) 3
(B) 4
(C) 5
(D) 7

Answer: (A) 3 · The council's preliminary key

Q85 TS EAPCET 2026 · 9 May · Shift 1 MCQ

Let p be the probability of getting a success in one trial and $0 < p < 1$. If X is the random variable which represents the number of trails until first success occurs is given by $P(X = k) = \lambda(1-p)^{k-1}$, $k = 1, 2, 3, \ldots \infty$, then $\lambda =$

(A) $1 - p$
(B) p
(C) p^2
(D) $\frac{1}{p}$

Answer: (B) p · The council's preliminary key

Q86 TS EAPCET 2026 · 9 May · Shift 2 MCQ

If a 4-digit number is chosen from a set containing all possible 4-digit numbers, then the probability of getting a four digit number having exactly three odd digits and one even digit is

(A) $\frac{2}{9}$
(B) $\frac{19}{72}$
(C) $\frac{19}{36}$
(D) $\frac{2}{19}$

Answer: (B) $\frac{19}{72}$ · The council's preliminary key

Q87 TS EAPCET 2026 · 9 May · Shift 2 MCQ

A bag A contains 3 red, 2 white and 2 black balls and another bag B contains 1 red, 2 white and 4 black balls. A die is thrown to select a bag from which a ball has to be chosen. If an odd prime number appears on the die, a ball is drawn from bag A; otherwise, a ball is drawn from bag B. With this condition, if the ball drawn is found to be black, then the probability that it is drawn from bag B is

(A) $\frac{6}{7}$
(B) $\frac{3}{7}$
(C) $\frac{1}{5}$
(D) $\frac{4}{5}$

Answer: (D) $\frac{4}{5}$ · The council's preliminary key

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Q88 TS EAPCET 2026 · 9 May · Shift 2 MCQ

If a random variable X has the following probability distribution, then the mean of X is

$X = x_i$	1	3	5	7	9
$P(X = x_i)$	$3k$	$5k$	k^2	$3k^2$	$+k$ $6k^2$

(A) 9.6
(B) 8.4
(C) 10.2
(D) 3.3

Answer: (D) 3.3 · The council's preliminary key

Q89 TS EAPCET 2026 · 9 May · Shift 2 MCQ

In a Poisson distribution with parameter λ, if $5P(X = 3) = P(X = 5)$, then $P(X = 2) =$

(A) $\frac{25}{e^5}$
(B) $\frac{50}{e^{10}}$
(C) $\frac{30}{e^6}$
(D) $\frac{40}{e^8}$

Answer: (B) $\frac{50}{e^{10}}$ · The council's preliminary key

Q90 AP EAPCET 2025 · 27 May · Shift 1 MCQ

Two students appeared simultaneously for an entrance exam. If the probability that the first student gets qualified in the exam is $\frac{1}{4}$ and the probability that the second student gets qualified in the same exam is $\frac{2}{5}$, then the probability that atleast one of them gets qualified in that exam is

(A) $\frac{1}{10}$
(B) $\frac{7}{20}$
(C) $\frac{6}{10}$
(D) $\frac{11}{20}$

Answer: (D) $\frac{11}{20}$ · The council's preliminary key

Q91 AP EAPCET 2025 · 27 May · Shift 1 MCQ

For three events A, B and C of a sample space, P(exactly one of A or B occurs) = P(exactly one of B or C occurs) = P(exactly one of C or A occurs) $= \frac{1}{4}$. If probability of all the three events occuring simultaneously is $\frac{1}{16}$, then the probability that atleast one of the events occur is

(A) $\frac{3}{16}$
(B) $\frac{5}{16}$
(C) $\frac{7}{16}$
(D) $\frac{7}{32}$

Answer: (C) $\frac{7}{16}$ · The council's preliminary key

Q92 AP EAPCET 2025 · 27 May · Shift 1 MCQ

A bag P contains 4 red and 5 black balls, another bag Q contains 3 red and 6 black balls. If one ball is drawn at random from bag P and two balls are drawn from bag Q, then the probability that out of the three balls drawn two are black and one is red, is

(A) $\frac{25}{54}$
(B) $\frac{25}{64}$
(C) $\frac{27}{64}$
(D) $\frac{35}{54}$

Answer: (A) $\frac{25}{54}$ · The council's preliminary key

Q93 AP EAPCET 2025 · 27 May · Shift 1 MCQ

On every evening, a student either watches TV or reads a book. The probability of watching TV is $\frac{4}{5}$. If he watches TV, the probability that he will fall asleep is $\frac{3}{4}$ and it is $\frac{1}{4}$ when he reads a book. If the student is found to be asleep on an evening, the probability that he watched the TV is

(A) $\frac{11}{13}$
(B) $\frac{12}{13}$
(C) $\frac{2}{13}$
(D) $\frac{4}{13}$

Answer: (B) $\frac{12}{13}$ · The council's preliminary key

Q94 AP EAPCET 2025 · 27 May · Shift 1 MCQ

Let X be the random variable taking values $1, 2, \ldots, n$ for a fixed positive integer n. If $P(X = k) = \frac{1}{n}$ for $1 \leq k \leq n$, then the variance of X is

(A) $\frac{n^2-1}{12}$
(B) $\frac{n^2+1}{12}$
(C) $\frac{n^2-1}{6}$
(D) $\frac{(n+1)(n+2)}{6}$

Answer: (A) $\frac{n^2-1}{12}$ · The council's preliminary key

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Q95 AP EAPCET 2025 · 27 May · Shift 1 MCQ

A radar system can detect an enemy plane in one out of ten consecutive scans. The probability that it can detect an enemy plane atleast twice in four consecutive scans is

(A) 0.0422
(B) 0.0523
(C) 0.0535
(D) 0.0623

Answer: (B) 0.0523 · The council's preliminary key

Q96 AP EAPCET 2025 · 26 May · Shift 1 MCQ

All possible words (with or without meaning) are formed by taking atleast 2 letters (all different) from the letters of the word 'CURVE'. If a word is chosen at random from all the words thus formed, then the probability of getting a 3 letter word is

(A) $\frac{1}{16}$
(B) $\frac{3}{8}$
(C) $\frac{1}{4}$
(D) $\frac{3}{16}$

Answer: (D) $\frac{3}{16}$ · The council's preliminary key

Q97 AP EAPCET 2025 · 26 May · Shift 1 MCQ

Three numbers are chosen from 1 to 30. The probability that they are not three consecutive numbers is

(A) $\frac{1}{145}$
(B) $\frac{142}{145}$
(C) $\frac{143}{145}$
(D) $\frac{144}{145}$

Answer: (D) $\frac{144}{145}$ · The council's preliminary key

Q98 AP EAPCET 2025 · 26 May · Shift 1 MCQ

If two events A and B are such that $P(\overline{A}) = 0.3$, $P(B) = 0.4$ and $P(A \cap \overline{B}) = 0.5$, then $P(B/(A \cup \overline{B})) =$

(A) 0.25
(B) 0.6
(C) 0.45
(D) 0.8

Answer: (A) 0.25 · The council's preliminary key

Q99 AP EAPCET 2025 · 26 May · Shift 1 MCQ

Two candidates A and B have attended an interview conducted by a recruitment board for two jobs. If the probability that canditate A will get the job is 0.8 and the probability that candidate B will get the job is 0.7, then the probability that atleast one of them will get the job is

(A) 0.96
(B) 0.94
(C) 0.92
(D) 0.9

Answer: (B) 0.94 · The council's preliminary key

Q100 AP EAPCET 2025 · 26 May · Shift 1 MCQ

X denotes the number of times heads that occur in n tosses of a fair coin. If $P(X=4)$, $P(X=5)$ and $P(X=6)$ are in arithmetic progression, the largest value of n is

(A) 7
(B) 14
(C) 21
(D) 28

Answer: (B) 14 · The council's preliminary key

Q101 AP EAPCET 2025 · 26 May · Shift 1 MCQ

The probability distribution of a random variable X is as follows. Then the mean of X is

$X=x_i$	-2	-1	0	1	2
$P(X=x_i)$	$k^2/3$	k^2	$2k^2/3$	$k/2$	$k/2$

(A) $\frac{1}{3}$
(B) $\frac{1}{5}$
(C) $\frac{11}{2}$
(D) $\frac{13}{2}$

Answer: (A) $\frac{1}{3}$ · The council's preliminary key

Q102 AP EAPCET 2025 · 26 May · Shift 2 MCQ

A company representative is distributing 5 identical samples of a product among 12 houses in a row such that each house gets at most one sample. The probability that no two consecutive houses get one sample is

(A) $\frac{7}{99}$
(B) $\frac{5}{12}$
(C) $\frac{4}{13}$
(D) $\frac{5}{31}$

Answer: (A) $\frac{7}{99}$ · The council's preliminary key

Q103 AP EAPCET 2025 · 26 May · Shift 2 MCQ

A and B are two independent events of a random experiment and $P(A) > P(B)$. If the probability that both A and B occur is $\frac{1}{6}$ and neither of them occurs is $\frac{1}{3}$, then the probability of the occurance of B is

(A) $\frac{1}{4}$
(B) $\frac{1}{3}$
(C) $\frac{1}{2}$
(D) $\frac{3}{8}$

Answer: (B) $\frac{1}{3}$ · The council's preliminary key

Q104 AP EAPCET 2025 · 26 May · Shift 2 MCQ

Two dice are thrown and the sum of the numbers appeared on the dice is noted. If A is the event of getting a prime number as their sum and B is the event of getting a number greater than 8 as their sum, then $P(A \cap \overline{B}) =$

(A) $\frac{1}{4}$
(B) $\frac{13}{36}$
(C) $\frac{2}{9}$
(D) $\frac{5}{18}$

Answer: (B) $\frac{13}{36}$ · The council's preliminary key

Q105 AP EAPCET 2025 · 26 May · Shift 2 MCQ

A family consists of 8 persons. If 4 persons are chosen at random and they are found to be 2 men and 2 women, then the probability that there are equal number of men and women in that family is

(A) $\frac{1}{5}$
(B) $\frac{3}{7}$
(C) $\frac{2}{5}$
(D) $\frac{2}{7}$

Answer: (D) $\frac{2}{7}$ · The council's preliminary key

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Q106 AP EAPCET 2025 · 26 May · Shift 2 MCQ

The number of trials conducted in a binomial distribution is 6. If the difference between the mean and variance of this variate is $\frac{27}{8}$, then the probability of getting atmost 2 successes is

(A) $\frac{106}{4^6}$
(B) $\frac{144}{4^6}$
(C) $\frac{126}{4^6}$
(D) $\frac{154}{4^6}$

Answer: (D) $\frac{154}{4^6}$ · The council's preliminary key

Q107 AP EAPCET 2025 · 26 May · Shift 2 MCQ

Let $X \sim B(n, p)$ with mean μ and variance σ^2. If $\mu = 2\sigma^2$ and $\mu + \sigma^2 = 3$, then $P(X \leq 3) =$

(A) $\frac{40}{49}$
(B) $\frac{40}{43}$
(C) $\frac{100}{101}$
(D) $\frac{15}{16}$

Answer: (D) $\frac{15}{16}$ · The council's preliminary key

Q108 AP EAPCET 2025 · 24 May · Shift 1 MCQ

A basket contains 5 apples and 7 oranges and another basket contains 4 apples and 8 oranges. If one fruit is picked out at random from each basket, then the probability of getting one apple and one orange is

(A) $\frac{1}{6}$
(B) $\frac{7}{18}$
(C) $\frac{17}{36}$
(D) $\frac{19}{36}$

Answer: (C) $\frac{17}{36}$ · The council's preliminary key

Q109 AP EAPCET 2025 · 24 May · Shift 1 MCQ

Two cards are drawn from a pack of 52 playing cards one after the other without replacement. If the first card drawn is a queen, then the probability of getting a face card from a black suit in the second draw is

(A) $\frac{11}{663}$
(B) $\frac{11}{1326}$
(C) $\frac{11}{312}$
(D) $\frac{11}{156}$

Answer: (B) $\frac{11}{1326}$ · The council's preliminary key

Q110 AP EAPCET 2025 · 24 May · Shift 1 MCQ

An item is tested on a device for its defectiveness. The probability that such an item is defective is 0.3. The device gives accurate result in 8 out of 10 such tests. If the device reports that an item tested is not defective, then the probability that it is actually defective is

(A) $\frac{2}{15}$
(B) $\frac{3}{29}$
(C) $\frac{3}{31}$
(D) $\frac{4}{51}$

Answer: (C) $\frac{3}{31}$ · The council's preliminary key

Q111 AP EAPCET 2025 · 24 May · Shift 1 MCQ

In a school there are 3 sections A, B and C. Section A contains 20 girls and 30 boys, section B contains 40 girls and 20 boys and section C contains 10 girls and 30 boys. The probabilities of selecting the section A, B and C are 0.2, 0.3 and 0.5 respectivley. If a student selected at random from the school is a girl, then the probability that she belongs to section A is

(A) $\frac{121}{200}$
(B) $\frac{16}{121}$
(C) $\frac{14}{81}$
(D) $\frac{16}{81}$

Answer: (D) $\frac{16}{81}$ · The council's preliminary key

Q112 AP EAPCET 2025 · 24 May · Shift 1 MCQ

If the probability distribution of a random variable X is as follows, then the mean of X is

$X = x_i$	-1	0	1	2
$P(X = x_i)$	k^3	$2k^3 + k$	$4k - 10k^2$	$4k - 1$

(A) $\frac{193}{27}$
(B) $\frac{25}{27}$
(C) $\frac{23}{27}$
(D) $\frac{83}{27}$

Answer: (C) $\frac{23}{27}$ · The council's preliminary key

Q113 AP EAPCET 2025 · 24 May · Shift 1 MCQ

If X is a binomial variate with mean $\frac{16}{5}$ and variance $\frac{48}{25}$, then $P(X \leq 2) =$

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(A) $\frac{3^6(169)}{5^8}$
(B) $\frac{3^7(71)}{5^8}$
(C) $\frac{3^8}{(43)5^8}$
(D) $\frac{3^6(158)}{5^8}$

Answer: (A) $\frac{3^6(169)}{5^8}$ · The council's preliminary key

Q114 AP EAPCET 2025 · 23 May · Shift 1 MCQ

If 3 squares are chosen at random from the 64 squares of a chess board, then the probability that all of them lie along the same diagonal line is

(A) $\frac{21}{764}$
(B) $\frac{14}{745}$
(C) $\frac{7}{744}$
(D) $\frac{7}{736}$

Answer: (C) $\frac{7}{744}$ · The council's preliminary key

Q115 AP EAPCET 2025 · 23 May · Shift 1 MCQ

Three letters are chosen at random from the letters of the word VARIABLE and all possible three letter words (with or without meaning) are formed with them. Then the probability of getting a three letter word having a consonent as its middle letter is

(A) $\frac{22}{57}$
(B) $\frac{21}{28}$
(C) $\frac{43}{57}$
(D) $\frac{31}{57}$

Answer: (D) $\frac{31}{57}$ · The council's preliminary key

Q116 AP EAPCET 2025 · 23 May · Shift 1 MCQ

In a shoe rack there are 4 pairs of shoes and 4 shoes are drawn one after the other at random without replacement. Then the probability of getting atleast one correct pair of shoes among the four shoes drawn is

(A) $\frac{8}{35}$
(B) $\frac{27}{35}$
(C) $\frac{1679}{1680}$
(D) $\frac{1}{1680}$

Answer: (B) $\frac{27}{35}$ · The council's preliminary key

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Q117 AP EAPCET 2025 · 23 May · Shift 1 MCQ

A rational number is selected at random from the distinct rational numbers of the form p/q formed with p and q belonging to the set $\{1, 2, 3, 4, 5, 6\}$. The probability that the rational number selected is a proper fraction, is

(A) $\frac{1}{2}$
(B) $\frac{5}{6}$
(C) $\frac{11}{23}$
(D) $\frac{13}{35}$

Answer: (C) $\frac{11}{23}$ · The council's preliminary key

Q118 AP EAPCET 2025 · 23 May · Shift 1 MCQ

The probability distribution of a discrete random variable X is given below

$X = x$	-1	0	1	2
$P(X = x)$	$\frac{1}{3}$	$\frac{1}{6}$	$\frac{1}{6}$	$\frac{1}{3}$

Then the value of $6\,\Sigma(x^2)\,P(X = x) - \mathrm{var}(X) =$

(A) $\frac{113}{12}$
(B) $\frac{151}{12}$
(C) $\frac{19}{12}$
(D) $\frac{1}{2}$

Answer: (A) $\frac{113}{12}$ · The council's preliminary key

Q119 AP EAPCET 2025 · 23 May · Shift 1 MCQ

If the average number of accidents occuring at a particular junction on a highway in a week is 5, then the probability that atmost one accident occurs in a particular week is

(A) $\frac{25}{e^4}$
(B) $\frac{24}{e^4}$
(C) $\frac{121}{e^5}$
(D) $\frac{6}{e^5}$

Answer: (D) $\frac{6}{e^5}$ · The council's preliminary key

Q120 AP EAPCET 2025 · 23 May · Shift 2 MCQ

There are 8 boys and 7 girls in a class room. If the names of all those children are written on paper slips and 3 slips are drawn at random from them, then the probability of getting the names of one boy and two girls or one girl and two boys is

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(A) $\frac{1}{5}$
(B) $\frac{3}{4}$
(C) $\frac{4}{5}$
(D) $\frac{1}{4}$

Answer: (C) $\frac{4}{5}$ · The council's preliminary key

Q121 AP EAPCET 2025 · 23 May · Shift 2 MCQ

A four member committee is to be formed from a group containing 9 men and 5 women. If a committee is formed randomly, then the probability that it contains atleast one woman is

(A) $\frac{125}{143}$
(B) $\frac{18}{143}$
(C) $\frac{60}{143}$
(D) $\frac{65}{143}$

Answer: (A) $\frac{125}{143}$ · The council's preliminary key

Q122 AP EAPCET 2025 · 23 May · Shift 2 MCQ

A die is thrown twice. Let A be the event of getting a prime number when the die is thrown first time and B be the event of getting an even number when the die is thrown second time. Then $P(A/\overline{B}) =$

(A) $\frac{1}{2}$
(B) $\frac{2}{3}$
(C) $\frac{1}{5}$
(D) $\frac{3}{5}$

Answer: (A) $\frac{1}{2}$ · The council's preliminary key

Q123 AP EAPCET 2025 · 23 May · Shift 2 MCQ

A bag contains 5 balls of unknown colours. There are equal chances that out of these five balls, there may be 0 or 1 or 2 or 3 or 4 or 5 red balls. A ball is taken out from the bag at random and is found to be red. The probability that it is the only red ball in the bag is

(A) $\frac{1}{5}$
(B) $\frac{1}{6}$
(C) $\frac{1}{15}$
(D) $\frac{1}{30}$

Answer: (C) $\frac{1}{15}$ · The council's preliminary key

Q124 AP EAPCET 2025 · 23 May · Shift 2 MCQ

If $X \sim B(9, p)$ is a binomial variate satisfying the equation $P(x = 3) = P(x = 6)$, then $P(x < 3) =$

(A) $\frac{23}{256}$
(B) $\frac{65}{256}$
(C) $\frac{5}{256}$
(D) $\frac{45}{512}$

Answer: (A) $\frac{23}{256}$ · The council's preliminary key

Q125 AP EAPCET 2025 · 23 May · Shift 2 MCQ

The mean and variance of a binomial distrbution are x and 5 respectively. If x is an integer, then the possible values for x are

(A) 6, 10, 30
(B) 8, 12, 28
(C) 10, 15, 25
(D) 9, 18, 24

Answer: (A) 6, 10, 30 · The council's preliminary key

Q126 AP EAPCET 2025 · 22 May · Shift 1 MCQ

The probability that a person A completes a work in a given time is $\frac{2}{3}$ and the probability that another person B completes the same work in the same time is $\frac{3}{4}$. If both A and B start doing this work at the same time, then the probability that the work is completed in the given time is

(A) $\frac{11}{12}$
(B) $\frac{1}{2}$
(C) $\frac{5}{12}$
(D) $\frac{8}{9}$

Answer: (A) $\frac{11}{12}$ · The council's preliminary key

Q127 AP EAPCET 2025 · 22 May · Shift 1 MCQ

If l, m represent any two elements (identical or different) of the set $\{1, 2, 3, 4, 5, 6, 7\}$, then the probability that $lx^2 + mx + 1 > 0\ \forall x \in R$ is

(A) $\frac{12}{{}^7C_2}$
(B) $\frac{22}{7^2}$
(C) $\frac{10}{{}^7C_2}$
(D) $\frac{36}{7^2}$

Answer: (B) $\frac{22}{7^2}$ · The council's preliminary key

Q128 AP EAPCET 2025 · 22 May · Shift 1 MCQ

A and B are playing chess game with each other. The probability that A wins the game is 0.6, the probability that he loses is 0.3 and the probability its draw is 0.1. If they played three games, then the probability that A wins atleast two games is

(A) $\frac{54}{125}$
(B) $\frac{81}{125}$
(C) $\frac{18}{25}$
(D) $\frac{9}{25}$

Answer: (B) $\frac{81}{125}$ · The council's preliminary key

Q129 AP EAPCET 2025 · 22 May · Shift 1 MCQ

U_1, U_2, U_3 are three urns. U_1 contains 5 red, 3 white, 2 back balls; U_2 contains 4 red, 4 white, 2 black balls and U_3 contains 3 red, 4 white, 3 black balls. If a ball is chosen at random from an urn chosen at random, then the probability of not getting a black ball is

(A) $\frac{7}{30}$
(B) $\frac{23}{30}$
(C) $\frac{2}{5}$
(D) $\frac{11}{30}$

Answer: (B) $\frac{23}{30}$ · The council's preliminary key

Q130 AP EAPCET 2025 · 22 May · Shift 1 MCQ

If the probability distribution of a random variable X is as follows, then $P(x \leq 2) =$

x_i	0	1	2	3	4
$P(X = x_i)$	$3k$	$5k$	$3k^2$	$4k^2 + k$	$3k^2$

(A) $\frac{14}{25}$
(B) $\frac{23}{32}$
(C) $\frac{41}{49}$
(D) $\frac{83}{100}$

Answer: (D) $\frac{83}{100}$ · The council's preliminary key

Q131 AP EAPCET 2025 · 22 May · Shift 1 MCQ

If X follows Poisson distribution with variance 2, then $P(X \geq 3) =$

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(A) $\frac{5}{e^2}$
(B) $5+\frac{2}{e^2}$
(C) $\frac{e^2-5}{e^2}$
(D) $\frac{5-e^2}{4}$

Answer: (C) $\frac{e^2-5}{e^2}$ · The council's preliminary key

Q132 AP EAPCET 2025 · 22 May · Shift 2 MCQ

An unbiased coin is tossed 8 times. The probability that head appears consecutively at least 5 times is

(A) $\frac{5}{256}$
(B) $\frac{5}{128}$
(C) $\frac{5}{64}$
(D) $\frac{5}{32}$

Answer: (C) $\frac{5}{64}$ · Checked by our team

Q133 AP EAPCET 2025 · 22 May · Shift 2 MCQ

A box contains twelve balls of which 4 are red, 5 are green and 3 are white. If three balls are drawn at random simultaneously from the box, then the probability that exactly 2 balls have the same colour is

(A) $\frac{27}{44}$
(B) $\frac{29}{44}$
(C) $\frac{17}{22}$
(D) $\frac{31}{44}$

Answer: (B) $\frac{29}{44}$ · The council's preliminary key

Q134 AP EAPCET 2025 · 22 May · Shift 2 MCQ

There are three families F_1, F_2, F_3. F_1 has 2 boys and 1 girl; F_2 has 1 boy and 2 girls; F_3 has 1 boy and 1 girl. A family is randomly chosen and a child is chosen from that family randomly. If it is known that the child thus selected is a girl, then the probability that she is from F_2 is

(A) $\frac{4}{9}$
(B) $\frac{2}{9}$
(C) $\frac{3}{7}$
(D) $\frac{5}{7}$

Answer: (A) $\frac{4}{9}$ · The council's preliminary key

Q135 AP EAPCET 2025 · 22 May · Shift 2 MCQ

An urn A contains 4 white and 1 black ball; urn B contains 3 white and 2 black balls and urn C contains 2 white and 3 black balls. One ball is transferred randomly from A to B; later one ball is transferred

randomly from B to C. Finally, if a ball is drawn randomly from C, then the probability that it is a black ball is

(A) $\frac{7}{12}$
(B) $\frac{89}{180}$
(C) $\frac{101}{180}$
(D) $\frac{17}{36}$

Answer: (C) $\frac{101}{180}$ · The council's preliminary key

Q136 AP EAPCET 2025 · 22 May · Shift 2 MCQ

If the probability distribution of a discrete random variable X is given by $P(X=k)=\frac{2^{-k}(3k+1)}{2^c}$, $k=0,1,2,\ldots\infty$ then $P(X\leq c)=$

(A) $\frac{c}{5}$
(B) $\frac{c}{4}$
(C) $\frac{c+2}{5}$
(D) $\frac{c-2}{7}$

Answer: (B) $\frac{c}{4}$ · The council's preliminary key

Q137 AP EAPCET 2025 · 22 May · Shift 2 MCQ

In a binomial distribution, if $n=4$ and $P(X=0)=\frac{16}{81}$, then $P(X=4)=$

(A) $\frac{1}{8}$
(B) $\frac{1}{27}$
(C) $\frac{1}{16}$
(D) $\frac{1}{81}$

Answer: (D) $\frac{1}{81}$ · The council's preliminary key

Q138 AP EAPCET 2025 · 21 May · Shift 1 MCQ

If A and B are events of a random experiment such that $P(A\cup B)=\frac{3}{4}, P(A\cap B)=\frac{1}{4}, P(\overline{A})=\frac{2}{3}$, then $P(\overline{A}\cap B)=$

(A) $\frac{5}{8}$
(B) $\frac{5}{12}$
(C) $\frac{3}{8}$
(D) $\frac{2}{5}$

Answer: (B) $\frac{5}{12}$ · The council's preliminary key

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Q139 AP EAPCET 2025 · 21 May · Shift 1 MCQ

Two cards are drawn at random from a pack of 52 playing cards. If both the cards drawn are found to be black in colour, then the probability that atleast one of them is a face card is

(A) $\frac{3}{13}$
(B) $\frac{3}{5}$
(C) $\frac{9}{65}$
(D) $\frac{27}{65}$

Answer: (D) $\frac{27}{65}$ · The council's preliminary key

Q140 AP EAPCET 2025 · 21 May · Shift 1 MCQ

A person is known to speak the truth in 3 out of 4 occasions. If he throws a die and reports that it is six, then the probability that it is actually six is

(A) $\frac{3}{8}$
(B) $\frac{2}{7}$
(C) $\frac{1}{9}$
(D) $\frac{4}{5}$

Answer: (A) $\frac{3}{8}$ · The council's preliminary key

Q141 AP EAPCET 2025 · 21 May · Shift 1 MCQ

70% of the total employees of a factory are men. Among the employees of that factory, 30% of men and 15% of women are technical assistants. If an employee chosen at random is found to be a technical assistant, then the probability that this employee is a man is

(A) $\frac{9}{23}$
(B) $\frac{3}{17}$
(C) $\frac{14}{17}$
(D) $\frac{14}{23}$

Answer: (C) $\frac{14}{17}$ · The council's preliminary key

Q142 AP EAPCET 2025 · 21 May · Shift 1 MCQ

If a discrete random variable X has the probability distribution

$$P(X=x)=k\frac{2^{2x+1}}{(2x+1)!},\ x=0,1,2\ldots\infty,$$

then $k=$

(A) $\sinh 2$
(B) $\sec 2$
(C) $\operatorname{cosech} 2$
(D) $\cosh 2$

Answer: (C) $\operatorname{cosech} 2$ · The council's preliminary key

Q143 AP EAPCET 2025 · 21 May · Shift 1 MCQ

A random variable X follows a binomial distribution in which the difference between its mean and variance is 1. If $2P(x=2)=3P(x=1)$, then $n^2P(x>1)=$

(A) 13
(B) 11
(C) 15
(D) 12

Answer: (B) 11 · The council's preliminary key

Q144 AP EAPCET 2025 · 21 May · Shift 2 MCQ

Given $f(x)=x^2-5x+4$. Out of first 20 natural numbers, if a number x is chosen at random, then the probability that the chosen x satisfies the inequality $f(x)>10$ is

(A) $\frac{1}{2}$
(B) $\frac{3}{4}$
(C) $\frac{7}{10}$
(D) $\frac{13}{20}$

Answer: (C) $\frac{7}{10}$ · The council's preliminary key

Q145 AP EAPCET 2025 · 21 May · Shift 2 MCQ

A problem in Algebra is given to two students A and B whose chances of solving it are $\frac{2}{5}$ and $\frac{3}{4}$ respectively. The probability that the problem is solved if both of them try independently is

(A) $\frac{17}{20}$
(B) $\frac{3}{20}$
(C) $\frac{1}{2}$
(D) $\frac{13}{20}$

Answer: (A) $\frac{17}{20}$ · The council's preliminary key

Q146 AP EAPCET 2025 · 21 May · Shift 2 MCQ

Three dice are thrown simultaneously and the sum of the numbers appeared on them is noted. If A is the event of getting a sum greater than 14 and B is the event of getting a sum which is a multiple of 3, then $P(A\cap\overline{B})+P(\overline{A}\cap B)=$

(A) $\frac{35}{108}$
(B) $\frac{17}{54}$
(C) $\frac{45}{108}$
(D) $\frac{5}{54}$

Answer: (A) $\frac{35}{108}$ · The council's preliminary key

Q147 AP EAPCET 2025 · 21 May · Shift 2 MCQ

A manufacturing company of bulbs has 3 units A, B and C which produce 25%, 35% and 40% of the bulbs respectively. Out of the bulbs produced by A, B, C units, 5%, 4% and 2% are defective respectively. If a bulb is chosen at random and found to be defective, then the probability that it is produced by unit B is

(A) $\frac{28}{69}$
(B) $\frac{28}{71}$
(C) $\frac{29}{67}$
(D) $\frac{25}{69}$

Answer: (A) $\frac{28}{69}$ · The council's preliminary key

Q148 AP EAPCET 2025 · 21 May · Shift 2 MCQ

The probability distribution of a random variable X is given below

X	1	2	3	4	5	6
$P(X = x_i)$	α	α	α	β	β	0.3

If μ and σ^2 represent the mean and variance of X and $\mu = 4.2$, then $\sigma^2 + \mu^2 =$

(A) 20.4
(B) 10.8
(C) 16.4
(D) 21.4

Answer: (A) 20.4 · The council's preliminary key

Q149 AP EAPCET 2025 · 21 May · Shift 2 MCQ

The probability that a student gets distinction in a Mathematics test is $\frac{2}{3}$. If five such tests are conducted over a certain period of time, then the probability that he gets distinction in atleast 3 tests is

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(A) $\frac{112}{243}$
(B) $\frac{17}{81}$
(C) $\frac{131}{243}$
(D) $\frac{64}{81}$

Answer: (D) $\frac{64}{81}$ · The council's preliminary key

Q150 TS EAPCET 2025 · 4 May · Shift 1 MCQ

If two smallest squares are chosen at random on a chess board then the probability of getting these squares such that they do not have a side in common is

(A) $\frac{1}{18}$
(B) $\frac{5}{36}$
(C) $\frac{17}{18}$
(D) $\frac{7}{36}$

Answer: (C) $\frac{17}{18}$ · The council's preliminary key

Q151 TS EAPCET 2025 · 4 May · Shift 1 MCQ

Let A and B be two events in a random experiment. If $P(A \cap \bar{B}) = 0.1$, $P(\bar{A} \cap B) = 0.2$ and $P(B) = 0.5$, then $P(\bar{A} \cap \bar{B}) =$

(A) 0.6
(B) 0.5
(C) 0.4
(D) 0.3

Answer: (C) 0.4 · The council's preliminary key

Q152 TS EAPCET 2025 · 4 May · Shift 1 MCQ

An urn contains 7 red, 5 white and 3 black balls. Three balls are drawn randomly one after the other without replacement. If it is known that first ball drawn is red and the second ball drawn is white, then the probability that the third ball drawn is not red is

(A) $\frac{10}{13}$
(B) $\frac{8}{13}$
(C) $\frac{12}{13}$
(D) $\frac{7}{13}$

Answer: (D) $\frac{7}{13}$ · The council's preliminary key

Q153 TS EAPCET 2025 · 4 May · Shift 1 MCQ

The range of a discrete random variable X is $\{1, 2, 3\}$ and the probabilities of its elements are given by $P(X = 1) = 3k^3$, $P(X = 2) = 2k^2$ and $P(X = 3) = 7 - 19k$. Then $P(X = 3) =$

(A) $\frac{2}{3}$
(B) $\frac{2}{9}$
(C) $\frac{1}{9}$
(D) $\frac{4}{9}$

Answer: (A) $\frac{2}{3}$ · The council's preliminary key

Q154 TS EAPCET 2025 · 4 May · Shift 1 MCQ

Among every 8 units of a product, one is likely to be defective. If a consumer has ordered 5 units of that product, then the probability that atmost one unit is defective among them is

(A) $\frac{15}{8}\left(\frac{7}{8}\right)^6$
(B) $\frac{57}{8^8}$
(C) $\frac{36}{8^5}$
(D) $\frac{3}{2}\left(\frac{7}{8}\right)^4$

Answer: (D) $\frac{3}{2}\left(\frac{7}{8}\right)^4$ · The council's preliminary key

Q155 TS EAPCET 2025 · 4 May · Shift 2 MCQ

Functions are formed from the set $A=\{a_1,a_2,a_3\}$ to another set $B=\{b_1,b_2,b_3,b_4,b_5\}$. If a function is selected at random, the probability that it is a one-one function is

(A) $\frac{1}{2}$
(B) $\frac{13}{25}$
(C) $\frac{3}{5}$
(D) $\frac{12}{25}$

Answer: (D) $\frac{12}{25}$ · The council's preliminary key

Q156 TS EAPCET 2025 · 4 May · Shift 2 MCQ

A and B are two events of a random experiment such that $P(B)=0.4$, $P(A\cap\bar{B})=0.5$, $P(A\cup B)+P\left(\frac{B}{A\cup\bar{B}}\right)=1.15$, then $P(A)=$

(A) 0.9
(B) 0.8
(C) 0.7
(D) 0.25

Answer: (C) 0.7 · The council's preliminary key

Q157 TS EAPCET 2025 · 4 May · Shift 2 MCQ

There are two boxes each containing 10 balls. In each box, few of them are black balls and rest are white. A ball is drawn at random from one of the boxes and found that it is black. If the probability that the black ball drawn is from the second box is $\frac{1}{5}$, then number of black balls in the first box is

(A) 5 or 10
(B) 2 or 7
(C) 4 or 8
(D) 3 or 6 or 9

Answer: (C) 4 or 8 · The council's preliminary key

Q158 TS EAPCET 2025 · 4 May · Shift 2 MCQ

In a shelf there are three mathematics and two physics books. A student takes a book randomly. If he randomly takes, successively for three times by replacing the book already taken every time, then the mean of the number of mathematics books which is treated as random variable is

(A) $\frac{3}{2}$
(B) $\frac{129}{125}$
(C) $\frac{9}{5}$
(D) $\frac{174}{125}$

Answer: (C) $\frac{9}{5}$ · The council's preliminary key

Q159 TS EAPCET 2025 · 4 May · Shift 2 MCQ

In a Poisson distribution, if $\frac{P(X=5)}{P(X=2)} = \frac{1}{7500}$ and $\frac{P(X=5)}{P(X=3)} = \frac{1}{500}$, then the mean of the distribution is

(A) $\frac{1}{15}$
(B) $\frac{1}{5}$
(C) $\frac{1}{25}$
(D) $\frac{1}{3}$

Answer: (B) $\frac{1}{5}$ · The council's preliminary key

Q160 TS EAPCET 2025 · 3 May · Shift 1 MCQ

If a number x is drawn randomly from the set of numbers $\{1, 2, 3, ..., 50\}$, then the probability that number x that is drawn satisfies the inequation $x + \frac{10}{x} \leq 11$ is

(A) $\frac{4}{5}$
(B) $\frac{9}{50}$
(C) $\frac{4}{25}$
(D) $\frac{1}{5}$

Answer: (D) $\frac{1}{5}$ · The council's preliminary key

Q161 TS EAPCET 2025 · 3 May · Shift 1 MCQ

If a coin is tossed seven times, then the probability of getting exactly three heads such that no two heads occur consecutively is

(A) $\frac{5}{64}$
(B) $\frac{5}{32}$
(C) $\frac{5}{128}$
(D) $\frac{35}{128}$

Answer: (A) $\frac{5}{64}$ · The council's preliminary key

Q162 TS EAPCET 2025 · 3 May · Shift 1 MCQ

Two cards are drawn randomly from a pack of 52 playing cards one after the other with replacement. If A is the event of drawing a face card in first draw and B is the event of drawing a clubs card in second draw, then $P\left(\frac{\overline{B}}{A}\right) =$

(A) $\frac{11}{12}$
(B) $\frac{12}{13}$
(C) $\frac{3}{4}$
(D) $\frac{1}{4}$

Answer: (C) $\frac{3}{4}$ · The council's preliminary key

Q163 TS EAPCET 2025 · 3 May · Shift 1 MCQ

If X is a random variable with probability distribution $P(X=k)=\frac{(2k+3)c}{3^k}$, $k=0,1,2,\ldots,$ to ∞, then $P(X=3) =$

(A) $\frac{1}{24}$
(B) $\frac{1}{18}$
(C) $\frac{1}{6}$
(D) $\frac{1}{3}$

Answer: (B) $\frac{1}{18}$ · The council's preliminary key

Q164 TS EAPCET 2025 · 3 May · Shift 1 MCQ

If a Poisson variate X satisfies the relation $P(X=3)=P(X=5)$, then $P(X=4) =$

(A) $\frac{50}{3e^{\sqrt{20}}}$
(B) $\frac{20000}{3e^{20}}$
(C) $\frac{125}{3e^{10}}$
(D) $\frac{25}{3e^{\sqrt{20}}}$

Answer: (A) $\frac{50}{3e^{\sqrt{20}}}$ · The council's preliminary key

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Q165 TS EAPCET 2025 · 3 May · Shift 2 MCQ

Out of the given 25 consecutive positive integers, three integers are drawn. If the least integer among given 25 integers is an odd number, then the probability that the sum of the three integers drawn is an even number is

(A) $\frac{289}{575}$
(B) $\frac{286}{575}$
(C) $\frac{288}{575}$
(D) $\frac{287}{575}$

Answer: (A) $\frac{289}{575}$ · The council's preliminary key

Q166 TS EAPCET 2025 · 3 May · Shift 2 MCQ

If three dice are thrown at a time, then the probability of getting the sum of the numbers on them as a prime number is

(A) $\frac{3}{8}$
(B) $\frac{73}{216}$
(C) $\frac{4}{27}$
(D) $\frac{5}{54}$

Answer: (B) $\frac{73}{216}$ · The council's preliminary key

Q167 TS EAPCET 2025 · 3 May · Shift 2 MCQ

Three companies C1, C2, C3 produce car tyres. A car manufacturing company buys 40% of its requirement from C1, 35% from C2 and 25% from C3. The company knows that 2% of the tyres supplied by C1, 3% by C2 and 4% by C3 are defective. If a tyre chosen at random from the consignment received is found defective then the probability that it was supplied by C2 is

(A) $\frac{7}{19}$
(B) $\frac{12}{19}$
(C) $\frac{10}{57}$
(D) $\frac{26}{57}$

Answer: (A) $\frac{7}{19}$ · The council's preliminary key

Q168 TS EAPCET 2025 · 3 May · Shift 2 MCQ

The probability distribution of a random variable X is given below. Then, the standard deviation of X is

$X = x_i$	**2**	**3**	**5**	**7**	**12**
$P(X = x_i)$	3k	k	k	2k	k

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(A) 5
(B) 11
(C) $\sqrt{11}$
(D) $\sqrt{5}$

Answer: (C) $\sqrt{11}$ · The council's preliminary key

Q169 TS EAPCET 2025 · 3 May · Shift 2 MCQ

If the mean and variance of a binomial distribution are $\frac{4}{3}$ and $\frac{10}{9}$ respectively, then $P(X \geq 6) =$

(A) $\frac{41}{6^8}$
(B) $\frac{741}{6^8}$
(C) $1 - \frac{741}{6^8}$
(D) $1 - \frac{41}{6^8}$

Answer: (B) $\frac{741}{6^8}$ · The council's preliminary key

Q170 TS EAPCET 2025 · 2 May · Shift 1 MCQ

If three smallest squares are chosen at random on a chess board then the probability of getting them in such a way that they are all together in a row or in a column is

(A) $\frac{73}{5208}$
(B) $\frac{1}{434}$
(C) $\frac{96}{217}$
(D) $\frac{479}{504}$

Answer: (B) $\frac{1}{434}$ · The council's preliminary key

Q171 TS EAPCET 2025 · 2 May · Shift 1 MCQ

If three cards are drawn randomly from a pack of 52 playing cards then the probability of getting exactly one spade card, exactly one king and exactly one card having a prime number is

(A) $\frac{72}{221}$
(B) $\frac{72}{5525}$
(C) $\frac{16}{425}$
(D) $\frac{144}{5525}$

Answer: (B) $\frac{72}{5525}$ · The council's preliminary key

Q172 TS EAPCET 2025 · 2 May · Shift 1 MCQ

Urn A contains 6 white and 2 black balls; urn B contains 5 white and 3 black balls and urn C contains 4 white and 4 black balls. If an urn is chosen at random and a ball is drawn at random from it, then the probability that the ball drawn is white is

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(A) $\frac{3}{8}$
(B) $\frac{5}{8}$
(C) $\frac{1}{2}$
(D) $\frac{3}{4}$

Answer: (B) $\frac{5}{8}$ · The council's preliminary key

Q173 TS EAPCET 2025 · 2 May · Shift 1 MCQ

If three dice are thrown, then the mean of the sum of the numbers appearing on them is

(A) 58.5
(B) 76.66
(C) 71.75
(D) 10.5

Answer: (D) 10.5 · The council's preliminary key

Q174 TS EAPCET 2025 · 2 May · Shift 1 MCQ

If $X \sim B(7, p)$ is a binomial variate and $P(X = 3) = P(X = 5)$ then $p =$

(A) $\frac{5-\sqrt{10}}{3}$
(B) $\frac{\sqrt{10}-2}{3}$
(C) $\frac{5-\sqrt{15}}{2}$
(D) $\frac{\sqrt{15}-3}{2}$

Answer: (C) $\frac{5-\sqrt{15}}{2}$ · The council's preliminary key

Q175 TS EAPCET 2025 · 2 May · Shift 2 MCQ

Let $P = \begin{bmatrix} 1 & 2 & 3 \\ 4 & 5 & 6 \\ 7 & 8 & 9 \end{bmatrix}$ be a matrix. Three elements of this matrix P are selected at random. A is the event of having the three elements whose sum is odd. B is the event of selecting the three elements which are in a row or column. Then $P(A) + P\left(\frac{A}{B}\right) =$

(A) $\frac{221}{420}$
(B) $\frac{17}{21}$
(C) $\frac{21}{20}$
(D) $\frac{3}{2}$

Answer: (B) $\frac{17}{21}$ · The council's preliminary key

Q176 TS EAPCET 2025 · 2 May · Shift 2 MCQ

A, B_1, B_2, B_3 are the events in a random experiment. If $P(B_1) = 0.25$, $P(B_2) = 0.30$, $P(B_3) = 0.45$, $P\left(\frac{A}{B_1}\right) = 0.05$, $P\left(\frac{A}{B_2}\right) = 0.04$, $P\left(\frac{A}{B_3}\right) = 0.03$, then $P\left(\frac{B_2}{A}\right) =$

(A) $\frac{6}{19}$
(B) $\frac{8}{19}$
(C) $\frac{12}{19}$
(D) $\frac{5}{19}$

Answer: (A) $\frac{6}{19}$ · The council's preliminary key

Q177 TS EAPCET 2025 · 2 May · Shift 2 MCQ

A, B are the events in a random experiment. If $P(A)=\frac{1}{2}$, $P(B)=\frac{1}{3}$, $P(A\cap B)=\frac{1}{4}$, then $P\left(\frac{A^c}{B^c}\right)+P\left(\frac{A}{B}\right)=$

(A) 1
(B) $\frac{4}{5}$
(C) $\frac{11}{8}$
(D) $\frac{7}{3}$

Answer: (C) $\frac{11}{8}$ · The council's preliminary key

Q178 TS EAPCET 2025 · 2 May · Shift 2 MCQ

Two persons A and B play a game by throwing two dice. If the sum of the numbers appeared on the two dice is even, A will get $\frac{1}{2}$ point and B will get $\frac{1}{2}$ point. If the sum is odd, A will get one point and B will get no point. The arithmetic mean of the random variable of the number of points of A is

(A) $\frac{1}{2}$
(B) $\frac{1}{4}$
(C) 1
(D) $\frac{3}{4}$

Answer: (D) $\frac{3}{4}$ · The council's preliminary key

Q179 TS EAPCET 2025 · 2 May · Shift 2 MCQ

A typist claims that he prepares a typed page with typo errors of 1 per 10 pages. In a typing assignment of 40 pages, if the probability that the typo errors are at most 2 is p, then $e^2p=$

(A) 5
(B) 13
(C) $13e^{-2}$
(D) $5e^{-2}$

Answer: (C) $13e^{-2}$ · The council's preliminary key

Q180 AP EAPCET 2024 · 23 May · Shift 1 MCQ

When two dice are thrown, the probability of getting the sum of the values on them as 10 or 11 is

(A) $\frac{7}{36}$
(B) $\frac{5}{36}$
(C) $\frac{5}{18}$
(D) $\frac{7}{18}$

Answer: (B) $\frac{5}{36}$ · The council's preliminary key

Q181 AP EAPCET 2024 · 23 May · Shift 1 MCQ

It is given that in a random experiment events A and B are such that $P(A) = \frac{1}{4}$, $P(A|B) = \frac{1}{2}$ and $P(B|A) = \frac{2}{3}$ then $P(B) =$

(A) $\frac{1}{3}$
(B) $\frac{2}{3}$
(C) $\frac{1}{2}$
(D) $\frac{1}{6}$

Answer: (A) $\frac{1}{3}$ · The council's preliminary key

Q182 AP EAPCET 2024 · 23 May · Shift 1 MCQ

The probability that A speaks truth is 75% and the probability that B speaks truth is 80%. The probability that they contradict each other when asked to speak on a fact is

(A) $\frac{3}{20}$
(B) $\frac{4}{20}$
(C) $\frac{7}{20}$
(D) $\frac{5}{20}$

Answer: (C) $\frac{7}{20}$ · The council's preliminary key

Q183 AP EAPCET 2024 · 23 May · Shift 1 MCQ

Bag A contains 2 white and 3 red balls and bag B contains 4 white and 5 red balls. If one ball is drawn at random from one of the bags and is found to be red, then the probability that it was drawn from the bag B is

(A) $\frac{23}{54}$
(B) $\frac{25}{51}$
(C) $\frac{25}{52}$
(D) $\frac{27}{55}$

Answer: (C) $\frac{25}{52}$ · The council's preliminary key

Q184 AP EAPCET 2024 · 23 May · Shift 1 MCQ

If the probability distribution of a random variable X is as follows, then $k =$

$X = x$	1	2	3	4
$P(X = x)$	$2k$	$4k$	$3k$	k

(A) $\frac{1}{10}$
(B) $\frac{2}{10}$
(C) $\frac{3}{10}$
(D) $\frac{4}{10}$

Answer: (A) $\frac{1}{10}$ · The council's preliminary key

Q185 AP EAPCET 2024 · 23 May · Shift 1 MCQ

In a Binomial distribution $B(n, p)$, the sum and product of the mean and the variance are 5 and 6 respectively, then $6(n + p - q) =$

(A) 50
(B) 53
(C) 52
(D) 51

Answer: (C) 52 · The council's preliminary key

Q186 AP EAPCET 2024 · 22 May · Shift 1 MCQ

Three numbers are chosen at random from 1 to 20, then the probability that the sum of three numbers is divisible by 3 is

(A) $\frac{1}{114}$
(B) $\frac{147}{342}$
(C) $\frac{16}{47}$
(D) $\frac{32}{85}$

Answer: (D) $\frac{32}{85}$ · The council's preliminary key

Q187 AP EAPCET 2024 · 22 May · Shift 1 MCQ

Two persons A and B throw three unbiased dice one after the another. If A gets the sum 13, then the probability that B gets higher sum is

(A) $\frac{5}{216}$
(B) $\frac{4}{27}$
(C) $\frac{35}{216}$
(D) $\frac{20}{216}$

Answer: (C) $\frac{35}{216}$ · The council's preliminary key

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Q188 AP EAPCET 2024 · 22 May · Shift 1 MCQ

8 teachers and 4 students are sitting around a circular table at random, then the probability that no two students sit together is:

(A) $\frac{7}{88}$
(B) $\frac{14}{33}$
(C) $\frac{8}{33}$
(D) $\frac{7}{33}$

Answer: (D) $\frac{7}{33}$ · The council's preliminary key

Q189 AP EAPCET 2024 · 22 May · Shift 1 MCQ

A bag contains 6 balls. If three balls are drawn at a time and all of them are found to be green, then the probability that exactly 5 of the balls in the bag are green is:

(A) $\frac{4}{35}$
(B) $\frac{5}{35}$
(C) $\frac{2}{7}$
(D) $\frac{1}{7}$

Answer: (C) $\frac{2}{7}$ · The council's preliminary key

Q190 AP EAPCET 2024 · 22 May · Shift 1 MCQ

In a Binomial distribution, the difference between the mean and standard deviation is 3 and the difference between their squares is 21, then $P(x=1) : P(x=2) =$

(A) $2:1$
(B) $1:2$
(C) $1:3$
(D) $3:1$

Answer: (C) $1:3$ · The council's preliminary key

Q191 AP EAPCET 2024 · 22 May · Shift 1 MCQ

When an unfair dice is thrown, the probability of getting a number k on it is $P(X=k)=k^2P$, where $k=1,2,3,4,5,6$ and X is the random variable denoting a number on the dice, then the mean of X is

(A) 25
(B) 5
(C) $\frac{441}{9}$
(D) $\frac{441}{91}$

Answer: (D) $\frac{441}{91}$ · The council's preliminary key

Q192 AP EAPCET 2024 · 22 May · Shift 2 MCQ

If each of the coefficients a, b, c in the equation $ax^2 + bx + c = 0$ is determined by throwing a die, then the probability that the equation will have equal roots, is

(A) $\frac{1}{36}$
(B) $\frac{1}{72}$
(C) $\frac{7}{216}$
(D) $\frac{5}{216}$

Answer: (D) $\frac{5}{216}$ · The council's preliminary key

Q193 AP EAPCET 2024 · 22 May · Shift 2 MCQ

A and B throw a pair of dice alternately and they note the sum of the numbers appearing on the dice. A wins if he throws 6 before B throws 7 and B wins if he throws 7 before A throws 6. If A begins, the probability of his winning is

(A) $\frac{15}{61}$
(B) $\frac{21}{61}$
(C) $\frac{30}{61}$
(D) $\frac{36}{61}$

Answer: (C) $\frac{30}{61}$ · The council's preliminary key

Q194 AP EAPCET 2024 · 22 May · Shift 2 MCQ

E_1 and E_2 are two independent events of a random experiment such that $P(E_1) = \frac{1}{2}$ and $P(E_1 \cup E_2) = \frac{2}{3}$. Then match the items of List-I with the items of List-II.

List-I	List-II
(A) $P(E_2)$	(i) $\frac{1}{2}$
(B) $P(E_1/E_2)$	(ii) $\frac{5}{6}$
(C) $P(\overline{E_2}/E_1)$	(iii) $\frac{1}{3}$
(D) $P(\overline{E_1} \cup \overline{E_2})$	(iv) $\frac{1}{6}$
	(v) $\frac{2}{3}$

The correct match is

(A) A-iii; B-iv; C-i; D-v
(B) A-iii; B-i; C-v; D-ii
(C) A-i; B-v; C-ii; D-iv
(D) A-v; B-i; C-iii; D-ii

Answer: (B) A-iii; B-i; C-v; D-ii · The council's preliminary key

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Q195 AP EAPCET 2024 · 22 May · Shift 2 MCQ

A bag contains 4 red and 5 black balls. Another bag contains 3 red and 6 black balls. If one ball is drawn from first bag and two balls from the second bag at random, the probability that out of the three, two are black and one is red, is

(A) $\frac{20}{27}$
(B) $\frac{17}{18}$
(C) $\frac{25}{54}$
(D) $\frac{25}{108}$

Answer: (C) $\frac{25}{54}$ · The council's preliminary key

Q196 AP EAPCET 2024 · 22 May · Shift 2 MCQ

If a random variable X has the following probability distribution, then its variance is nearly

$X = x$	-3	-2	-1	0	1	2	3
$P(X = x)$	0.05	0.1	$2K$	0	0.3	K	0.1

(A) 2.8875
(B) 2.9875
(C) 2.7865
(D) 2.785

Answer: (A) 2.8875 · The council's preliminary key

Q197 AP EAPCET 2024 · 22 May · Shift 2 MCQ

A radar system can detect an enemy plane in one out of 10 consecutive scans. The probability that it cannot detect an enemy plane at least two times in four consecutive scans, is

(A) 0.9477
(B) 0.9523
(C) 0.9037
(D) 0.9063

Answer: (A) 0.9477 · The council's preliminary key

Q198 AP EAPCET 2024 · 21 May · Shift 1 MCQ

If 12 dice are thrown at a time, then the probability that a multiple of 3 does not appear on any dice is

(A) $\left(\frac{1}{2}\right)^{12}$
(B) $\left(\frac{1}{3}\right)^{12}$
(C) $\left(\frac{2}{3}\right)^{12}$
(D) $\left(\frac{5}{6}\right)^{12}$

Answer: (C) $\left(\frac{2}{3}\right)^{12}$ · The council's preliminary key

Q199 AP EAPCET 2024 · 21 May · Shift 1 MCQ

If a number is drawn at random from the set $\{1, 3, 5, 7, ..., 59\}$, then the probability that it lies in the interval in which the function $f(x) = x^3 - 16x^2 + 20x - 5$ is strictly decreasing, is

(A) $\frac{1}{5}$
(B) $\frac{1}{3}$
(C) $\frac{1}{2}$
(D) $\frac{1}{6}$

Answer: (D) $\frac{1}{6}$ · The council's preliminary key

Q200 AP EAPCET 2024 · 21 May · Shift 1 MCQ

In a class consisting of 40 boys and 30 girls, 30% of the boys and 40% of the girls are good at Mathematics. If a student selected at random from that class is found to be a girl, then the probability that she is not good at Mathematics is

(A) $\frac{3}{5}$
(B) $\frac{2}{5}$
(C) $\frac{3}{10}$
(D) $\frac{7}{10}$

Answer: (A) $\frac{3}{5}$ · The council's preliminary key

Q201 AP EAPCET 2024 · 21 May · Shift 1 MCQ

A basket contains 12 apples in which 3 are rotten. If 3 apples are drawn at random simultaneously from it, then the probability of getting atmost one rotten apple is

(A) $\frac{34}{55}$
(B) $\frac{48}{55}$
(C) $\frac{21}{55}$
(D) $\frac{42}{55}$

Answer: (B) $\frac{48}{55}$ · The council's preliminary key

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Q202 AP EAPCET 2024 · 21 May · Shift 1 MCQ

7 coins are tossed simultaneously and the number of heads turned up is denoted by the random variable X. If μ is the mean and σ^2 is the variance of X, then $\frac{\mu\sigma^2}{P(X=3)} =$

(A) $\frac{56}{5}$
(B) $\frac{84}{5}$
(C) $\frac{112}{5}$
(D) $\frac{224}{5}$

Answer: (C) $\frac{112}{5}$ · The council's preliminary key

Q203 AP EAPCET 2024 · 21 May · Shift 1 MCQ

A manufacturing company noticed that 1% of its products are defective. If a dealer orders for 300 items from this company, then the probability that the number of defective items is atmost one is

(A) $\frac{3}{e^3}$
(B) $\frac{2}{e^2}$
(C) $\frac{3}{e^2}$
(D) $\frac{4}{e^3}$

Answer: (D) $\frac{4}{e^3}$ · The council's preliminary key

Q204 AP EAPCET 2024 · 21 May · Shift 2 MCQ

If all the letters of the word 'SENSELESSNESS' are arranged in all possible ways and an arrangement among them is chosen at random then, the probability that all the E's come together in that arrangement is

(A) $\frac{1}{990}$
(B) $\frac{2}{143}$
(C) $\frac{1}{120}$
(D) $\frac{1}{429}$

Answer: (B) $\frac{2}{143}$ · The council's preliminary key

Q205 AP EAPCET 2024 · 21 May · Shift 2 MCQ

If two numbers x and y are chosen one after the other at random with replacement from the set of number $\{1, 2, 3 \ldots, 10\}$, then the probability that $|x^2 - y^2|$ is divisible by 6 is

(A) $\frac{8}{25}$
(B) $\frac{6}{25}$
(C) $\frac{3}{10}$
(D) $\frac{13}{50}$

Answer: (C) $\frac{3}{10}$ · The council's preliminary key

Q206 AP EAPCET 2024 · 21 May · Shift 2 MCQ

Bag A contains 3 white and 4 red balls, bag B contains 4 white and 5 red balls and bag C contains 5 white and 6 red balls. If one ball is drawn at random from each of these three bags, then the probability of getting one white and two red balls is

(A) $\frac{268}{693}$
(B) $\frac{310}{693}$
(C) $\frac{38}{99}$
(D) $\frac{26}{63}$

Answer: (D) $\frac{26}{63}$ · The council's preliminary key

Q207 AP EAPCET 2024 · 21 May · Shift 2 MCQ

Two persons A and B throw a pair of dice alternately until one of them gets the sum of the numbers appeared on the dice as 4 and the person who gets this result first is declared as the winner. If A starts the game, then the probability that B wins the game is

(A) $\frac{11}{23}$
(B) $\frac{1}{2}$
(C) $\frac{5}{11}$
(D) $\frac{8}{17}$

Answer: (A) $\frac{11}{23}$ · The council's preliminary key

Q208 AP EAPCET 2024 · 21 May · Shift 2 MCQ

An urn contains 3 black and 5 red balls. If 3 balls are drawn at random from the urn, the mean of the probability distribution of the number of red balls drawn is

(A) $\frac{45}{28}$
(B) $\frac{15}{8}$
(C) $\frac{2}{5}$
(D) $\frac{3}{2}$

Answer: (B) $\frac{15}{8}$ · The council's preliminary key

Q209 AP EAPCET 2024 · 21 May · Shift 2 MCQ

If $X \sim B(5, p)$ is a binomial variate such that $p(X = 3) = p(X = 4)$, then $p(|X - 3| < 2) =$

(A) $\frac{242}{243}$
(B) $\frac{201}{243}$
(C) $\frac{200}{243}$
(D) $\frac{121}{243}$

Answer: (C) $\frac{200}{243}$ · The council's preliminary key

Q210 AP EAPCET 2024 · 20 May · Shift 1 MCQ

S is the sample space and A, B are two events of a random experiment. Match the items of List A with the items of List B.

List A	List B
I A, B are mutually exclusive events	a $P(A \cap B) = P(B) - P(\bar{A})$
II A, B are independent events	b $P(A) \leq P(B)$
III $A \cap B = A$	c $P\left(\frac{\bar{A}}{B}\right) = 1 - P(A)$
IV $A \cup B = S$	d $P(A \cup B) = P(A) + P(B)$
	e $P(A) + P(B) = 2$

(A) (I - e) (II - d) (III - c) (IV - b)
(B) (I - a) (II - c) (III - e) (IV - b)
(C) (I - d) (II - c) (III - b) (IV - a)
(D) (I - b) (II - d) (III - a) (IV - c)

Answer: (C) (I - d) (II - c) (III - b) (IV - a) · The council's preliminary key

Q211 AP EAPCET 2024 · 20 May · Shift 1 MCQ

$P(A|A \cap B) + P(B|A \cap B) =$

(A) 1
(B) $P(A \cup B)$
(C) $P(A \cap B)$
(D) 2

Answer: (D) 2 · The council's preliminary key

Q212 AP EAPCET 2024 · 20 May · Shift 1 MCQ

Two digits are selected at random from the digits 1 through 9. If their sum is even, then the probability that both are odd is

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(A) $\frac{3}{8}$
(B) $\frac{1}{2}$
(C) $\frac{5}{8}$
(D) $\frac{3}{4}$

Answer: (C) $\frac{5}{8}$ · The council's preliminary key

Q213 AP EAPCET 2024 · 20 May · Shift 1 MCQ

A, B, C are mutually exclusive and exhaustive events of a random experiment and E is an event that occurs in conjunction with one of the events A, B, C. The conditional Probabilities of E given the happening of A, B, C are respectively 0.6, 0.3 and 0.1. If $P(A) = 0.30$ and $P(B) = 0.50$, then $P(C|E) =$

(A) $\frac{2}{35}$
(B) $\frac{15}{35}$
(C) $\frac{18}{35}$
(D) $\frac{17}{35}$

Answer: (A) $\frac{2}{35}$ · The council's preliminary key

Q214 AP EAPCET 2024 · 20 May · Shift 1 MCQ

For the probability distribution of a discrete random variable X as given below, the mean of X is

$X = x$	-2	-1	0	1	2	3
$P(X = x)$	$\frac{1}{10}$	$K + \frac{2}{10}$	$K + \frac{3}{10}$	$K + \frac{3}{10}$	$K + \frac{4}{10}$	$K + \frac{2}{10}$

(A) $\frac{3}{5}$
(B) $\frac{4}{5}$
(C) $\frac{6}{5}$
(D) $\frac{8}{5}$

Answer: (B) $\frac{4}{5}$ · The council's preliminary key

Q215 AP EAPCET 2024 · 20 May · Shift 1 MCQ

In a random experiment, two dice are thrown and the sum of the numbers appeared on them is recorded. This experiment is repeated 9 times. If the probability that a sum of 6 appears at least once is P_1 and a sum of 8 appears at least once is P_2, then $P_1 : P_2 =$

(A) $4 : 3$
(B) $3 : 1$
(C) $1 : 2$
(D) $1 : 1$

Answer: (D) $1 : 1$ · The council's preliminary key

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Q216 AP EAPCET 2024 · 20 May · Shift 2 MCQ

If five digit numbers are formed from the digits 0, 1, 2, 3, 4 using every digit exactly only once, then the probability that a randomly chosen number from those numbers is divisible by 4, is

(A) $\frac{5}{16}$
(B) $\frac{3}{16}$
(C) $\frac{3}{8}$
(D) $\frac{7}{16}$

Answer: (A) $\frac{5}{16}$ · The council's preliminary key

Q217 AP EAPCET 2024 · 20 May · Shift 2 MCQ

Two natural numbers are chosen at random from 1 to 100 and are multiplied. If A is the event that the product is an even number and B is the event that the product is divisible by 4, then $P(A \cap \bar{B}) =$

(A) $\frac{25}{198}$
(B) $\frac{49}{198}$
(C) $\frac{25}{99}$
(D) $\frac{50}{99}$

Answer: (C) $\frac{25}{99}$ · The council's preliminary key

Q218 AP EAPCET 2024 · 20 May · Shift 2 MCQ

A box P contains one white ball, three red balls and two black balls. Another box Q contains two white balls, three red balls and four black balls. If one ball is drawn at random from each one of the two boxes, then the probability that the balls drawn are of different colour is

(A) $\frac{29}{54}$
(B) $\frac{25}{42}$
(C) $\frac{35}{54}$
(D) $\frac{39}{52}$

Answer: (C) $\frac{35}{54}$ · The council's preliminary key

Q219 AP EAPCET 2024 · 20 May · Shift 2 MCQ

A person is known to speak false once out of 4 times. If that person picks a card at random from a pack of 52 cards and reports that it is a king, then the probability that it is actually a king is

(A) $\frac{1}{37}$
(B) $\frac{1}{5}$
(C) $\frac{12}{37}$
(D) $\frac{25}{37}$

Answer: (B) $\frac{1}{5}$ · The council's preliminary key

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Q220 AP EAPCET 2024 · 20 May · Shift 2 MCQ

For a binomial variate $X \sim B(n, p)$ the difference between mean and variance is 1 and the difference between their squares is 11. If the probability of $P(x = 2) = m\left(\frac{5}{6}\right)^n$ and $n = 36$ then $m : n =$

(A) $6 : 5$
(B) $7 : 10$
(C) $36 : 1$
(D) $42 : 25$

Answer: (B) $7 : 10$ · The council's preliminary key

Q221 AP EAPCET 2024 · 20 May · Shift 2 MCQ

The probability that a man failing to hit a target is $\frac{1}{3}$. If he fires 4 times, then the probability that he hits the target at least thrice is

(A) $\frac{16}{27}$
(B) $\frac{11}{27}$
(C) $\frac{8}{81}$
(D) $\frac{32}{81}$

Answer: (A) $\frac{16}{27}$ · The council's preliminary key

Q222 AP EAPCET 2024 · 19 May · Shift 2 MCQ

If 7 different balls are distributed among 4 different boxes, then the probability that the first box contains 3 balls is

(A) $\frac{35}{128}\left(\frac{3}{4}\right)^3$
(B) $\frac{35}{64}\left(\frac{3}{4}\right)^4$
(C) $\frac{7}{8}\left(\frac{3}{4}\right)^7$
(D) $\frac{5}{16}\left(\frac{3}{4}\right)^5$

Answer: (B) $\frac{35}{64}\left(\frac{3}{4}\right)^4$ · The council's preliminary key

Q223 AP EAPCET 2024 · 19 May · Shift 2 MCQ

Out of first 5 consecutive natural numbers, if two different numbers x and y are chosen at random, then the probability that $x^4 - y^4$ is divisible by 5 is

(A) $\frac{2}{5}$
(B) $\frac{4}{5}$
(C) $\frac{3}{5}$
(D) $\frac{1}{5}$

Answer: (C) $\frac{3}{5}$ · The council's preliminary key

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Q224 AP EAPCET 2024 · 19 May · Shift 2 MCQ

A bag contains 2 white, 3 green and 5 red balls. If three balls are drawn one after the other without replacement, then the probability that the last ball drawn was red is

(A) $\frac{2}{3}$
(B) $\frac{3}{4}$
(C) $\frac{5}{9}$
(D) $\frac{1}{2}$

Answer: (D) $\frac{1}{2}$ · The council's preliminary key

Q225 AP EAPCET 2024 · 19 May · Shift 2 MCQ

There are 2 bags each containing 3 white and 5 black balls and 4 bags each containing 6 white and 4 black balls. If a ball drawn randomly from a bag is found to be black, then the probability that this ball is from the first set of bags is

(A) $\frac{25}{57}$
(B) $\frac{25}{41}$
(C) $\frac{2}{5}$
(D) $\frac{3}{5}$

Answer: (A) $\frac{25}{57}$ · Checked by our team

Q226 AP EAPCET 2024 · 19 May · Shift 2 MCQ

If two cards are drawn randomly from a pack of 52 playing cards, then the mean of the probability distribution of number of kings is

(A) $\frac{215}{221}$
(B) $\frac{2}{13}$
(C) $\frac{188}{221}$
(D) $\frac{13}{2}$

Answer: (B) $\frac{2}{13}$ · The council's preliminary key

Q227 AP EAPCET 2024 · 19 May · Shift 2 MCQ

In a consignment of 15 articles, it is found that 3 are defective. If a sample of 5 articles is chosen at random from it, then the probability of having 2 defective articles is

(A) $\frac{256}{625}$
(B) $\frac{64}{625}$
(C) $\frac{128}{625}$
(D) $\frac{512}{625}$

Answer: (C) $\frac{128}{625}$ · The council's preliminary key

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Q228 AP EAPCET 2024 · 18 May · Shift 1 MCQ

If 5 letters are to be placed in 5-addressed envelopes, then the probability that at least one letter is placed in the wrongly addressed envelope is

(A) $\frac{1}{5}$
(B) $\frac{1}{120}$
(C) $\frac{4}{5}$
(D) $\frac{119}{120}$

Answer: (D) $\frac{119}{120}$ · The council's preliminary key

Q229 AP EAPCET 2024 · 18 May · Shift 1 MCQ

A student writes an examination which contains eight true or false questions. If he answers six or more questions correctly, he passes the examination. If the student answers all the questions, then the probability that he fails in the examination is

(A) $\frac{37}{256}$
(B) $\frac{19}{256}$
(C) $\frac{119}{256}$
(D) $\frac{219}{256}$

Answer: (D) $\frac{219}{256}$ · The council's preliminary key

Q230 AP EAPCET 2024 · 18 May · Shift 1 MCQ

The probability that a person goes to college by car is $\frac{1}{5}$; by bus $\frac{2}{5}$ and by train is $\frac{3}{5}$ respectively. The probabilities that he reaches the college late if he takes car, bus, train are $\frac{2}{7}$, $\frac{4}{7}$ and $\frac{1}{7}$ respectively. If he reaches the college in time, the probability that he travelled by car is

(A) $\frac{6}{29}$
(B) $\frac{24}{29}$
(C) $\frac{5}{29}$
(D) $\frac{23}{29}$

Answer: (C) $\frac{5}{29}$ · The council's preliminary key

Q231 AP EAPCET 2024 · 18 May · Shift 1 MCQ

P, Q and R try to hit the same target one after the other. If their probabilities of hitting the target are $\frac{2}{3}, \frac{3}{5}, \frac{5}{7}$ respectively, then the probability that the target is hit by P or Q but not by R is

(A) $\frac{26}{105}$
(B) $\frac{79}{105}$
(C) 0
(D) $\frac{75}{105}$

Answer: (A) $\frac{26}{105}$ · The council's preliminary key

Q232 AP EAPCET 2024 · 18 May · Shift 1 MCQ

A box contains 20% defective bulbs. Five bulbs are chosen randomly from this box. The probability that exactly 3 of the chosen bulbs are defective is

(A) $\frac{32}{625}$
(B) $\frac{32}{125}$
(C) $\frac{16}{625}$
(D) $\frac{16}{125}$

Answer: (A) $\frac{32}{625}$ · The council's preliminary key

Q233 AP EAPCET 2024 · 18 May · Shift 1 MCQ

If a random variable X satisfies poisson distribution with a mean value of 5, then probability that $X < 3$ is

(A) $\frac{37}{2}e^5$
(B) $6e^5$
(C) $6e^{-5}$
(D) $\frac{37}{2}e^{-5}$

Answer: (D) $\frac{37}{2}e^{-5}$ · The council's preliminary key

Q234 TS EAPCET 2024 · 11 May · Shift 1 MCQ

The numbers 2, 3, 5, 7, 11, 13 are written on six distinct paper chits. If 3 of them are chosen at random, then the probability that the sum of the numbers on the obtained chits is divisible by 3, is

(A) $\frac{7}{20}$
(B) $\frac{6}{20}$
(C) $\frac{5}{20}$
(D) $\frac{1}{5}$

Answer: (A) $\frac{7}{20}$ · The council's preliminary key

Q235 TS EAPCET 2024 · 11 May · Shift 1 MCQ

If 4 letters are selected at random from the letters of the word PROBABILITY, then the probability of getting a combination of letters in which atleast one letter is repeated is

(A) $\frac{43}{170}$
(B) $\frac{19}{61}$
(C) $\frac{57}{184}$
(D) $\frac{29}{155}$

Answer: (B) $\frac{19}{61}$ · The council's preliminary key

Q236 TS EAPCET 2024 · 11 May · Shift 1 MCQ

If two dice are rolled, then the probability of getting a multiple of 3 as the sum of the numbers appeared on the top faces of the dice, if it is known that their sum is an odd number, is

(A) $\frac{1}{6}$
(B) $\frac{11}{36}$
(C) $\frac{1}{3}$
(D) $\frac{7}{18}$

Answer: (C) $\frac{1}{3}$ · The council's preliminary key

Q237 TS EAPCET 2024 · 11 May · Shift 1 MCQ

If a random variable X has the following probability distribution, then its variance is

$X = x$	1	3	5	2
$P(X = x)$	$3K^2$	K	K^2	$2K$

(A) $\frac{9}{4}$
(B) $\frac{25}{8}$
(C) $\frac{27}{16}$
(D) $\frac{15}{16}$

Answer: (D) $\frac{15}{16}$ · The council's preliminary key

Q238 TS EAPCET 2024 · 11 May · Shift 1 MCQ

The mean and variance of a binomial variate X are $\frac{16}{5}$ and $\frac{48}{25}$ respectively. If $P(X > 1) = 1 - K\left(\frac{3}{5}\right)^7$, then $5K =$

(A) 19
(B) 3
(C) 2
(D) 11

Answer: (A) 19 · The council's preliminary key

Q239 TS EAPCET 2024 · 10 May · Shift 1 MCQ

If two dice are thrown, then the probability of getting co-prime numbers on the dice is

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(A) $\frac{23}{36}$
(B) $\frac{13}{36}$
(C) $\frac{5}{6}$
(D) $\frac{1}{6}$

Answer: (A) $\frac{23}{36}$ · The council's preliminary key

Q240 TS EAPCET 2024 · 10 May · Shift 1 MCQ

If two cards are drawn at random simultaneously from a well shuffled pack of 52 playing cards, then the probability of getting a card having a composite number and a card having a number which is a multiple of 3 is

(A) $\frac{94}{663}$
(B) $\frac{62}{663}$
(C) $\frac{102}{663}$
(D) $\frac{64}{663}$

Answer: (C) $\frac{102}{663}$ · The council's preliminary key

Q241 TS EAPCET 2024 · 10 May · Shift 1 MCQ

Bag 'P' contains 3 white, 2 red, 5 blue balls and bag 'Q' contains 2 white, 3 red, 5 blue balls. A ball is chosen at random from 'P' and is placed in 'Q'. If a ball is chosen from bag 'Q' at random, then the probability that it is a red ball is

(A) $\frac{9}{50}$
(B) $\frac{13}{45}$
(C) $\frac{16}{55}$
(D) $\frac{12}{35}$

Answer: (C) $\frac{16}{55}$ · The council's preliminary key

Q242 TS EAPCET 2024 · 10 May · Shift 1 MCQ

If the probability distribution of a random variable X is as follows, then the variance of X is

$X = x$	2	3	5	9
$P(X = x)$	k	$2k$	$3k^2$	k^2

(A) $\frac{61}{4}$
(B) $\frac{7}{2}$
(C) 12
(D) 3

Answer: (D) 3 · The council's preliminary key

Q243 TS EAPCET 2024 · 10 May · Shift 1 MCQ

The mean of a binomial variate $X \sim B(n, p)$ is 1. If $n > 2$ and $P(X = 2) = \frac{27}{128}$, then the variance of the distribution is

(A) $\frac{3}{4}$
(B) $\frac{1}{4}$
(C) $\frac{4}{3}$
(D) 4

Answer: (A) $\frac{3}{4}$ · The council's preliminary key

Q244 TS EAPCET 2024 · 10 May · Shift 2 MCQ

If three numbers are randomly selected from the set $\{1, 2, 3, ..., 50\}$, then the probability that they are in arithmetic progression is

(A) $\frac{3}{50}$
(B) $\frac{3}{98}$
(C) $\frac{3}{49}$
(D) $\frac{3}{25}$

Answer: (B) $\frac{3}{98}$ · The council's preliminary key

Q245 TS EAPCET 2024 · 10 May · Shift 2 MCQ

The probability that exactly 3 heads appear in six tosses of an unbiased coin, given that the first three tosses resulted in 2 or more heads is

(A) $\frac{3}{16}$
(B) $\frac{5}{16}$
(C) $\frac{1}{4}$
(D) $\frac{9}{16}$

Answer: (B) $\frac{5}{16}$ · The council's preliminary key

Q246 TS EAPCET 2024 · 10 May · Shift 2 MCQ

A student has to write the words ABILITY, PROBABILITY, FACILITY, MOBILITY. He wrote one word and erased all the letters in it except two consecutive letters. If 'LI' is left after erasing then the probability that the boy wrote the word PROBABILITY is

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(A) $\frac{21}{116}$
(B) $\frac{72}{116}$
(C) $\frac{3}{5}$
(D) $\frac{2}{3}$

Answer: (A) $\frac{21}{116}$ · The council's preliminary key

Q247 TS EAPCET 2024 · 10 May · Shift 2 MCQ

Two cards are drawn at random one after the other with replacement from a pack of playing cards. If X is the random variable denoting the number of ace cards drawn, then the mean of the probability distribution of X is

(A) 2
(B) $\frac{2}{13}$
(C) 1
(D) $\frac{1}{13}$

Answer: (B) $\frac{2}{13}$ · The council's preliminary key

Q248 TS EAPCET 2024 · 10 May · Shift 2 MCQ

If $X \sim B(6, p)$ is a binomial variate and $\frac{P(X=4)}{P(X=2)} = \frac{1}{9}$, then $p =$

(A) $\frac{1}{2}$
(B) $\frac{1}{9}$
(C) $\frac{1}{3}$
(D) $\frac{1}{4}$

Answer: (D) $\frac{1}{4}$ · The council's preliminary key

Q249 TS EAPCET 2024 · 9 May · Shift 1 MCQ

When 2 dice are thrown, it is observed that the sum of the numbers appeared on the top faces of both the dice is a prime number. Then the probability of having a multiple of 3 among the pair of numbers thus obtained is

(A) $\frac{8}{15}$
(B) $\frac{11}{36}$
(C) $\frac{5}{9}$
(D) $\frac{5}{12}$

Answer: (A) $\frac{8}{15}$ · The council's preliminary key

Q250 TS EAPCET 2024 · 9 May · Shift 1 MCQ

If 2 cards drawn at random from a well shuffled pack of 52 playing cards are from the same suit, then the probability of getting a face card and a card having a prime number is

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(A) $\frac{8}{13}$
(B) $\frac{2}{13}$
(C) $\frac{8}{221}$
(D) $\frac{32}{221}$

Answer: (B) $\frac{2}{13}$ · The council's preliminary key

Q251 TS EAPCET 2024 · 9 May · Shift 1 MCQ

A dealer gets refrigerators from 3 different manufacturing companies C_1, C_2 and C_3. 25% of his stock is from C_1, 35% from C_2 and 40% from C_3. The percentages of receiving defective refrigerators from C_1, C_2 and C_3 are 3%, 2%, 1% respectively. If a refrigerator sold at random is found to be defective by a customer, then the probability that it is from C_2 is

(A) $\frac{29}{37}$
(B) $\frac{8}{37}$
(C) $\frac{14}{37}$
(D) $\frac{15}{37}$

Answer: (C) $\frac{14}{37}$ · The council's preliminary key

Q252 TS EAPCET 2024 · 9 May · Shift 1 MCQ

If the probability that a student selected at random from a particular college is good at mathematics is 0.6, then the probability of having two students who are good at mathematics in a group of 8 students of that college standing in front of the college is

(A) $\frac{2^6 \times 3^2 \times 7}{5^8}$
(B) $\frac{2^6 \times 3^2 \times 7}{5^6}$
(C) $\frac{2^8 \times 3^2 \times 7}{5^6}$
(D) $\frac{2^8 \times 3^2 \times 7}{5^8}$

Answer: (D) $\frac{2^8 \times 3^2 \times 7}{5^8}$ · The council's preliminary key

Q253 TS EAPCET 2024 · 9 May · Shift 1 MCQ

If on an average 4 customers visit a shop in an hour, then the probability that more than 2 customers visit the shop in a specific hour is

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(A) $\frac{e^4-13}{e^4}$
(B) $\frac{8}{e^4}$
(C) $\frac{4}{e^4}$
(D) $\frac{e^4-21}{e^4}$

Answer: (A) $\frac{e^4-13}{e^4}$ · The council's preliminary key

Q254 TS EAPCET 2024 · 9 May · Shift 2 MCQ

If 3 dice are thrown, the probability of getting 10 as the sum of the three numbers that appeared on the top faces of the dice is

(A) $\frac{1}{9}$
(B) $\frac{7}{72}$
(C) $\frac{5}{36}$
(D) $\frac{1}{8}$

Answer: (D) $\frac{1}{8}$ · The council's preliminary key

Q255 TS EAPCET 2024 · 9 May · Shift 2 MCQ

Three similar urns A, B, C contain 2 red and 3 white balls; 3 red and 2 white balls; 1 red and 4 white balls respectively. If a ball selected at random from one of the urns is found to be red, then the probability that it is drawn from urn C is

(A) $\frac{1}{6}$
(B) $\frac{1}{3}$
(C) $\frac{1}{2}$
(D) $\frac{2}{9}$

Answer: (A) $\frac{1}{6}$ · The council's preliminary key

Q256 TS EAPCET 2024 · 9 May · Shift 2 MCQ

If a random variable X has the following probability distribution, then the mean of X is

$X = x_i$	1	2	3	5
$p(X = x_i)$	$2k^2$	k	k	k^2

(A) $\frac{26}{9}$
(B) $\frac{22}{9}$
(C) $\frac{24}{9}$
(D) $\frac{28}{9}$

Answer: (B) $\frac{22}{9}$ · The council's preliminary key

Q257 TS EAPCET 2024 · 9 May · Shift 2 MCQ

A fair coin is tossed a fixed number of times. If the probability of getting 5 heads is equal to the probability of getting 4 heads, then the probability of getting 6 heads is

(A) $\frac{7}{64}$
(B) $\frac{9}{32}$
(C) $\frac{21}{128}$
(D) $\frac{35}{256}$

Answer: (C) $\frac{21}{128}$ · The council's preliminary key

Q258 AP EAPCET 2023 · 19 May · Shift 1 MCQ

A shopkeeper buys a particular type of electric bulbs from three manufacturers M_1, M_2 and M_3. He buys 25% of his requirement from M_1, 45% from M_2, and 30% from M_3. Based on past experience he found that 2% of type M_3 bulbs are defective, where as only 1% of type M_1 and type M_2 are detective. If a bulb chosen by him at random is defective, then the probability that it was of type M_3 is

(A) $\frac{5}{13}$
(B) $\frac{6}{13}$
(C) $\frac{7}{13}$
(D) $\frac{8}{13}$

Answer: (B) $\frac{6}{13}$ · The council's preliminary key

Q259 AP EAPCET 2023 · 19 May · Shift 1 MCQ

The probability that a non-leap year contains 53 Sundays is

(A) $\frac{1}{7}$
(B) $\frac{1}{9}$
(C) $\frac{2}{7}$
(D) $\frac{1}{5}$

Answer: (A) $\frac{1}{7}$ · The council's preliminary key

Q260 AP EAPCET 2023 · 19 May · Shift 1 MCQ

If A and B are two events of a random experiment such that $P(A \cup B) = 0.65$ and $P(A \cap B) = 0.15$, then $P(\overline{A}) + P(\overline{B}) =$

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(A) 0.5
(B) 1.0
(C) 1.2
(D) 0.8

Answer: (C) 1.2 · The council's preliminary key

Q261 AP EAPCET 2023 · 19 May · Shift 1 MCQ

If a card is drawn at random from a well shuffled pack of 52 playing cards, then the probability that it is either an Ace or a Spade card is

(A) $\frac{4}{13}$
(B) $\frac{1}{13}$
(C) $\frac{1}{52}$
(D) $\frac{17}{52}$

Answer: (A) $\frac{4}{13}$ · The council's preliminary key

Q262 AP EAPCET 2023 · 19 May · Shift 1 MCQ

The number of persons joining a cinema ticket counter in a minute follows a Poisson distribution with parameter 6, then the probability that at least one and at most five persons join the queue in a particular minute is

(A) $e^{-6} \times 6\,(25.48)$
(B) $e^{-6}\left(\frac{6}{2}+\frac{6^3}{3!}+\frac{6^4}{4!}\right)$
(C) $6 \times e^{-6}\,(29.8)$
(D) $e^{-6}\left(6+\frac{6^2}{2}+\frac{6^3}{3!}+\frac{6^4}{4!}\right)$

Answer: (C) $6 \times e^{-6}\,(29.8)$ · The council's preliminary key

Q263 AP EAPCET 2023 · 19 May · Shift 1 MCQ

If X is a random variable with probability distribution $P(X=k)=\frac{(k+1)c}{2^k}$, $k=0,1,2,\ldots$, then $P(X \geq 3)=$

(A) $\frac{1}{4}$
(B) $\frac{5}{16}$
(C) $\frac{5}{11}$
(D) $\frac{3}{16}$

Answer: (B) $\frac{5}{16}$ · The council's preliminary key

Q264 AP EAPCET 2023 · 18 May · Shift 1 MCQ

If A,B and C are three independent events of a random experiment such that $P(A \cap B^c \cap C^c) = \frac{1}{4}$, $P(A^c \cap B \cap C^c) = \frac{1}{8}$ and $P(A^c \cap B^c \cap C^c) = \frac{1}{4}$, then P(A), P(B) and P(C) are respectively

(A) $\frac{1}{2}, \frac{1}{4}, \frac{1}{5}$
(B) $1, \frac{1}{2}, \frac{1}{3}$
(C) $\frac{1}{2}, \frac{1}{3}, \frac{1}{4}$
(D) $\frac{1}{3}, \frac{1}{4}, \frac{1}{5}$

Answer: (C) $\frac{1}{2}, \frac{1}{3}, \frac{1}{4}$ · The council's preliminary key

Q265 AP EAPCET 2023 · 18 May · Shift 1 MCQ

One card is missing in a pack of 52 playing cards. If two cards are drawn randomly from the remaining cards at a time and are found to be spades, then the probability that the missing card is not a spade is

(A) $\frac{3}{50}$
(B) $\frac{39}{50}$
(C) $\frac{39}{52}$
(D) $\frac{38}{52}$

Answer: (B) $\frac{39}{50}$ · The council's preliminary key

Q266 AP EAPCET 2023 · 18 May · Shift 1 MCQ

The probability that A speaks truth is 4/5, while the probability that B speaks truth is 3/4. Then the probability that A and B contradict each other, when asked to reveal the fact is

(A) $\frac{3}{20}$
(B) $\frac{1}{5}$
(C) $\frac{7}{20}$
(D) $\frac{4}{5}$

Answer: (C) $\frac{7}{20}$ · The council's preliminary key

Q267 AP EAPCET 2023 · 18 May · Shift 1 MCQ

If $X_1, X_2, \ldots X_n$ are n independent events such that $P(X_r) = \frac{1}{r+1}$, r = 1, 2, ..., n, then the probability that none of the n events occur is

(A) $\frac{1}{n}$
(B) $\frac{1}{n+1}$
(C) $\frac{n}{n+1}$
(D) $\frac{n+1}{n+2}$

Answer: (B) $\frac{1}{n+1}$ · The council's preliminary key

Q268 AP EAPCET 2023 · 18 May · Shift 1 MCQ

If the mean and variance of a binomial variable X are 2 and 1 respectively, then $P(X > 1) =$

(A) $\frac{11}{32}$
(B) $\frac{1}{8}$
(C) $\frac{11}{12}$
(D) $\frac{11}{16}$

Answer: (D) $\frac{11}{16}$ · The council's preliminary key

Q269 AP EAPCET 2023 · 18 May · Shift 1 MCQ

The probability that a person chosen at random is left handed (in hand writing) is 0.1. Then the probability that in a group of 10 people there is a left handed person is

(A) $(0.9)^9$
(B) $(0.9)^8$
(C) $(0.9)^6$
(D) 0.9

Answer: (A) $(0.9)^9$ · The council's preliminary key

Q270 AP EAPCET 2023 · 18 May · Shift 2 MCQ

A bag contains 12 two rupee coins, 7 one rupee coins and 4 fifty paise coins. If three coins are selected at random, then the probability that the sum of the values of the three coins is not an integral multiple of a rupee is

(A) $\frac{4\left({}^{12}C_2 \cdot {}^{7}C_2 + {}^{12}C_1 \cdot {}^{7}C_1 + {}^{7}C_2\right) + 3\left({}^{12}C_1 + {}^{7}C_1\right)}{{}^{23}C_3}$
(B) $\frac{4\left({}^{12}C_1 \cdot {}^{7}C_1 + {}^{12}C_2 + {}^{7}C_2\right) + {}^{3}C_3}{{}^{23}C_3}$
(C) $\frac{4\left({}^{12}C_2 \cdot {}^{7}C_1 + {}^{12}C_1 \cdot {}^{7}C_2\right) + 3\left({}^{12}C_1 \cdot {}^{7}C_2\right)}{{}^{23}C_3}$
(D) $\frac{4\left({}^{12}C_3 + {}^{7}C_3\right) + 3\left({}^{12}C_1 + {}^{7}C_1\right)}{{}^{23}C_3}$

Answer: (B) $\frac{4\left({}^{12}C_1 \cdot {}^{7}C_1 + {}^{12}C_2 + {}^{7}C_2\right) + {}^{3}C_3}{{}^{23}C_3}$ · The council's preliminary key

Q271 AP EAPCET 2023 · 18 May · Shift 2 MCQ

If A,B are any two events of a random experiment and $P(B) \neq 1$, then $P(A \mid B^c) =$

(A) $\frac{P(A)+P(A\cap B)}{1-P(B)}$

(B) $\frac{P(A)-P(A\cap B)}{1-P(B)}$

(C) $\frac{P(A)+P(A\cap B)}{1+P(B)}$

(D) $\frac{P(A)}{1+P(B)}$

Answer: (B) $\frac{P(A)-P(A\cap B)}{1-P(B)}$ · The council's preliminary key

Q272 AP EAPCET 2023 · 18 May · Shift 2 MCQ

A bag contains 10 similar balls, of which 4 are blue and 6 are red. Three balls are taken out at random from the bag one after the other without replacement. The probabilities that all the three balls drawn are red is

(A) $\frac{1}{5}$

(B) $\frac{1}{6}$

(C) $\frac{5}{9}$

(D) $\frac{1}{2}$

Answer: (B) $\frac{1}{6}$ · The council's preliminary key

Q273 AP EAPCET 2023 · 18 May · Shift 2 MCQ

If A and B are among 20 persons who sit at random along a round table, then the probability that there are any six persons between A and B is

(A) $\frac{1}{2}$

(B) $\frac{5}{16}$

(C) $\frac{2}{19}$

(D) $\frac{2}{81}$

Answer: (C) $\frac{2}{19}$ · The council's preliminary key

Q274 AP EAPCET 2023 · 18 May · Shift 2 MCQ

It is observed that there will be 25 blood specimens of normal persons, if 100 blood samples are tested. If 10 specimens are sent to a laboratory for testing, then the probability of having at least two specimens of normal persons is

(A) $1-\frac{13}{4}\left(\frac{3}{4}\right)^{10}$
(B) $1-\frac{13}{4}\left(\frac{3}{4}\right)^{9}$
(C) $1-10\left(\frac{3}{4}\right)^{10}$
(D) $1-\left(\frac{3}{4}\right)^{10}-10\left(\frac{3}{4}\right)^{9}\frac{1}{4}-45\left(\frac{3}{4}\right)^{8}\left(\frac{1}{4}\right)^{2}$

Answer: (B) $1-\frac{13}{4}\left(\frac{3}{4}\right)^{9}$ · The council's preliminary key

Q275 AP EAPCET 2023 · 18 May · Shift 2 MCQ

If a cubical die is thrown, then the mean and variance of the random variable X, giving the number on the face that shows up, are respectively

(A) $\frac{2}{7}, \frac{12}{35}$
(B) $\frac{7}{2}, \frac{12}{35}$
(C) $\frac{1}{7}, \frac{1}{12}$
(D) $\frac{7}{2}, \frac{35}{12}$

Answer: (D) $\frac{7}{2}, \frac{35}{12}$ · The council's preliminary key

Q276 AP EAPCET 2023 · 17 May · Shift 1 MCQ

If S be the sample space of a random experiment ξ and P be a probability function defined on the power set $\mathcal{P}(S)$ of S, then which one of the following is not satisfied by P?

(i) $P(\phi)=0$

(ii) If E^c is the complementary event of E, then $P(E^c)=1-P(E)$

(iii) $0 \leq P(E) \leq 1,\ \forall E \subseteq S$

(iv) If $E_1 \subseteq E_2$ then $P(E_2) \leq P(E_1)$

(A) (iii)
(B) (iv)
(C) (ii)
(D) (i)

Answer: (B) (iv) · The council's preliminary key

Q277 AP EAPCET 2023 · 17 May · Shift 1 MCQ

If A and B simultaneously toss one coin each every time, each 50 times, then the probability of not getting tail on both the coins is

(A) $\left(\frac{3}{4}\right)^{50}$
(B) $\left(\frac{2}{3}\right)^{50}$
(C) $\left(\frac{1}{3}\right)^{50}$
(D) $\left(\frac{1}{2}\right)^{50}$

Answer: (A) $\left(\frac{3}{4}\right)^{50}$ · The council's preliminary key

Q278 AP EAPCET 2023 · 17 May · Shift 1 MCQ

A pair of dice is thrown. Then the probability that either of the dice shows 2 when their sum is 6 is

(A) $\frac{1}{2}$
(B) $\frac{1}{5}$
(C) $\frac{2}{5}$
(D) $\frac{3}{5}$

Answer: (C) $\frac{2}{5}$ · The council's preliminary key

Q279 AP EAPCET 2023 · 17 May · Shift 1 MCQ

If the mean and variance of a binomial variable X are 2.4 and 1.44 respectively, then the parameters n and p are respectively

(A) $6, \frac{2}{5}$
(B) $4, \frac{3}{5}$
(C) $6, \frac{3}{5}$
(D) $8, \frac{1}{3}$

Answer: (A) $6, \frac{2}{5}$ · The council's preliminary key

Q280 AP EAPCET 2023 · 17 May · Shift 1 MCQ

If a Bernoulli trial is conducted n times, then

Which one of the following is not suitable to use Poisson distribution?

(i) Each trial results in two mutually exclusive outcomes namely success, failure

(ii) The number 'n' of such trials is sufficiently large.

(iii) The trails are independent of each other.

(vi) The probability 'p' of success in each trial is very large.

(A) (iv)
(B) (iii)
(C) (ii)
(D) (i)

Answer: (A) (iv) · The council's preliminary key

Q281 AP EAPCET 2023 · 17 May · Shift 2 MCQ

In a test a student either guesses or copies or knows the answer to answer a multiple choice question with four choices. The probability that he makes a guess is 1/3 and the probability that he copies the answer is 1/6. The probability that his answer is correct, given that he copied it is 1/8. The probability that he knew the answer to the question, given that he answered it correctly is

(A) $\frac{29}{24}$
(B) $\frac{22}{29}$
(C) $\frac{24}{29}$
(D) $\frac{23}{29}$

Answer: (C) $\frac{24}{29}$ · The council's preliminary key

Q282 AP EAPCET 2023 · 17 May · Shift 2 MCQ

A and B are mutually exclusive events of a random experiment and $P(B) \neq 1$, then $P(A \mid B^c) =$

(A) $\frac{P(A)}{1-P(B)}$
(B) $\frac{P(B)}{1-P(A)}$
(C) $\frac{P(A)}{1+P(B)}$
(D) $\frac{P(A)}{P(A)+P(B)}$

Answer: (A) $\frac{P(A)}{1-P(B)}$ · The council's preliminary key

Q283 AP EAPCET 2023 · 17 May · Shift 2 MCQ

A, B, C are three horses participating in a race. The Probability of horse A to win the race is twice that of horse B and probability of horse B to win is twice that of horse C. Then the probabilities of horses A, B and C to win the race are respectively

(A) $\frac{4}{7}, \frac{2}{7}, \frac{1}{7}$
(B) $\frac{1}{6}, \frac{2}{6}, \frac{5}{6}$
(C) $\frac{1}{4}, \frac{1}{2}, \frac{1}{7}$
(D) $\frac{4}{7}, \frac{3}{7}, \frac{1}{7}$

Answer: (A) $\frac{4}{7}, \frac{2}{7}, \frac{1}{7}$ · The council's preliminary key

Q284 AP EAPCET 2023 · 17 May · Shift 2 MCQ

Three boxes B_1, B_2 and B_3 contain balls with different colors as follows:

	White	Black	Red
B_1	2	1	2

B_2	3	2	4
B_3	4	3	2

A die is thrown. Box B_1 is chosen if either 1 or 2 turns up. Box B_2 is chosen if 3 or 4 turns up and box B_3 is chosen if 5 or 6 turns up. Having chosen a box in this way, a ball is drawn at random from that box. If the ball drawn is found to be Red, then the probability that it is drawn from box B_2 is

(A) $\frac{7}{12}$
(B) $\frac{5}{12}$
(C) $\frac{1}{12}$
(D) $\frac{3}{26}$

Answer: (B) $\frac{5}{12}$ · The council's preliminary key

Q285 AP EAPCET 2023 · 17 May · Shift 2 MCQ

One out of 9 ships is likely to sink, when they are set on sail. When 6 ships are set on sail, the probability that exactly 3 of them will not arrive safely is

(A) $1-\frac{1}{9^6}$
(B) ${}^6C_3\frac{8^3}{9^6}$
(C) $\frac{25\times 8^3}{9^5}$
(D) ${}^6C_3\frac{8}{9^6}$

Answer: (B) ${}^6C_3\frac{8^3}{9^6}$ · The council's preliminary key

Q286 AP EAPCET 2023 · 17 May · Shift 2 MCQ

If X is a random variable such that $P(X=-2)=P(X=-1)=P(X=2)=P(X=1)=\frac{1}{6}$ and $P(X=0)=\frac{1}{3}$, then the mean of X is

(A) $\frac{5}{3}$
(B) 1
(C) 0
(D) $\frac{3}{5}$

Answer: (C) 0 · The council's preliminary key

Q287 AP EAPCET 2023 · 16 May · Shift 1 MCQ

If one ticket is selected at random from 30 tickets each with a distinct number from 1 to 30, then the probability that the number on the selected ticket is a multiple of 3 or 5 is

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(A) $\frac{14}{31}$
(B) $\frac{7}{30}$
(C) $\frac{14}{15}$
(D) $\frac{7}{15}$

Answer: (D) $\frac{7}{15}$ · The council's preliminary key

Q288 AP EAPCET 2023 · 16 May · Shift 1 MCQ

A and B are independent events of a random experiment if and only if

(A) $P(A|B) \neq P(A \cap B)$
(B) $P(A|B) = P(B|A)$
(C) $P(A|B) \neq P(A|B^c)$
(D) $P(A|B) = P(A|B^c)$

Answer: (D) $P(A|B) = P(A|B^c)$ · The council's preliminary key

Q289 AP EAPCET 2023 · 16 May · Shift 1 MCQ

From out of 100 enrolled students, two sections of strength 40 and 60 are formed. If you and your friend are among those 100 students, then the probability that both of you are placed in the same section is

(A) $\frac{{}^{98}C_{40} + {}^{98}C_{58}}{{}^{100}C_{40}}$
(B) $\frac{{}^{40}C_2 + {}^{60}C_2}{{}^{100}C_2}$
(C) $\frac{{}^{98}C_{60} + {}^{98}C_{38}}{{}^{100}C_{60}}$
(D) $\frac{{}^{98}C_{58} + {}^{98}C_0}{{}^{100}C_2}$

Answer: (B) $\frac{{}^{40}C_2 + {}^{60}C_2}{{}^{100}C_2}$ · The council's preliminary key

Q290 AP EAPCET 2023 · 16 May · Shift 1 MCQ

For a binomial distribution with mean 6 and variance 2, $P(X \geq 2) =$

(A) $\frac{19}{3^9}$
(B) $1 - \frac{2}{3^9}$
(C) $1 - \frac{19}{3^9}$
(D) $\frac{2}{3^9}$

Answer: (C) $1 - \frac{19}{3^9}$ · The council's preliminary key

Q291 AP EAPCET 2023 · 16 May · Shift 1 MCQ

In a city it is found that 10 accidents took place in a span of 50 days. Assuming that the number of accidents follow the Poisson distribution, the probability that there will be 3 or more accidents in a day in that city, is

(A) $1-(1.02)e^{0.2}$
(B) $1-(1.22)e^{-0.2}$
(C) $1-(1.2)e^{0.2}$
(D) $1-\frac{1.22}{e^{-0.2}}$

Answer: (B) $1-(1.22)e^{-0.2}$ · The council's preliminary key

Q292 AP EAPCET 2023 · 16 May · Shift 2 MCQ

Let A and B be two independent events of a random experiment. If the probability that both A and B occur is $\frac{1}{6}$ and the probability that neither of them occur is $\frac{1}{3}$, then the probability of occurrence of A is

(A) 0 or 1
(B) $\frac{1}{2}$ or $\frac{1}{4}$
(C) $\frac{1}{2}$ or $\frac{1}{3}$
(D) $\frac{1}{2}$ or $\frac{1}{7}$

Answer: (C) $\frac{1}{2}$ or $\frac{1}{3}$ · The council's preliminary key

Q293 AP EAPCET 2023 · 16 May · Shift 2 MCQ

A game consists of tossing a coin 3 times and noting its outcome. A boy wins the game if all tosses give the same outcome (i.e three heads or three tails) and loses the game otherwise. The probability that the boy loses the game is

(A) $\frac{3}{4}$
(B) $\frac{1}{4}$
(C) $\frac{2}{3}$
(D) $\frac{1}{3}$

Answer: (A) $\frac{3}{4}$ · The council's preliminary key

Q294 AP EAPCET 2023 · 16 May · Shift 2 MCQ

If A, B and C are three events of a random experiment with $P(A)=0.4$, $P(B)=0.3$ and $P(A\cap B)=0.2$, then the probability that neither A nor B occurs is

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(A) 0.5
(B) 0.15
(C) 0.13
(D) 0.12

Answer: (A) 0.5 · The council's preliminary key

Q295 AP EAPCET 2023 · 16 May · Shift 2 MCQ

Two dice are rolled. If A denote the event that the same number shows on each die and B denote the event that the sum of the numbers on both dice is greater than 7, then $P(A|B)$ and $P(B|A)$ respectively are

(A) $\frac{2}{5}, \frac{1}{4}$
(B) $\frac{1}{5}, \frac{1}{2}$
(C) $\frac{1}{5}, \frac{1}{4}$
(D) $\frac{1}{2}, \frac{3}{5}$

Answer: (B) $\frac{1}{5}, \frac{1}{2}$ · The council's preliminary key

Q296 AP EAPCET 2023 · 16 May · Shift 2 MCQ

The value of the constant c, so that $P(x) = c\left(\frac{2}{3}\right)^x$, $x = 1, 2, 3, \ldots$ is the probability distribution function of a discrete random variable X is

(A) $\frac{1}{3}$
(B) $\frac{1}{2}$
(C) 1
(D) 0

Answer: (B) $\frac{1}{2}$ · The council's preliminary key

Q297 AP EAPCET 2023 · 16 May · Shift 2 MCQ

If the difference between the mean and variance of a binomial variate is $\frac{5}{9}$, then the probability of getting 2 successes for an event when the experiment is conducted 5 times, is

(A) $\frac{80}{243}$
(B) $\frac{18}{234}$
(C) $\frac{12}{241}$
(D) $\frac{80}{432}$

Answer: (A) $\frac{80}{243}$ · The council's preliminary key

Q298 AP EAPCET 2023 · 15 May · Shift 1 MCQ

If two subsets A and B are selected at random from a set S containing n elements, then the probability that $A \cap B = \phi$ and $A \cup B = S$, is

(A) $\frac{1}{2^n}$
(B) 2^n
(C) $\frac{1}{2^{n+1}}$
(D) $\frac{1}{2^n \times 2^n}$

Answer: (A) $\frac{1}{2^n}$ · The council's preliminary key

Q299 AP EAPCET 2023 · 15 May · Shift 1 MCQ

In a game, a pair of dice is rolled 24 times. If a person wins the game by not getting 6 on both the dice in any one of the 24 rolls, then the probability that a person wins the game is

(A) $\left(\frac{35}{36}\right)^{24}$
(B) $\left(\frac{17}{18}\right)^{24}$
(C) $\left(\frac{11}{12}\right)^{24}$
(D) $\left(\frac{5}{6}\right)^{24}$

Answer: (A) $\left(\frac{35}{36}\right)^{24}$ · The council's preliminary key

Q300 AP EAPCET 2023 · 15 May · Shift 1 MCQ

Bag B_1 contains 4 white and 2 black balls. Bag B_2 contains 3 white and 4 black balls. A bag is chosen at random and a ball is drawn from it at random, then the probability that the ball drawn is white, is

(A) $\frac{1}{42}$
(B) $\frac{42}{32}$
(C) $\frac{33}{42}$
(D) $\frac{23}{42}$

Answer: (D) $\frac{23}{42}$ · The council's preliminary key

Q301 AP EAPCET 2023 · 15 May · Shift 1 MCQ

If four dice are thrown simultaneously, then the probability that none of the dice shows the number 1 on its face, is

(A) $\frac{625}{1296}$
(B) $\frac{125}{648}$
(C) $\frac{1250}{1296}$
(D) $\frac{625}{2592}$

Answer: (A) $\frac{625}{1296}$ · The council's preliminary key

Q302 AP EAPCET 2023 · 15 May · Shift 1 MCQ

The range of a random variable X is $\{0, 1, 2\}$. If $P(X = 0) = 3C^3$, $P(X = 1) = 4C - 10C^2$ and $P(X = 2) = 5C - 1$, then the value of C is

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(A) $\frac{2}{3}$
(B) $\frac{1}{3}$
(C) $\frac{5}{3}$
(D) $\frac{4}{3}$

Answer: (B) $\frac{1}{3}$ · The council's preliminary key

Q303 AP EAPCET 2023 · 15 May · Shift 1 MCQ

If eight coins are tossed simultaneously, then the probability of getting atleast six heads is

(A) $\frac{37}{64}$
(B) $\frac{37}{512}$
(C) $\frac{37}{256}$
(D) $\frac{37}{128}$

Answer: (C) $\frac{37}{256}$ · The council's preliminary key

Q304 AP EAPCET 2023 · 15 May · Shift 2 MCQ

Three screws are drawn at random from a lot of 50 screws containing 5 defective ones. Then the probability of the event that all 3 screws drawn are non-defective, assuming that the drawing is (a) with replacement (b) without replacement respectively is

(A) $\left(\frac{9}{10}\right)^3, \frac{1419}{1960}$
(B) $\left(\frac{9}{10}\right)^2, \frac{1418}{1961}$
(C) $\left(\frac{9}{10}\right)^2, \frac{1419}{1960}$
(D) $\left(\frac{9}{10}\right)^3, \frac{1418}{1961}$

Answer: (A) $\left(\frac{9}{10}\right)^3, \frac{1419}{1960}$ · The council's preliminary key

Q305 AP EAPCET 2023 · 15 May · Shift 2 MCQ

A coin is tossed three times. Let A be the event of “getting three heads” and B be the event of “getting a head on the first toss”. Then A and B are

(A) Dependent events
(B) Independent events
(C) Impossible events
(D) Certain events

Answer: (A) Dependent events · Checked by our team

Q306 AP EAPCET 2023 · 15 May · Shift 2 MCQ

From a collection of eight cards numbered 1 to 8, if two cards are drawn at random, one after the other with replacement, then the probability that the product of numbers that appear on the cards is a perfect square is

(A) $\frac{3}{14}$
(B) $\frac{6}{13}$
(C) $\frac{3}{16}$
(D) $\frac{1}{16}$

Answer: (C) $\frac{3}{16}$ · The council's preliminary key

Q307 AP EAPCET 2023 · 15 May · Shift 2 MCQ

If A and B are events of a random experiment with $P(A) = 0.5$, $P(B) = 0.4$ and $P(A \cap B) = 0.3$, then the probability that neither A nor B occurs is

(A) 0.04
(B) 0.4
(C) 0.8
(D) 0.2

Answer: (B) 0.4 · The council's preliminary key

Q308 AP EAPCET 2023 · 15 May · Shift 2 MCQ

The minimum number of times a fair coin needs to be tossed, so that the probability of getting at least two heads is at least 0.96 is

(A) 5
(B) 6
(C) 7
(D) 8

Answer: (D) 8 · The council's preliminary key

Q309 AP EAPCET 2023 · 15 May · Shift 2 MCQ

If $P(X = x) = k\left(\frac{3}{8}\right)^x$, $x = 1, 2, 3, \ldots$ is the probability distribution function of a discrete random variable X, then $k =$

(A) $\frac{5}{8}$
(B) $\frac{8}{3}$
(C) $\frac{5}{3}$
(D) $\frac{4}{3}$

Answer: (C) $\frac{5}{3}$ · The council's preliminary key

Q310 TS EAMCET 2023 · 14 May · Shift 1 MCQ

A bag contains four balls. Two balls are drawn randomly and found them to be white. The probability that all the balls in the bag are white is

(A) $\frac{1}{2}$
(B) $\frac{3}{5}$
(C) $\frac{1}{4}$
(D) $\frac{2}{3}$

Answer: (B) $\frac{3}{5}$ · The council's preliminary key

Q311 TS EAMCET 2023 · 14 May · Shift 1 MCQ

If the coefficients a and b of a quadratic expression $x^2 + ax + b$ are choosen from the sets $A = \{3, 4, 5\}$ and $B = \{1, 2, 3, 4\}$ respectively, then the probability that the equation $x^2 + ax + b = 0$ has real roots is

(A) $\frac{1}{6}$
(B) $\frac{5}{6}$
(C) $\frac{3}{4}$
(D) $\frac{7}{12}$

Answer: (B) $\frac{5}{6}$ · The council's preliminary key

Q312 TS EAMCET 2023 · 14 May · Shift 1 MCQ

A random variable X has the following probability distribution

$X = x$	1	2	3	4	5	6	7	8
$P(X = x)$	0.15	0.23	k	0.10	0.20	0.08	0.07	0.05

For the events $E = \{x/x \text{ is a prime number}\}$ and $F = \{x/x < 4\}$ then $P(E \cup F) =$

(A) 0.57
(B) 0.87
(C) 0.77
(D) 0.35

Answer: (C) 0.77 · The council's preliminary key

Q313 TS EAMCET 2023 · 14 May · Shift 1 MCQ

5 persons entered a lift cabin in the cellar of a 7-floor building apart from cellar. If each of them independently and with equal probability can leave the cabin at any floor out of the 7 floors beginning with the first, then the probability of all the 5 persons leaving the cabin at different floors is

(A) $\frac{360}{2401}$
(B) $\frac{5}{54}$
(C) $\frac{51}{71}$
(D) $\frac{5}{18}$

Answer: (A) $\frac{360}{2401}$ · The council's preliminary key

Q314 TS EAMCET 2023 · 14 May · Shift 2 MCQ

If a matrix is chosen at random from the set of all 3×3 non zero matrices whose entries are the elements of the set $\{-1, 0, 1\}$, then the probability that the matrix is skew symmetric is

(A) $\frac{1}{729}$
(B) $\frac{1}{757}$
(C) $\frac{1}{703}$
(D) $\frac{1}{742}$

Answer: (B) $\frac{1}{757}$ · The council's preliminary key

Q315 TS EAMCET 2023 · 14 May · Shift 2 MCQ

A boy throws an unbiased die. Whenever he gets 1 on the die he has a further chance to throw it once again immediately. The probability that the boy gets a score of 7 in this process is

(A) $\frac{1}{5}\left(1-\frac{1}{6^5}\right)$
(B) $\frac{1}{30}\left(1-\frac{1}{6^4}\right)$
(C) $\frac{1}{30}\left(1-\frac{1}{6^5}\right)$
(D) $\frac{1}{5}\left(1-\frac{1}{6^4}\right)$

Answer: (C) $\frac{1}{30}\left(1-\frac{1}{6^5}\right)$ · The council's preliminary key

Q316 TS EAMCET 2023 · 14 May · Shift 2 MCQ

There are 10 coins in a box out of which 8 are normal and the remaining are with heads on both sides. A coin is chosen at random from the box and tossed 6 times. If it shows heads each time, then the probability that the selected coin has head on both sides is

(A) $\frac{16}{17}$
(B) $\frac{32}{41}$
(C) $\frac{8}{9}$
(D) $\frac{12}{13}$

Answer: (A) $\frac{16}{17}$ · The council's preliminary key

Q317 TS EAMCET 2023 · 14 May · Shift 2 MCQ

A random variable X has the following distribution.

$X = x_i$	-2	-1	0	1	2	3
$P(X = x_i)$	0.1	k	0.2	2k	3k	k

Then the variance of this distribution is

(A) 2.64
(B) 2.8
(C) 2.16
(D) 1.86

Answer: (C) 2.16 · The council's preliminary key

Q318 TS EAMCET 2023 · 13 May · Shift 1 MCQ

If two cards are drawn at random simultaneously from a pack of 52 playing cards then the probability of getting a face card and a spade card other than the face card is

(A) $\frac{35}{221}$
(B) $\frac{20}{221}$
(C) $\frac{77}{442}$
(D) $\frac{65}{442}$

Answer: (B) $\frac{20}{221}$ · The council's preliminary key

Q319 TS EAMCET 2023 · 13 May · Shift 1 MCQ

If three unbiased dice are rolled simultaneously then the probability that all the three dice show distinct numbers is

(A) $\frac{1}{36}$
(B) $\frac{35}{36}$
(C) $\frac{5}{9}$
(D) $\frac{4}{9}$

Answer: (C) $\frac{5}{9}$ · The council's preliminary key

Q320 TS EAMCET 2023 · 13 May · Shift 1 MCQ

Three persons A, B and C attended a recruitment test. The ratio of the chances of A, B, C in getting through the test is 1: 2: 3 and their probabilities to face the interview successfully are 0.8, 0.7, 0.6 respectively. If one of them is to be selected for the post, then the probability that A gets the post is

(A) $\frac{3}{8}$
(B) $\frac{7}{20}$
(C) $\frac{9}{20}$
(D) $\frac{1}{5}$

Answer: (D) $\frac{1}{5}$ · The council's preliminary key

Q321 TS EAMCET 2023 · 13 May · Shift 1 MCQ

Two cards are drawn at random one after the other with replacement from a pack of 52 playing cards. Then the variance of the random variable of the number of spade cards among the drawn cards is

(A) $\frac{3}{8}$
(B) $\frac{1}{2}$
(C) $\frac{5}{8}$
(D) $\frac{7}{8}$

Answer: (A) $\frac{3}{8}$ · The council's preliminary key

Q322 TS EAMCET 2023 · 13 May · Shift 2 MCQ

A bag contains 3 red, 5 black and 7 blue balls. If three balls are drawn at random simultaneously from the bag then the probability of getting at least two blue balls is

(A) $\frac{29}{65}$
(B) $\frac{29}{130}$
(C) $\frac{9}{65}$
(D) $\frac{9}{130}$

Answer: (A) $\frac{29}{65}$ · The council's preliminary key

Q323 TS EAMCET 2023 · 13 May · Shift 2 MCQ

In a game, two dice are thrown simultaneously by a person A and two cards are drawn at random simultaneously from a pack of 52 playing cards by a person B. They win the game if A gets a prime score as the sum of the numbers appear on both the dice and B gets a face card and a card having a prime number. Then the probability that both A and B win is

(A) $\frac{8}{663}$
(B) $\frac{40}{663}$
(C) $\frac{16}{117}$
(D) $\frac{40}{221}$

Answer: (B) $\frac{40}{663}$ · The council's preliminary key

Q324 TS EAMCET 2023 · 13 May · Shift 2 MCQ

Two players A and B alternatively toss 3 coins simultaneously. The player who gets 2 heads and 1 tail first, wins the game. If game continues until someone wins and if A begins the game, the probability that B wins the game is

(A) $\frac{24}{39}$
(B) $\frac{4}{7}$
(C) $\frac{15}{39}$
(D) $\frac{3}{7}$

Answer: (C) $\frac{15}{39}$ · The council's preliminary key

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Q325 TS EAMCET 2023 · 13 May · Shift 2 MCQ

If X is a Poisson variate satisfying the condition $3P(x=2)=P(x=4)$ then $P(x=6)=$

(A) $\frac{162}{5e^6}$
(B) $\frac{108}{5e^6}$
(C) $\frac{324}{5e^6}$
(D) $\frac{648}{5e^6}$

Answer: (C) $\frac{324}{5e^6}$ · The council's preliminary key

Q326 TS EAMCET 2023 · 12 May · Shift 1 MCQ

Two numbers b and c are chosen at random in succession without replacement from the set $\{1,2,3,\ldots,9\}$. Then the probability that $x^2+bx+c>0,\ \forall x\in\mathbb{R}$ is

(A) $\frac{29}{72}$
(B) $\frac{32}{81}$
(C) $\frac{45}{143}$
(D) $\frac{82}{125}$

Answer: (A) $\frac{29}{72}$ · The council's preliminary key

Q327 TS EAMCET 2023 · 12 May · Shift 1 MCQ

A student is given 6 questions in an examination with true or false type of answers. If he writes 4 or more correct answers, he passes in the examination. The probability that he passes in the examination is

(A) $\frac{5}{32}$
(B) $\frac{7}{32}$
(C) $\frac{11}{32}$
(D) $\frac{3}{32}$

Answer: (C) $\frac{11}{32}$ · The council's preliminary key

Q328 TS EAMCET 2023 · 12 May · Shift 1 MCQ

If $P(X=x)=c\left(\frac{2}{3}\right)^x;\ x=1,2,3,4,\ldots$ is a probability distribution function of a random variable X, then the value of c is

(A) $\frac{1}{4}$
(B) $\frac{1}{3}$
(C) $\frac{1}{2}$
(D) $\frac{1}{6}$

Answer: (C) $\frac{1}{2}$ · The council's preliminary key

Q329 TS EAMCET 2023 · 12 May · Shift 1 MCQ

In a non-leap year, the probability of getting 53 Sundays or 53 Tuesdays or 53 Thursdays is

(A) $\frac{1}{7}$
(B) $\frac{2}{7}$
(C) $\frac{3}{7}$
(D) $\frac{4}{7}$

Answer: (C) $\frac{3}{7}$ · The council's preliminary key

Q330 TS EAMCET 2023 · 12 May · Shift 1 MCQ

If A and B are two events in a random experiment such that $P(A) + P(B) = 2\,P(A \cap B)$ then

(A) $P(A) + P(B) = 1$
(B) $P(A) = P(B)$
(C) $P(A) + P(B) > 1$
(D) $P(A) = 0, P(B) = 1$

Answer: (B) $P(A) = P(B)$ · The council's preliminary key

Q331 TS EAMCET 2023 · 12 May · Shift 2 MCQ

If A and B are two events of a random experiment such that $P(A \cup B) = P(A \cap B)$, then which one amongst the following four options is not true

(A) A and B are equally likely
(B) $P(A \cap B') = 0$
(C) $P(A' \cap B) = 0$
(D) $P(A) + P(B) = 1$

Answer: (D) $P(A) + P(B) = 1$ · The council's preliminary key

Q332 TS EAMCET 2023 · 12 May · Shift 2 MCQ

If a group of six students including two particular students A and B stand in a row, then the probability of getting an arrangement in which A and B are separated by exactly one student in between them is

(A) $\frac{2}{15}$
(B) $\frac{4}{15}$
(C) $\frac{6}{15}$
(D) $\frac{8}{15}$

Answer: (B) $\frac{4}{15}$ · The council's preliminary key

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Q333 TS EAMCET 2023 · 12 May · Shift 2 MCQ

A, B, C, D cut a pack of 52 well shuffled playing cards successively in the same order. If the person who cuts a spade first, wins the game and the game continues until this happens, then the probability that A wins the game is

(A) $\frac{74}{175}$
(B) $\frac{44}{175}$
(C) $\frac{54}{175}$
(D) $\frac{64}{175}$

Answer: (D) $\frac{64}{175}$ · The council's preliminary key

Q334 TS EAMCET 2023 · 12 May · Shift 2 MCQ

Two bad eggs are mixed accidentally with 10 good ones. If three eggs are drawn at random from this lot in succession without replacement, then the variance of the probability distribution of the number of bad eggs drawn is

(A) $\frac{17}{44}$
(B) $\frac{15}{44}$
(C) $\frac{13}{44}$
(D) $\frac{9}{44}$

Answer: (B) $\frac{15}{44}$ · The council's preliminary key

Q335 TS EAMCET 2022 · 20 Jul · Shift 1 MCQ

A bag contains 9 identical black balls numbered 1 to 9 and 4 identical white balls numbered 1 to 4. If 3 balls are drawn at a time randomly from that bag then the probability of getting at least one white ball is

(A) $\frac{101}{143}$
(B) $\frac{7}{143}$
(C) $\frac{72}{143}$
(D) $\frac{42}{143}$

Answer: (A) $\frac{101}{143}$ · The council's preliminary key

Q336 TS EAMCET 2022 · 20 Jul · Shift 1 MCQ

The probabilities of two persons to hit a target are $\frac{1}{4}$ and $\frac{1}{5}$ respectively. The probability that the target is being hit when both of them attempt independently is

(A) $\frac{1}{2}$
(B) $\frac{3}{5}$
(C) $\frac{2}{5}$
(D) $\frac{7}{10}$

Answer: (C) $\frac{2}{5}$ · The council's preliminary key

Q337 TS EAMCET 2022 · 20 Jul · Shift 1 MCQ

When 3 dice are thrown at a time, the sum of the numbers appeared on 3 dice was found to be 15. Then the probability that the number 5 does not appear on any one of the dice is

(A) $\frac{3}{16}$
(B) $\frac{3}{10}$
(C) $\frac{4}{15}$
(D) $\frac{2}{5}$

Answer: (B) $\frac{3}{10}$ · The council's preliminary key

Q338 TS EAMCET 2022 · 20 Jul · Shift 1 MCQ

If the probability distribution of a random variable X is given by

X = x	0	2	4	6	8	10
P (X = x)	0	k	2k	$5k^2$	$2k^2$	3k

then the mean of X is

(A) $\frac{384}{121}$
(B) $\frac{60}{13}$
(C) $\frac{163}{25}$
(D) $\frac{326}{49}$

Answer: (D) $\frac{326}{49}$ · The council's preliminary key

Q339 TS EAMCET 2022 · 20 Jul · Shift 1 MCQ

The probability of getting a success in a trail is five times that of a failure. The probability of getting at most one success in 5 trails, is

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(A) $\frac{25}{6^5}$
(B) $\frac{26}{6^5}$
(C) $\left(\frac{5}{6}\right)^5$
(D) $2\left(\frac{5}{6}\right)^5$

Answer: (B) $\frac{26}{6^5}$ · The council's preliminary key

Q340 TS EAMCET 2022 · 20 Jul · Shift 2 MCQ

The probability of getting a king and a spade card when two cards are drawn simultaneously from a pack of 52 playing cards is

(A) $\frac{1}{26}$
(B) $\frac{8}{221}$
(C) $\frac{2}{51}$
(D) $\frac{1}{52}$

Answer: (A) $\frac{1}{26}$ · The council's preliminary key

Q341 TS EAMCET 2022 · 20 Jul · Shift 2 MCQ

Two cards are drawn from a pack of 52 playing cards one after the other. If p_1 is the probability of getting a queen in the first draw and a diamond card in the second draw when the first card drawn is replaced and p_2 is the probability of the same event when the first card drawn is not replaced. Then $\frac{p_1}{p_2} =$

(A) 1
(B) 2
(C) 3
(D) 4

Answer: (A) 1 · The council's preliminary key

Q342 TS EAMCET 2022 · 20 Jul · Shift 2 MCQ

Bag A contains 4 white and 2 black balls, bag B contains 3 white and 3 black balls and bag C contains 2 white and 4 black balls. If a bag is chosen at random and a ball is chosen at random from it, then the probability that the ball drawn is black is

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(A) $\frac{1}{3}$
(B) $\frac{3}{4}$
(C) $\frac{1}{2}$
(D) $\frac{2}{3}$

Answer: (C) $\frac{1}{2}$ · The council's preliminary key

Q343 TS EAMCET 2022 · 20 Jul · Shift 2 MCQ

A random variable X has the following probability distribution

$X = x_i$:	1	2	3	4	5	6	7	8	9
$P(X = x_i)$:	10k	9k	8k	8k	6k	5k	4k	3k	k

where k is a real number.
If $A = \{x_i \mid x_i \text{ is a prime number}\}$ and $B = \{x_i \mid x_i > 5\}$ are two events, then $P(A \cup B) =$

(A) $\frac{2}{3}$
(B) $\frac{4}{9}$
(C) $\frac{1}{27}$
(D) $\frac{5}{6}$

Answer: (A) $\frac{2}{3}$ · The council's preliminary key

Q344 TS EAMCET 2022 · 20 Jul · Shift 2 MCQ

If X is a Poisson variate such that $\frac{5}{3}k = P(X = 2) = P(X = 3)$, then $P(X = 5) =$

(A) k
(B) $\frac{1}{4}k$
(C) $\frac{1}{2}k$
(D) $\frac{3}{4}k$

Answer: (D) $\frac{3}{4}k$ · The council's preliminary key

Q345 TS EAMCET 2022 · 19 Jul · Shift 1 MCQ

When two dice are thrown, the probability of getting an ordered pair (x, y) such that $x^2 + y^2 \leq 25$ where x, y are numbers that show up on the two dice, is

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(A) $\frac{4}{9}$
(B) $\frac{25}{36}$
(C) $\frac{7}{12}$
(D) $\frac{5}{12}$

Answer: (D) $\frac{5}{12}$ · The council's preliminary key

Q346 TS EAMCET 2022 · 19 Jul · Shift 1 MCQ

If two cards are drawn simultaneously from a well shuffled pack of 52 cards, then the probability of getting a card having a prime number and a card having a number which is a multiple of 5 is

(A) $\frac{94}{663}$
(B) $\frac{62}{663}$
(C) $\frac{30}{663}$
(D) $\frac{64}{663}$

Answer: (B) $\frac{62}{663}$ · The council's preliminary key

Q347 TS EAMCET 2022 · 19 Jul · Shift 1 MCQ

If A and B are two events of a random experiment such that $P(\overline{A}) = \frac{2}{3}$, $P(B) = \frac{4}{15}$ and $P(A \cap \overline{B}) = \frac{1}{5}$, then $\sqrt{195\left[P(B \mid (A \cup \overline{B})) + P(A \cup B)\right]} =$

(A) 9
(B) 11
(C) 13
(D) 15

Answer: (B) 11 · The council's preliminary key

Q348 TS EAMCET 2022 · 19 Jul · Shift 1 MCQ

A random variable X has the range $\{0, 1, 2, \ldots\}$. If $P(X = r) = k(1 + r)3^{-r}$, for $r = 0, 1, 2, \ldots$ where $k > 0$ is a real number, then $P(X = 0) + P(X = 1) + P(X = 2) =$

(A) $\frac{4}{9}$
(B) $\frac{8}{9}$
(C) $\frac{2}{3}$
(D) $\frac{1}{3}$

Answer: (B) $\frac{8}{9}$ · The council's preliminary key

Q349 TS EAMCET 2022 · 19 Jul · Shift 1 MCQ

In an experiment a person gets success α times out of β trails (sic). If the experiment consists of n trials, then the probability that he fails at least $(n-1)$ times is

(A) $\frac{\alpha^{n-1}}{\beta^n}(n\beta - n\alpha + \alpha)$
(B) $\frac{(\beta-\alpha)^{n-1}}{\beta^n}(n\alpha + \beta - \alpha)$
(C) $\frac{\alpha^n}{\beta^n}(n\alpha + \beta)$
(D) $\left(\frac{\beta-\alpha}{\beta}\right)^n (n\beta + n\alpha + 1)$

Answer: (B) $\frac{(\beta-\alpha)^{n-1}}{\beta^n}(n\alpha + \beta - \alpha)$ · The council's preliminary key

Q350 TS EAMCET 2022 · 19 Jul · Shift 2 MCQ

A bag contains 3 white and 6 red balls. Four balls are drawn at a time randomly. Then the probability of getting at least two red balls is

(A) $\frac{8}{27}$
(B) $\frac{5}{14}$
(C) $\frac{60}{63}$
(D) $\frac{1}{2}$

Answer: (C) $\frac{60}{63}$ · The council's preliminary key

Q351 TS EAMCET 2022 · 19 Jul · Shift 2 MCQ

A and B are two independent events. $P(A) = \frac{2}{5}$, $P(B) = \frac{1}{3}$.
Match the following.
List - I
A) $P(\overline{A} \cup B)$
B) $P(A/B)$
C) $P(A \cup B)$
D) $P(\overline{B}/A)$
List - II

I) $\frac{2}{3}$
II) $\frac{11}{15}$
III) $\frac{3}{5}$
IV) $\frac{2}{5}$
V) $\frac{1}{3}$
The correct match is

(A) A-I, B-III, C-IV, D-II
(B) A-II, B-IV, C-V, D-I
(C) A-II, B-IV, C-III, D-V
(D) A-II, B-IV, C-III, D-I

Answer: (D) A-II, B-IV, C-III, D-I · The council's preliminary key

Q352 TS EAMCET 2022 · 19 Jul · Shift 2 MCQ

Two players A and B are alternately throwing a coin and a die together. A player who first throws head and 6 wins the game. If A starts the game, then the probability that B wins the game is

(A) $\frac{12}{23}$
(B) $\frac{11}{23}$
(C) $\frac{5}{119}$
(D) $\frac{12}{119}$

Answer: (B) $\frac{11}{23}$ · The council's preliminary key

Q353 TS EAMCET 2022 · 19 Jul · Shift 2 MCQ

If two dice are thrown and if X denotes the sum of the numbers that show up on the faces of the dice then the mean of the random variable X is

(A) $\frac{27}{4}$
(B) $\frac{35}{6}$
(C) $\frac{41}{3}$
(D) 7

Answer: (D) 7 · The council's preliminary key

Q354 TS EAMCET 2022 · 19 Jul · Shift 2 MCQ

In a university campus, the probability that a person chosen at random is an engineering student is $\frac{1}{5}$. The probability of having atmost two engineering students in a sample of 8 people is

(A) $45 \times \frac{4^6}{5^8}$
(B) $17 \times \frac{4^7}{5^8}$
(C) $27 \times \frac{4^6}{5^8}$
(D) $19 \times \frac{4^7}{5^8}$

Answer: (D) $19 \times \frac{4^7}{5^8}$ · The council's preliminary key

Q355 TS EAMCET 2022 · 18 Jul · Shift 1 MCQ

A cube having edge of length 5 cm is painted on all faces and then it is cut into equal cubes of unit volume. A small cube is selected at random and found that a face of it is painted, then the probability that two more faces of it are also painted is

(A) $\frac{27}{125}$
(B) $\frac{4}{49}$
(C) $\frac{1}{8}$
(D) $\frac{8}{125}$

Answer: (B) $\frac{4}{49}$ · The council's preliminary key

Q356 TS EAMCET 2022 · 18 Jul · Shift 1 MCQ

A pair of dice is thrown twice in succession. The probability of getting prime numbers on both the dice in first throw and composite numbers on both the dice in second throw is

(A) $\frac{1}{216}$
(B) $\frac{1}{16}$
(C) $\frac{1}{36}$
(D) $\frac{1}{9}$

Answer: (C) $\frac{1}{36}$ · The council's preliminary key

Q357 TS EAMCET 2022 · 18 Jul · Shift 1 MCQ

3 balls are drawn one after the other without replacement from an urn containing 4 red, 5 blue and 6 yellow balls. The probability of getting three different coloured balls is

(A) $\frac{12}{91}$
(B) $\frac{24}{91}$
(C) $\frac{8}{225}$
(D) $\frac{8}{75}$

Answer: (B) $\frac{24}{91}$ · The council's preliminary key

Q358 TS EAMCET 2022 · 18 Jul · Shift 1 MCQ

Two balls are drawn at random from a bag containing 5 black balls and 3 white balls. If the random variable X denotes the number of white balls drawn, then the mean of X is

(A) $\frac{1}{2}$
(B) $\frac{5}{8}$
(C) $\frac{3}{4}$
(D) $\frac{3}{8}$

Answer: (C) $\frac{3}{4}$ · The council's preliminary key

Q359 TS EAMCET 2022 · 18 Jul · Shift 1 MCQ

If the mean and variance of a binomial distribution are 4 and $\frac{4}{3}$ respectively, then $P(X = 2) =$

(A) $\frac{20}{243}$
(B) $\frac{40}{243}$
(C) $\frac{28}{729}$
(D) $\frac{8}{27}$

Answer: (A) $\frac{20}{243}$ · The council's preliminary key

Q360 TS EAMCET 2022 · 18 Jul · Shift 2 MCQ

When two dice are thrown, the probability of getting a prime number on one die and a composite number on the other is

(A) $\frac{1}{3}$
(B) $\frac{1}{4}$
(C) $\frac{1}{2}$
(D) $\frac{1}{6}$

Answer: (A) $\frac{1}{3}$ · The council's preliminary key

Q361 TS EAMCET 2022 · 18 Jul · Shift 2 MCQ

Let A, B, C be three pairwise independent events of a random experiment. If $P(\bar{B} \cup \bar{C}) = \frac{1}{2}, P(A) > 0, P(B) = b$ and $P(C) = c$, then $P\left((\bar{B} \cap \bar{C}) \mid A\right) =$

(A) $1 + b - c$
(B) $2 + b - c$
(C) $\frac{3}{2} - b - c$
(D) $2 - b - c$

Answer: (C) $\frac{3}{2} - b - c$ · The council's preliminary key

Q362 TS EAMCET 2022 · 18 Jul · Shift 2 MCQ

Two dice are thrown and the sum of the numbers appearing on the dice is observed to be a multiple of 4. If p is the conditional probability that number 4 has appeared atleast once, then $3p + 2 =$

(A) $\frac{25}{12}$
(B) $\frac{1}{6}$
(C) $\frac{7}{3}$
(D) $\frac{5}{2}$

Answer: (C) $\frac{7}{3}$ · The council's preliminary key

Q363 TS EAMCET 2022 · 18 Jul · Shift 2 MCQ

In a random experiment of throwing 5 coins, the number of heads is defined as a random variable. The mean of the random variable is

(A) $\frac{2}{3}$
(B) $\frac{3}{2}$
(C) $\frac{7}{9}$
(D) $\frac{5}{2}$

Answer: (D) $\frac{5}{2}$ · The council's preliminary key

Q364 TS EAMCET 2022 · 18 Jul · Shift 2 MCQ

The variance of a Poisson variate X is 2. Then $P(X \geq 3) =$

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(A) $\frac{e^2-7}{e^2}$
(B) $\frac{e^2-3}{e^2}$
(C) $\frac{e^2-5}{e^2}$
(D) $1-\frac{4}{e^2}$

Answer: (C) $\frac{e^2-5}{e^2}$ · The council's preliminary key

Q365 AP EAPCET 2022 · 8 Jul · Shift 1 MCQ

A box contains 6 bottles of V_1 drink, 3 bottles of V_2 drink and 4 bottles of V_3 drink. If three bottles are drawn at random, then the probability that the three are not of the same variety is

(A) $\frac{632}{713}$
(B) $\frac{752}{833}$
(C) $\frac{833}{858}$
(D) $\frac{261}{286}$

Answer: (D) $\frac{261}{286}$ · The council's preliminary key

Q366 AP EAPCET 2022 · 8 Jul · Shift 1 MCQ

One card is drawn at random from a well shuffled pack of 52 cards. The probability that the card drawn is a face card (Jack, Queen and King only) is

(A) $1/13$
(B) $3/13$
(C) $1/4$
(D) $9/52$

Answer: (B) $3/13$ · The council's preliminary key

Q367 AP EAPCET 2022 · 8 Jul · Shift 1 MCQ

Four cards are drawn at random from a pack of 52 playing cards. The probability of getting all four cards of the same suit is

(A) $\frac{13}{270725}$
(B) $\frac{91}{190}$
(C) $\frac{178}{20825}$
(D) $\frac{44}{4165}$

Answer: (D) $\frac{44}{4165}$ · The council's preliminary key

Q368 AP EAPCET 2022 · 8 Jul · Shift 1 MCQ

A special lottery is to be held to select a student who will live in the only deluxe room available in a hostel. 100 III year, 150 II year and 200 I year students have applied for the room. Each III year

student's name is placed in the lottery 3 times, each II year student's name 2 times and I year student's name 1 time. The probability that a III year student gets the room is

(A) $\frac{1}{8}$
(B) $\frac{2}{9}$
(C) $\frac{2}{7}$
(D) $\frac{3}{8}$

Answer: (D) $\frac{3}{8}$ · The council's preliminary key

Q369 AP EAPCET 2022 · 8 Jul · Shift 1 MCQ

The discrete random variables X and Y are independent from one another and are defined as $X \sim B(n_1, 0.5)$ and $Y \sim B(n_2, 0.4)$. If the variance of both X and Y is 6 then $\sqrt{n_1 + n_2} =$

(A) 7
(B) 6
(C) 5
(D) 4

Answer: (A) 7 · The council's preliminary key

Q370 AP EAPCET 2022 · 8 Jul · Shift 1 MCQ

The probability that A wakes up before the alarm rings is 0.4. Then, the mean and variance of the number of times A wakes up before the alarm rings, in the next 7 days respectively are:

(A) $0.4, 0.6$
(B) $2.8, 0.6$
(C) $2.8, 1.68$
(D) $7, 0.6$

Answer: (C) $2.8, 1.68$ · The council's preliminary key

Q371 AP EAPCET 2022 · 8 Jul · Shift 2 MCQ

Three unbiased coins are tossed. Then, the probability of getting at most two heads is:

(A) $3/4$
(B) $1/4$
(C) $3/8$
(D) $7/8$

Answer: (D) $7/8$ · The council's preliminary key

Q372 AP EAPCET 2022 · 8 Jul · Shift 2 MCQ

A box has 6 black, 4 red, 2 white and 3 blue shirts. When 2 shirts are picked randomly, the probability that either both are white or both are blue is

(A) $4/105$
(B) $1/35$
(C) $1/105$
(D) $1/15$

Answer: (A) $4/105$ · The council's preliminary key

Q373 AP EAPCET 2022 · 8 Jul · Shift 2 MCQ

Two dice are thrown simultaneously. The probability of getting a multiple of 2 on one dice and multiple of 3 on the other dice is

(A) $\frac{5}{12}$
(B) $\frac{11}{36}$
(C) $\frac{13}{36}$
(D) $\frac{5}{36}$

Answer: (B) $\frac{11}{36}$ · The council's preliminary key

Q374 AP EAPCET 2022 · 8 Jul · Shift 2 MCQ

Two persons A and B take part in a shooting competition. A can hit the target with a probability of 0.6. B can hit the target with a probability of 0.8. A has the first shoot, past which they strike alternatively. Then, the probability that A wins the competition is

(A) $\frac{7}{10}$
(B) $\frac{15}{23}$
(C) $\frac{2}{3}$
(D) $\frac{11}{17}$

Answer: (B) $\frac{15}{23}$ · The council's preliminary key

Q375 AP EAPCET 2022 · 8 Jul · Shift 2 MCQ

In a Binomial distribution, if $p = q$ and $n \geq 4$, then $2^n\, P(X = 5) =$

(A) 5
(B) ${}^nC_2$
(C) 10
(D) ${}^nC_5$

Answer: (D) ${}^nC_5$ · The council's preliminary key

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Q376 AP EAPCET 2022 · 8 Jul · Shift 2 MCQ

A random variable X follows the binomial distribution and $X \sim B(n, 0.3)$. If the mean of X is three times as large as the standard deviation of X, then $n =$

(A) 9
(B) 21
(C) 27
(D) 3

Answer: (B) 21 · The council's preliminary key

Q377 AP EAPCET 2022 · 7 Jul · Shift 1 MCQ

If A and B are two independent events such that $P(A) = 0.3$, $P(B) = x$ and $P(A \cup B) = 0.44$, then $x =$

(A) 0.1
(B) 0.4
(C) 0.3
(D) 0.2

Answer: (D) 0.2 · The council's preliminary key

Q378 AP EAPCET 2022 · 7 Jul · Shift 1 MCQ

In a set of 30 games cards, 17 are white and rest are green. Out of 30, 4 white and 5 green are marked IMPORTANT. If a card is chosen randomly from this set, the possibility of choosing a green card or an "IMPORTANT" card is

(A) $13/30$
(B) $22/30$
(C) $17/30$
(D) $9/13$

Answer: (C) $17/30$ · The council's preliminary key

Q379 AP EAPCET 2022 · 7 Jul · Shift 1 MCQ

In a toy factory, the machines A, B and C are used to manufacture 30%, 40% and 30% of the output, respectively. The probabilities of toys made by machines A, B, and C to be defective are respectively 2%, 3% and 1%. A toy is taken from the factory and is found to be defective. The probability that it was manufactured by the machine B is

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(A) $4/5$
(B) $2/9$
(C) $3/4$
(D) $4/7$

Answer: (D) $4/7$ · The council's preliminary key

Q380 AP EAPCET 2022 · 7 Jul · Shift 1 MCQ

If a number is chosen at random from the set $\{1, 2, 3, \ldots, 100\}$, then the probability that the chosen number is a perfect cube is

(A) $1/25$
(B) $1/2$
(C) $1/10$
(D) $9/13$

Answer: (A) $1/25$ · The council's preliminary key

Q381 AP EAPCET 2022 · 7 Jul · Shift 1 MCQ

Suppose that a book of 600 pages contains 40 print mistakes. Assume that these errors are randomly distributed throughout the book and the number of errors per page follows a Poission distribution. The probability that all the 10 pages selected at random with no print mistakes is

(A) $\frac{1}{3}e^{-1}$
(B) $2e^{-1/3}$
(C) $e^{-2/3}$
(D) $\frac{1}{3}e^{-2}$

Answer: (C) $e^{-2/3}$ · The council's preliminary key

Q382 AP EAPCET 2022 · 7 Jul · Shift 1 MCQ

The maximum value of the variance of Binomial distribution with parameters n and p is

(A) $n/2$
(B) $n/4$
(C) $np(1-p)$
(D) $2n$

Answer: (B) $n/4$ · The council's preliminary key

Q383 AP EAPCET 2022 · 7 Jul · Shift 2 MCQ

From a well shuffled pack of 52 cards, two cards are drawn at random. Then, the probability of both the cards being kings is

(A) $\frac{1}{15}$
(B) $\frac{25}{57}$
(C) $\frac{35}{256}$
(D) $\frac{1}{221}$

Answer: (D) $\frac{1}{221}$ · The council's preliminary key

Q384 AP EAPCET 2022 · 7 Jul · Shift 2 MCQ

Person A can solve 90% of the problems given in the book and Person B can solve 70%. Then the probability that atleast one of them will solve the problem selected at random from the book is

(A) 0.16
(B) 0.69
(C) 0.97
(D) 0.20

Answer: (C) 0.97 · The council's preliminary key

Q385 AP EAPCET 2022 · 7 Jul · Shift 2 MCQ

A bag contains 3 white, 2 blue and 5 red balls. One ball is drawn at random from this bag. Then, the probability that the ball drawn is not red is

(A) 3/10
(B) 1/5
(C) 1/2
(D) 4/5

Answer: (C) 1/2 · The council's preliminary key

Q386 AP EAPCET 2022 · 7 Jul · Shift 2 MCQ

A person P speaks truth in 75% cases and another person R in 80% cases. Then the probability that they likely to contradict each other in narrating the same event is

(A) $\frac{7}{20}$
(B) $\frac{7}{10}$
(C) 0.2
(D) 0.3

Answer: (A) $\frac{7}{20}$ · The council's preliminary key

Q387 AP EAPCET 2022 · 7 Jul · Shift 2 MCQ

During the winter months, in a certain village in Scotland, the probability of a day having severe fog is 0.6. The probability that in a given week there will be exactly two days with severe fog is

(A) $\frac{6048}{5^7}$
(B) $\frac{2016}{5^7}$
(C) $\frac{3024}{5^7}$
(D) $\frac{12096}{5^7}$

Answer: (A) $\frac{6048}{5^7}$ · The council's preliminary key

Q388 AP EAPCET 2022 · 7 Jul · Shift 2 MCQ

If X is a Poisson random variate with mean 3, then $P(|X-3|<2)=$

(A) $\frac{9}{2e^3}$
(B) $\frac{99}{8e^3}$
(C) $\frac{3}{2e^3}$
(D) $\frac{1}{3e^3}$

Answer: (B) $\frac{99}{8e^3}$ · The council's preliminary key

Q389 AP EAPCET 2022 · 6 Jul · Shift 1 MCQ

A bag contains 2 red, 3 green and 2 blue balls. Two balls are drawn at random. Then, the probability that none of the balls drawn is blue is

(A) $10/21$
(B) $11/21$
(C) $2/7$
(D) $5/7$

Answer: (A) $10/21$ · The council's preliminary key

Q390 AP EAPCET 2022 · 6 Jul · Shift 1 MCQ

Two persons P and Q are considering to apply for a job. The probability that P applies for the job is $1/4$, the probability that P applies for the job given that Q applies for the job is $1/2$, and the probability that Q applies for the job given that P applies for the job is $1/3$. Then the probability that P does not apply for the job given that Q does not apply for the job is

(A) $\frac{4}{5}$
(B) $\frac{5}{6}$
(C) $\frac{7}{8}$
(D) $\frac{11}{12}$

Answer: (A) $\frac{4}{5}$ · The council's preliminary key

Q391 AP EAPCET 2022 · 6 Jul · Shift 1 MCQ

If E and F are events such that $P(\bar{F})=0.7$ and $P(E\cap F)=0.2$, then $P(E|F)$ is

(A) $2/3$
(B) $1/3$
(C) $3/4$
(D) $1/4$

Answer: (A) $2/3$ · The council's preliminary key

Q392 AP EAPCET 2022 · 6 Jul · Shift 1 MCQ

A bag contains 21 toys numbered 1 to 21. A toy is drawn and then another toy is drawn without replacement. The probability that both toys will show even numbers is

(A) $\frac{5}{21}$
(B) $\frac{3}{14}$
(C) $\frac{11}{42}$
(D) $\frac{4}{21}$

Answer: (B) $\frac{3}{14}$ · The council's preliminary key

Q393 AP EAPCET 2022 · 6 Jul · Shift 1 MCQ

The random variable X has Binomial distribution B(20, 0.4). Then $5 - 5\,P(X \geq 2) =$

(A) $62\left(\frac{2}{5}\right)^{19}$
(B) $43\left(\frac{3}{5}\right)^{19}$
(C) $1 + 23\left(\frac{3^{19}}{5^{20}}\right)$
(D) $1 + 62\left(\frac{2^{19}}{5^{20}}\right)$

Answer: (B) $43\left(\frac{3}{5}\right)^{19}$ · The council's preliminary key

Q394 AP EAPCET 2022 · 6 Jul · Shift 1 MCQ

A multiple choice test consists of 5 questions, each question having 4 responses. There is only one correct response and the remaining 3 are incorrect responses. If a candidate attempts all the 5 questions then the probability that he answers at least 3 questions incorrectly is

(A) $\frac{675}{1024}$
(B) $\frac{459}{512}$
(C) $\frac{81}{128}$
(D) $\frac{135}{512}$

Answer: (B) $\frac{459}{512}$ · The council's preliminary key

Q395 AP EAPCET 2022 · 6 Jul · Shift 2 MCQ

Two dice are rolled. Then, the probability that the total score is a prime number is

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(A) $\frac{1}{16}$
(B) $\frac{5}{12}$
(C) $\frac{1}{2}$
(D) $\frac{7}{9}$

Answer: (B) $\frac{5}{12}$ · The council's preliminary key

Q396 AP EAPCET 2022 · 6 Jul · Shift 2 MCQ

An unbiased dice with faces marked 1,2,3,4,5 and 6 is rolled four times. Out of four face values obtained, the probability that the minimum face value is not less than 2 and the maximum face value is not greater than 5 is:

(A) $16/81$
(B) $1/81$
(C) $80/81$
(D) $65/81$

Answer: (A) $16/81$ · The council's preliminary key

Q397 AP EAPCET 2022 · 6 Jul · Shift 2 MCQ

A bag contains 19 red balls and 19 black balls. Two balls are chosen at a time repeatedly and discarded if they are of the same color, but if they are different, black ball is discarded and red ball is returned to the bag. The probability that this process will terminate with one red ball is:

(A) 1
(B) $1/21$
(C) 0
(D) 0.5

Answer: (A) 1 · The council's preliminary key

Q398 AP EAPCET 2022 · 6 Jul · Shift 2 MCQ

An unbiased coin is tossed 3 times. If the third toss gets head, then the probability of getting at least one more head is

(A) $3/4$
(B) $1/4$
(C) $1/2$
(D) $1/3$

Answer: (A) $3/4$ · The council's preliminary key

Q399 AP EAPCET 2022 · 6 Jul · Shift 2 MCQ

A discrete random variable X has the distribution B(15,p). Given that Var (X) = 3.15. Then the two possible values of p are

(A) $0, 1$
(B) $0.1, 0.9$
(C) $0.4, 0.6$
(D) $0.3, 0.7$

Answer: (D) $0.3, 0.7$ · The council's preliminary key

Q400 AP EAPCET 2022 · 6 Jul · Shift 2 MCQ

When success is not an impossible event, then the mean of Binomial distribution is

(A) always more than its variance
(B) always equal to its variance
(C) always less than its variance
(D) always equal to its standard deviation

Answer: (A) always more than its variance · The council's preliminary key

Q401 AP EAPCET 2022 · 5 Jul · Shift 1 MCQ

The probability of getting a sum 9 when two dice are thrown is

(A) 1/6
(B) 1/8
(C) 1/9
(D) 1/12

Answer: (C) 1/9 · The council's preliminary key

Q402 AP EAPCET 2022 · 5 Jul · Shift 1 MCQ

If A and B are two events such that $P(B) \neq 0$ and $P(B) \neq 1$, then $P(\bar{A}|\bar{B})$ is

(A) $1 - P(A|B)$
(B) $1 - P(\bar{A}|B)$
(C) $\frac{1-P(A \cup B)}{P(B)}$
(D) $\frac{P(\bar{A})}{P(\bar{B})}$

Answer: (C) $\frac{1-P(A \cup B)}{P(\bar{B})}$ · The council's preliminary key

Q403 AP EAPCET 2022 · 5 Jul · Shift 1 MCQ

Two brothers X and Y appeared for an exam. Let A be the event that X has passed the exam and B is the event that Y has passed. The probability of A is $\frac{1}{7}$ and of B is $\frac{2}{9}$. Then, the probability that both of them pass the exam is

(A) $\frac{1}{63}$
(B) $\frac{2}{35}$
(C) $\frac{2}{63}$
(D) $\frac{9}{14}$

Answer: (C) $\frac{2}{63}$ · The council's preliminary key

Q404 AP EAPCET 2022 · 5 Jul · Shift 1 MCQ

A bag contains 4 red and 3 black balls. A second bag contains 2 red and 3 black balls. One bag is selected at random. If from the selected bag, one ball is drawn at random, then the probability that the ball drawn is red is

(A) 39/70
(B) 41/70
(C) 29/70
(D) 17/35

Answer: (D) 17/35 · The council's preliminary key

Q405 AP EAPCET 2022 · 5 Jul · Shift 1 MCQ

In a Binomial distribution, if 'n' is the number of trials and the mean and variance are 4 and 3 respectively, then $2^{32}\ P\left(X=\frac{n}{2}\right)=$

(A) ${}^{16}C_8\ (3^8)$
(B) ${}^{12}C_6\ (2^6)$
(C) ${}^{32}C_{16}\ (3^{16})$
(D) ${}^{16}C_7\ (3^9)$

Answer: (A) ${}^{16}C_8\ (3^8)$ · The council's preliminary key

Q406 AP EAPCET 2022 · 5 Jul · Shift 1 MCQ

For a Poisson distribution, if mean $=\ell$, variance $=m$ and $\ell+m=8$, then $e^4[1-P(X>2)]=$

(A) 8
(B) 13
(C) 9
(D) 12

Answer: (B) 13 · The council's preliminary key

Q407 AP EAPCET 2022 · 5 Jul · Shift 2 MCQ

Three students X, Y and Z appear for an examination. The probability of X passing the examination is $\frac{1}{5}$, the probability of Y passing the examination is $\frac{1}{4}$ and the probability of Z failing the examination is $\frac{2}{3}$. The probability that atleast two of them pass the exam is

(A) $\frac{1}{6}$
(B) $\frac{2}{5}$
(C) $\frac{3}{4}$
(D) $\frac{3}{5}$

Answer: (A) $\frac{1}{6}$ · The council's preliminary key

Q408 AP EAPCET 2022 · 5 Jul · Shift 2 MCQ

Two dice are thrown simultaneously. The probability of getting two numbers whose product is even is

(A) $1/2$
(B) $3/4$
(C) $3/8$
(D) $5/16$

Answer: (B) $3/4$ · The council's preliminary key

Q409 AP EAPCET 2022 · 5 Jul · Shift 2 MCQ

From a pack of 52 cards, 3 cards are drawn at random. Then, the probability that one is ace, one is queen and one is jack is

(A) $\frac{19}{5525}$
(B) $\frac{21}{5525}$
(C) $\frac{17}{5525}$
(D) $\frac{16}{5525}$

Answer: (D) $\frac{16}{5525}$ · The council's preliminary key

Q410 AP EAPCET 2022 · 5 Jul · Shift 2 MCQ

There are 4 hotels in a town. If 3 men check into the hotels in a day then the probability that each checks into a different hotel is

(A) $\frac{6}{7}$
(B) $\frac{1}{8}$
(C) $\frac{3}{8}$
(D) $\frac{5}{9}$

Answer: (C) $\frac{3}{8}$ · The council's preliminary key

Q411 AP EAPCET 2022 · 5 Jul · Shift 2 MCQ

It is given that the discrete random variable is $X \sim B(n, p)$ and $P(X = 2) = P(X = 3)$. Then mean of X is

(A) $2 - p$
(B) $3 - p$
(C) $p - 2$
(D) $p - 3$

Answer: (B) $3 - p$ · The council's preliminary key

Q412 AP EAPCET 2022 · 5 Jul · Shift 2 MCQ

If '3' is the variance of Poisson distribution, then $P(1 < x < 4) =$

(A) $\frac{123}{8}e^{-3}$
(B) $3\,e^{-\sqrt{3}}$
(C) $9e^{-3}$
(D) $\left(\frac{3+\sqrt{3}}{2}\right)e^{-3}$

Answer: (C) $9e^{-3}$ · The council's preliminary key

Q413 AP EAPCET 2022 · 4 Jul · Shift 1 MCQ

A box contains 100 balls, numbered from 1 to 100. If 3 balls are selected one after the other at random with replacement from the box, then the probability that the sum of the three numbers on the balls selected from the box is an odd number, is

(A) $\frac{1}{2}$
(B) $\frac{3}{4}$
(C) $\frac{3}{8}$
(D) $\frac{1}{8}$

Answer: (A) $\frac{1}{2}$ · The council's preliminary key

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Q414 AP EAPCET 2022 · 4 Jul · Shift 1 MCQ

In a lottery, containing 35 tickets, exactly 10 tickets bear a prize. If a ticket is drawn at random, then the probability of not getting a prize is.

(A) 1/10
(B) 2/5
(C) 2/7
(D) 5/7

Answer: (D) 5/7 · The council's preliminary key

Q415 AP EAPCET 2022 · 4 Jul · Shift 1 MCQ

A bag contains 7green and 5 black balls. 3 balls are drawn at random one after the other. If the balls are not replaced, then the probability of all three balls being green is

(A) $\frac{343}{1720}$
(B) $\frac{21}{36}$
(C) $\frac{12}{35}$
(D) $\frac{7}{44}$

Answer: (D) $\frac{7}{44}$ · The council's preliminary key

Q416 AP EAPCET 2022 · 4 Jul · Shift 1 MCQ

If x is chosen at random from the set {1,2,3,4} and y is chosen at random from the set {5,6,7}, then the probability that xy will be even is

(A) $\frac{5}{6}$
(B) $\frac{1}{6}$
(C) $\frac{1}{2}$
(D) $\frac{2}{3}$

Answer: (D) $\frac{2}{3}$ · The council's preliminary key

Q417 AP EAPCET 2022 · 4 Jul · Shift 1 MCQ

The discrete random variables X and Y are independent from one another and are defined as X ~ B (16, 0.25) and Y ~ P(2). Then the sum of the variances of X and Y is

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(A) 4
(B) 5
(C) 6
(D) 2

Answer: (B) 5 · The council's preliminary key

Q418 AP EAPCET 2022 · 4 Jul · Shift 1 MCQ

If 6 is the mean of a Poisson distribution, then P (X $\geq$ 3) =

(A) $1 - 25/e^6$
(B) $e^{-6} - 25$
(C) $24 - 25\,e^6$
(D) e^{-3}

Answer: (A) $1 - 25/e^6$ · The council's preliminary key

Q419 AP EAPCET 2022 · 4 Jul · Shift 2 MCQ

In a box, there are 8 red, 7 blue and 6 green balls. One ball is picked randomly. The probability that it is neither red nor green is

(A) $1/3$
(B) $3/4$
(C) $7/19$
(D) $8/21$

Answer: (A) $1/3$ · The council's preliminary key

Q420 AP EAPCET 2022 · 4 Jul · Shift 2 MCQ

For two events A and B, a true statement among the following is

(A) $P(\bar{A} \cup \bar{B}) = 1 - P(A)P\left(\frac{B}{A}\right)$
(B) $P(\bar{A} \cup \bar{B}) = 1 - P(A \cup B)$
(C) $P(\bar{A} \cup \bar{B}) = P(A \cup B)$
(D) $P(\bar{A} \cup \bar{B}) = P(\bar{A}) + P(\bar{B})$

Answer: (A) $P(\bar{A} \cup \bar{B}) = 1 - P(A)P\left(\frac{B}{A}\right)$ · The council's preliminary key

Q421 AP EAPCET 2022 · 4 Jul · Shift 2 MCQ

Five digit numbers are formed by using digits 1,2,3,4 and 5 without repetition. Then, the probability that the randomly chosen number is divisible by 4 is

(A) $\frac{1}{5}$
(B) $\frac{5}{6}$
(C) $\frac{4}{5}$
(D) $\frac{1}{6}$

Answer: (A) $\frac{1}{5}$ · The council's preliminary key

Q422 AP EAPCET 2022 · 4 Jul · Shift 2 MCQ

A manager decides to distribute Rs. 20000 between two employees X and Y. He knows X deserves more than Y, but does not know how much more. So, he decides to arbitrarily break Rs. 20000 in to two parts and gives X the bigger part. Then, the chance that X gets twice as much as Y or more is

(A) $2/5$
(B) $1/2$
(C) $1/3$
(D) $2/3$

Answer: (D) $2/3$ · The council's preliminary key

Q423 AP EAPCET 2022 · 4 Jul · Shift 2 MCQ

Which of the following is not a property of a Binomial distribution?

(A) Random experiment consists of a sequence of n identical trials
(B) Each outcome can be referred to as a success or a failure
(C) The probabilities of the two outcomes can change from one trial to the next
(D) The trials are independent

Answer: (C) The probabilities of the two outcomes can change from one trial to the next · The council's preliminary key

Q424 AP EAPCET 2022 · 4 Jul · Shift 2 MCQ

In a Binomial distribution B(n, p), if the mean and variance are 15 and 10 respectively, then the value of the parameter n is

(A) 28
(B) 16
(C) 45
(D) 25

Answer: (C) 45 · The council's preliminary key

Q425 AP EAPCET 2021 · 5 Oct · Shift 1 MCQ

If E and F are independent events such that $P(E) = \frac{2}{11}$, $P(F) = \frac{5}{9}$ then $P(\overline{E} \cap \overline{F}) =$

(A) $\frac{3}{11}$
(B) $\frac{4}{11}$
(C) $\frac{5}{11}$
(D) $\frac{2}{11}$

Answer: (B) $\frac{4}{11}$ · The council's preliminary key

Q426 AP EAPCET 2021 · 5 Oct · Shift 1 MCQ

Which of the following is false?

(A) If E and F are exclusive events then $P(\overline{E} \cup \overline{F}) = 1$
(B) If $P(E) + P(F) + P(G) = 1$ then E, F, G form a partition of sample space S.
(C) If $P(A) = \frac{3}{7}$ then $P(\overline{A}) = \frac{4}{7}$
(D) If E and F are independent events then $P(E/F) = P(E)$.

Answer: (B) If $P(E) + P(F) + P(G) = 1$ then E, F, G form a partition of sample space S. · The council's preliminary key

Q427 AP EAPCET 2021 · 5 Oct · Shift 1 MCQ

For given two events A and B, if $P(\overline{A}) : P(A) = 3 : 1$ and if $P(A \cup B) : P(\overline{A \cup B}) = 4 : 1$ then

(A) $\frac{1}{4} \leq P(B) \leq \frac{1}{2}$
(B) $\frac{11}{20} \leq P(B) \leq \frac{4}{5}$
(C) $0 \leq P(B) \leq \frac{1}{2}$
(D) $\frac{4}{5} < P(B) < \frac{99}{100}$

Answer: (B) $\frac{11}{20} \leq P(B) \leq \frac{4}{5}$ · The council's preliminary key

Q428 AP EAPCET 2021 · 5 Oct · Shift 1 MCQ

A die has four blank faces and 2 faces marked 3. The chance of getting a total of 12 in 5 throws is _____

(A) ${}^5C_4 \left(\frac{1}{3}\right)^4 \left(\frac{2}{3}\right)$
(B) ${}^5C_4 \left(\frac{1}{3}\right) \left(\frac{2}{3}\right)^4$
(C) ${}^5C_4 \left(\frac{1}{6}\right)^4 \left(\frac{5}{6}\right)$
(D) ${}^5C_4 \left(\frac{1}{6}\right) \left(\frac{5}{6}\right)^4$

Answer: (A) ${}^5C_4 \left(\frac{1}{3}\right)^4 \left(\frac{2}{3}\right)$ · The council's preliminary key

Q429 AP EAPCET 2021 · 5 Oct · Shift 1 MCQ

Ten fair coins are tossed. Probability of getting at least 8 heads is

(A) $\frac{28}{2^7}$
(B) $\frac{7}{2^{10}}$
(C) $\frac{7}{2^7}$
(D) $\frac{56}{2^7}$

Answer: (C) $\frac{7}{2^7}$ · The council's preliminary key

Q430 AP EAPCET 2021 · 25 Aug · Shift 1 MCQ

Three numbers are chosen at random without replacement from the set $A = \{x \in Z \mid 2 \leq x \leq 11\}$. The probability that the minimum of choosen (sic) numbers is 3 and maximum is 7 is

(A) $\frac{1}{30}$
(B) $\frac{1}{40}$
(C) $\frac{1}{50}$
(D) $\frac{1}{60}$

Answer: (B) $\frac{1}{40}$ · The council's preliminary key

Q431 AP EAPCET 2021 · 25 Aug · Shift 1 MCQ

If A and B are two events with $P(A) = 0.65$ and $P(B) = 0.2$. Then the value of $P(A^C) + P(B^C)$ is

(A) 0.85
(B) 0.9
(C) 1.15
(D) 1.1

Answer: (C) 1.15 · The council's preliminary key

Q432 AP EAPCET 2021 · 25 Aug · Shift 1 MCQ

One ticket is selected at random from 50 tickets numbered $00, 01, 02, \ldots, 49$. The probability that sum of the digits is 10, given that product of the digits is 9 is

(A) $\frac{9}{10}$
(B) $\frac{1}{4}$
(C) $\frac{1}{2}$
(D) $\frac{2}{25}$

Answer: (C) $\frac{1}{2}$ · The council's preliminary key

Q433 AP EAPCET 2021 · 25 Aug · Shift 1 MCQ

A one-rupee coin, a two-rupee coin, a five coin (sic) and a ten-rupee coin are tossed simultaneously. Then the expected value of the sum of the values of coins that show heads up is _____

(A) 8
(B) 7
(C) 10
(D) 9

Answer: (D) 9 · The council's preliminary key

Q434 AP EAPCET 2021 · 25 Aug · Shift 2 MCQ

Let S be the set of all quadratic equations of the form $x^2 + bx + c = 0$ where $b, c \in \{1, 2, 3, 4, 5, 6\}$. If an equation is selected at random from S, then the probability that the equation has real roots is _____

(A) $\frac{9}{12}$
(B) $\frac{9}{36}$
(C) $\frac{19}{36}$
(D) $\frac{7}{36}$

Answer: (C) $\frac{19}{36}$ · The council's preliminary key

Q435 AP EAPCET 2021 · 25 Aug · Shift 2 MCQ

Given $P(A) = 0.5$, $P(B) = 0.4$, $P(A \cap B) = 0.3$ then $P(A'/B')$ is equal to

(A) $\frac{1}{3}$
(B) $\frac{1}{2}$
(C) $\frac{2}{3}$
(D) $\frac{3}{4}$

Answer: (C) $\frac{2}{3}$ · The council's preliminary key

Q436 AP EAPCET 2021 · 25 Aug · Shift 2 MCQ

Two bolts, two nuts and three needles are in a box. Two parts are chosen at random from the box. What is the probability that one is a bolt and one is a needle?

(A) $\frac{2}{21}$
(B) $\frac{4}{21}$
(C) $\frac{6}{21}$
(D) $\frac{12}{21}$

Answer: (C) $\frac{6}{21}$ · The council's preliminary key

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Q437 AP EAPCET 2021 · 25 Aug · Shift 2 MCQ

Three students A, B, C are running a race. A and B have the same probability of winning and each is twice likely to win as C. Then the probability that B or C wins is equal to _____ (assuming there are no ties)

(A) $\frac{2}{5}$
(B) $\frac{3}{5}$
(C) $\frac{3}{7}$
(D) $\frac{2}{7}$

Answer: (B) $\frac{3}{5}$ · The council's preliminary key

Q438 AP EAPCET 2021 · 25 Aug · Shift 2 MCQ

The probability of a man hitting a target is $\frac{2}{3}$. the minimum number of times he must fire so that the probability of hitting the target at least once is more then 90 %

(A) 6
(B) 3
(C) 5
(D) 4

Answer: (B) 3 · The council's preliminary key

Q439 AP EAPCET 2021 · 25 Aug · Shift 2 MCQ

For a binomial distribution with mean 6 and variance 2. Then the value of $P(X = 8)$ is

(A) $\frac{2^8}{3^8}$
(B) $\frac{2^8}{3^7}$
(C) $\frac{2^8}{3^9}$
(D) $\frac{2}{3^7}$

Answer: (B) $\frac{2^8}{3^7}$ · The council's preliminary key

Q440 AP EAPCET 2021 · 24 Aug · Shift 1 MCQ

If A and B are mutually exclusive events with $P(A) = \frac{1}{4}$ and $P(B) = \frac{3}{7}$. Then what is the value of $P(A/A \cup B) =$

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(A) $\frac{7}{19}$
(B) $\frac{12}{19}$
(C) $\frac{06}{19}$
(D) $\frac{13}{19}$

Answer: (A) $\frac{7}{19}$ · The council's preliminary key

Q441 AP EAPCET 2021 · 24 Aug · Shift 1 MCQ

Let A, B, C be three events associated with sample space S. A, B, C are pair wise independent and $P(A) = P(B) = P(C) = P$. If all of them cannot occur simultaneously then $P(A \cup B \cup C) =$

(A) $1 - (1 - P)^3$
(B) $3P(1 - P)$
(C) P^3
(D) $3P$

Answer: (B) $3P(1 - P)$ · The council's preliminary key

Q442 AP EAPCET 2021 · 24 Aug · Shift 1 MCQ

Events A, B, C are mutually exclusive events such that $P(A) = \frac{3x+1}{3}$, $P(B) = \frac{1-x}{4}$ and $P(C) = \frac{1-2x}{2}$. The set of possible values of x are in the interval

(A) $\left[\frac{1}{3}, \frac{1}{2}\right]$
(B) $\left[\frac{1}{3}, \frac{2}{3}\right]$
(C) $\left[\frac{1}{3}, \frac{13}{3}\right]$
(D) $[0, 1]$

Answer: (A) $\left[\frac{1}{3}, \frac{1}{2}\right]$ · The council's preliminary key

Q443 AP EAPCET 2021 · 24 Aug · Shift 1 MCQ

When employees with smart phones are randomly selected, 50 % use them for office purpose. The probability that out of 10 users exactly 2 of them use for office purpose is

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(A) ${}^{10}C_2$

(B) ${}^{10}C_2 \frac{1}{2^2}$

(C) ${}^{10}C_2 \frac{1}{2^{10}}$

(D) ${}^{10}C_2 \frac{1}{2}$

Answer: (C) ${}^{10}C_2 \frac{1}{2^{10}}$ · The council's preliminary key

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Q444 AP EAPCET 2021 · 24 Aug · Shift 1 MCQ

If X is a poisson variate such that $P(X=2) = P(X=3)$, then $e^3 \cdot P(X=4)$ is

(A) $\left(\frac{3}{2}\right)^3$

(B) $\frac{3}{2}$

(C) $\frac{e^{-3} \cdot 3^4}{4!}$

(D) $\frac{e^3 \cdot 3^4}{4!}$

Answer: (A) $\left(\frac{3}{2}\right)^3$ · The council's preliminary key

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Q445 AP EAPCET 2021 · 24 Aug · Shift 2 MCQ

A box contains n coins, m of which are fair and the rest are biased. When a biased coin is tossed, the probability of getting a head is twice as likely as tail. A coin is drawn from the box at random and is tossed twice. It is found that first time it shows head and the second time it shows tail. Then the probability that the coin drawn is fair is

(A) $\frac{7m}{8n+m}$

(B) $\frac{9m}{8n+m}$

(C) $\frac{7m}{8m+n}$

(D) $\frac{9m}{8m+n}$

Answer: (B) $\frac{9m}{8n+m}$ · The council's preliminary key

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Q446 AP EAPCET 2021 · 24 Aug · Shift 2 MCQ

If A and B be independent events with $P(A) = \frac{1}{3}$ and $P(B) = \frac{2}{7}$, then the value of $P(A/B^C)$ is

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(A) $\frac{1}{3}$
(B) $\frac{2}{7}$
(C) $\frac{2}{21}$
(D) $\frac{5}{21}$

Answer: (A) $\frac{1}{3}$ · The council's preliminary key

Q447 AP EAPCET 2021 · 24 Aug · Shift 2 MCQ

A man is known to speak truth 7 out of 10 times. After throwing a die with 100 faces marked 1, 2, 3, ..., 100 on it's faces, the man reports that he got a prime number on the die. What is the probability that it is actually a prime?

(A) $\frac{5}{16}$
(B) $\frac{7}{16}$
(C) $\frac{11}{16}$
(D) $\frac{10}{16}$

Answer: (B) $\frac{7}{16}$ · The council's preliminary key

Q448 AP EAPCET 2021 · 24 Aug · Shift 2 MCQ

Let X be a random variable with probability distribution function, $P(X=x)=K\left(\frac{2}{5}\right)^x$, $x=1,2,3,\ldots$ Then value of K is

(A) $\frac{3}{5}$
(B) $\frac{5}{3}$
(C) $\frac{3}{2}$
(D) $\frac{2}{3}$

Answer: (C) $\frac{3}{2}$ · The council's preliminary key

Q449 AP EAPCET 2021 · 24 Aug · Shift 2 MCQ

For a binomial distribution $B(n,p)$ mean $=200$, standard deviation $=10$, then $n^2+\frac{1}{p^2}+\frac{1}{q^2}=$

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(A) $1,60,004$
(B) $1,60,006$
(C) $1,60,008$
(D) $1,60,002$

Answer: (C) $1,60,008$ · The council's preliminary key

Q450 AP EAPCET 2021 · 23 Aug · Shift 1 MCQ

Let A and B be two events with $P(A) = \frac{1}{7}$, $P(A/B) = \frac{2}{5}$ and $P(B) = \frac{2}{7}$. Then the value $P(B/A)$ is

(A) $\frac{1}{5}$
(B) $\frac{5}{49}$
(C) $\frac{4}{5}$
(D) $\frac{3}{5}$

Answer: (C) $\frac{4}{5}$ · The council's preliminary key

Q451 AP EAPCET 2021 · 23 Aug · Shift 1 MCQ

Two urns identical in appearance contain respectively 3 green and 2 black balls and 2 green and 5 black balls. One urn is selected at random and a ball is drawn from it. The probability that it is black is _____

(A) $\frac{39}{70}$
(B) $\frac{37}{70}$
(C) $\frac{41}{70}$
(D) $\frac{33}{70}$

Answer: (A) $\frac{39}{70}$ · The council's preliminary key

Q452 AP EAPCET 2021 · 23 Aug · Shift 1 MCQ

Two integers are drawn at random from the set $\{5, 6, \ldots\ldots, 35\}$. What is the probability that their difference is odd?

(A) $\frac{15}{62}$
(B) $\frac{8}{31}$
(C) $\frac{15}{31}$
(D) $\frac{16}{31}$

Answer: (D) $\frac{16}{31}$ · The council's preliminary key

Q453 AP EAPCET 2021 · 23 Aug · Shift 1 MCQ

The mean and variance of a binomial distribution are 5 and 4 respectively. Then what is $P(X = 1) = ?$

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(A) $\frac{4^{24}}{5^{23}}$
(B) $\frac{4^{24}}{5^{24}}$
(C) $\frac{4}{5^{23}}$
(D) $\frac{4}{5^{24}}$

Answer: (A) $\frac{4^{24}}{5^{23}}$ · The council's preliminary key

Q454 AP EAPCET 2021 · 23 Aug · Shift 1 MCQ

If X is a poisson variable such that $3P(X=4)=\frac{1}{2}P(X=2)+P(X=0)$ then the mean of X is _____

(A) 1
(B) 2
(C) $\frac{3}{2}$
(D) $\frac{1}{2}$

Answer: (B) 2 · The council's preliminary key

Q455 AP EAPCET 2021 · 23 Aug · Shift 2 MCQ

2 aero planes I and II bond a target in succession. The probabilities of I and II scoring a hit correctly is 0.3 and 0.2 respectively. The second plane will bomb only if first misses the target. The probability that the target is hit by the 2nd plane is

(A) 0.06
(B) 0.14
(C) 0.32
(D) 0.7

Answer: (B) 0.14 · Checked by our team

Q456 AP EAPCET 2021 · 23 Aug · Shift 2 MCQ

The probability for a contractor to get a road contract is $\frac{2}{9}$ and to get a building contract is $\frac{5}{9}$. if the probability to get both the contract is $\frac{1}{6}$ then what is the probability to get neither of these two contracts?

(A) $\frac{7}{9}$
(B) $\frac{4}{9}$
(C) $\frac{7}{18}$
(D) $\frac{4}{18}$

Answer: (C) $\frac{7}{18}$ · The council's preliminary key

Q457 AP EAPCET 2021 · 23 Aug · Shift 2 MCQ

Let A and B be events with $P(A) = \frac{1}{3}$, $P(B) = \frac{1}{4}$ and $P(A \cup B) = \frac{1}{2}$. Then which of the following statement is incorrect?

(A) A and B are independent
(B) $P(A/B) = \frac{1}{3}$
(C) $P(A^C \cap B) = \frac{1}{3}$
(D) $P(A \cap B^C) = \frac{1}{4}$

Answer: (C) $P(A^C \cap B) = \frac{1}{3}$ · The council's preliminary key

Q458 AP EAPCET 2021 · 23 Aug · Shift 2 MCQ

If the mean of a Poisson distribution is $\frac{1}{3}$, then the ration $P(X = 1) : P(X = 2)$ is

(A) 1 : 2
(B) 3 : 1
(C) 1 : 6
(D) 6 : 1

Answer: (D) 6 : 1 · The council's preliminary key

Q459 AP EAPCET 2021 · 23 Aug · Shift 2 MCQ

A random variable X takes values $0, 1, 2, 3, \ldots$ with probability $P(X = x) = K(x + 1)\left(\frac{1}{5}\right)^x$ where K is constant, then $P(X = 0)$ is

(A) $\frac{7}{25}$
(B) $\frac{18}{25}$
(C) $\frac{16}{25}$
(D) $\frac{13}{25}$

Answer: (C) $\frac{16}{25}$ · The council's preliminary key

Q460 AP EAPCET 2021 · 20 Aug · Shift 1 MCQ

One card is selected at random from 27 cards numbered form (sic) 1 to 27. What is the probability that the number on the card is even or divisible by 5.

(A) $\frac{15}{27}$
(B) $\frac{16}{27}$
(C) $\frac{17}{27}$
(D) $\frac{18}{27}$

Answer: (B) $\frac{16}{27}$ · The council's preliminary key

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Q461 AP EAPCET 2021 · 20 Aug · Shift 1 MCQ

Nine balls one (sic) drawn simultaneously from a bad (sic) containing 5 white and 7 black balls. The probability of drawing 3 white and 6 black balls is

(A) $\frac{{}^{7}C_{3}}{{}^{12}C_{9}}$
(B) $\frac{7}{22}$
(C) $\frac{3}{22}$
(D) $\frac{7}{11}$

Answer: (B) $\frac{7}{22}$ · The council's preliminary key

Q462 AP EAPCET 2021 · 20 Aug · Shift 1 MCQ

The probabilities that A and B speak truth are $\frac{4}{5}$ and $\frac{3}{4}$ respectively. The probability that they contradict each other when asked to speak on a fact is

(A) $\frac{1}{5}$
(B) $\frac{3}{20}$
(C) $\frac{4}{20}$
(D) $\frac{7}{20}$

Answer: (D) $\frac{7}{20}$ · The council's preliminary key

Q463 AP EAPCET 2021 · 20 Aug · Shift 1 MCQ

The mean and variance of a binomial variable X are 2 and 1 respectively. The probability that X takes values greater than 1 is

(A) $\frac{5}{16}$
(B) $\frac{8}{16}$
(C) $\frac{11}{16}$
(D) $\frac{1}{16}$

Answer: (C) $\frac{11}{16}$ · The council's preliminary key

Q464 AP EAPCET 2021 · 20 Aug · Shift 1 MCQ

For the random variable X with probability distribution is given by the table

$X = x$	0	1	2	3

$P(X = x)$ K $K + \frac{1}{7}$ $2K$ $\frac{2}{5}$

The mean of X is

(A) $\frac{31}{35}$
(B) $\frac{57}{35}$
(C) $\frac{63}{35}$
(D) $\frac{67}{35}$

Answer: (D) $\frac{67}{35}$ · The council's preliminary key

Q465 AP EAPCET 2021 · 20 Aug · Shift 2 MCQ

A coin is tossed until a head appears or it has been tossed thrice. Given that head doesn't appear on the first toss, the probability that coin tossed thrice is

(A) $\frac{2}{3}$
(B) $\frac{1}{3}$
(C) $\frac{3}{4}$
(D) $\frac{1}{4}$

Answer: (A) $\frac{2}{3}$ · The council's preliminary key

Q466 AP EAPCET 2021 · 20 Aug · Shift 2 MCQ

Box-I contains 3 cards bearing numbers 1, 2, 3; Box II contains 5 cards bearing numbers 1, 2, 3, 4, 5 and Box III contains 7 cards bearing numbers 1, 2, 3, 4, 5, 6, 7. One card is drawn at random from each of the boxes. If x_i be the number on the card drawn from the ith box, $i = 1, 2, 3$, then the probability that $x_1 + x_2 + x_3$ is odd is equal to

(A) $\frac{23}{105}$
(B) $\frac{53}{105}$
(C) $\frac{43}{105}$
(D) $\frac{33}{105}$

Answer: (B) $\frac{53}{105}$ · The council's preliminary key

Q467 AP EAPCET 2021 · 20 Aug · Shift 2 MCQ

The range of a random variable X is $\{1, 2, 3, \dots\}$ and $P(X = x) = \frac{c^x}{x!}$, for $x = 1, 2, 3, \dots$ Then the value of C is

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(A) 0

(B) 1

(C) $\ln(2)$ (where $\ln$ - denotes the natural log)

(D) $\ln(3)$ (where $\ln$ - denotes the natural log)

Answer: (C) $\ln(2)$ **(where** $\ln$ **- denotes the natural log)** · The council's preliminary key

Q468 AP EAPCET 2021 · 20 Aug · Shift 2 MCQ

Tom and Jerry play a game of alternately throwing an unfair coin. First one to get head wins. If Tom starts the game, he has 62.5% chance of winning the game. Suppose this coin is tossed 5 times, then the probability of getting exactly 3 heads is _____

(A) $\frac{144}{625}$

(B) $\frac{124}{625}$

(C) $\frac{121}{625}$

(D) $\frac{100}{625}$

Answer: (A) $\frac{144}{625}$ · The council's preliminary key

Q469 AP EAPCET 2021 · 19 Aug · Shift 1 MCQ

12 balls are distributed among 3 boxes, then the probability that the first box will contain 3 balls is

(A) $\frac{{}^{12}C_3 \times 2^9}{3^{12}}$

(B) $\frac{{}^{12}C_3 \times 2^9}{3^{10}}$

(C) $\frac{{}^{12}C_3}{3^{12}}$

(D) $\frac{{}^{12}C_3}{3^{10}}$

Answer: (A) $\frac{{}^{12}C_3 \times 2^9}{3^{12}}$ · The council's preliminary key

Q470 AP EAPCET 2021 · 19 Aug · Shift 1 MCQ

If the letters of the word $REGULATIONS$ be arranged in such a way that relative positions of the letters of the word $GULATIONS$ remain the same then the probability that there are exactly 4 letters between R and E is

(A) $\frac{3}{55}$
(B) $\frac{6}{55}$
(C) $\frac{9}{55}$
(D) $\frac{7}{55}$

Answer: (B) $\frac{6}{55}$ · The council's preliminary key

Q471 AP EAPCET 2021 · 19 Aug · Shift 1 MCQ

A random variable X has the probability distribution

X	1	2	3	4	5	6	7	8
$P(X)$	0.15	0.23	0.12	0.10	0.20	0.08	0.07	0.05

For the events $E = \{X \text{ is a prime number}\}$ and $F = \{X < 4\}$ then $P(E \cup F)$ is

(A) 0.77
(B) 0.87
(C) 0.35
(D) 0.50

Answer: (A) 0.77 · The council's preliminary key

Q472 AP EAPCET 2021 · 19 Aug · Shift 1 MCQ

A die is tossed thrice. If event of getting an even number is a success, then the probability of getting at least 2 successes is

(A) $\frac{7}{8}$
(B) $\frac{1}{4}$
(C) $\frac{2}{3}$
(D) $\frac{1}{2}$

Answer: (D) $\frac{1}{2}$ · The council's preliminary key

Q473 AP EAPCET 2021 · 19 Aug · Shift 2 MCQ

'P' speaks truth in 70 % of the cases and 'Q' in 80 % of the cases. In what percent of cases are they likely to agree in stating the same fact

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(A) 38 %
(B) 48 %
(C) 52 %
(D) 62 %

Answer: (D) 62 % · The council's preliminary key

Q474 AP EAPCET 2021 · 19 Aug · Shift 2 MCQ

If A, B are two events with $P(A \cap B) = \frac{1}{3}$, $P(A \cup B) = \frac{5}{6}$ and $P(A^C) = \frac{1}{2}$, then the value of $P(B^C)$ is

(A) $\frac{1}{2}$
(B) $\frac{1}{3}$
(C) $\frac{2}{3}$
(D) $\frac{5}{6}$

Answer: (B) $\frac{1}{3}$ · The council's preliminary key

Q475 AP EAPCET 2021 · 19 Aug · Shift 2 MCQ

A coin is tossed 2020 times. The probability of getting head on 1947th toss is _____

(A) $\left(\frac{1}{2}\right)^{1947}$
(B) $\left(\frac{1}{2}\right)^{2020}$
(C) $\frac{1}{2}$
(D) $\frac{2}{1947}$

Answer: (C) $\frac{1}{2}$ · The council's preliminary key

Q476 AP EAPCET 2021 · 19 Aug · Shift 2 MCQ

A discrete random variable X takes values 10, 20, 30 and 40, with probability 0.3, 0.3, 0.2, 0.2 respectively. Then the expected value of X is _____

(A) 12
(B) 22
(C) 23
(D) 24

Answer: (C) 23 · The council's preliminary key

Q477 AP EAPCET 2021 · 19 Aug · Shift 2 MCQ

Let X be a random variable which takes values 1, 2, 3, 4 such that $P(X = r) = Kr^3$ where $r = 1, 2, 3, 4$ then _____

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(A) $K = \frac{1}{100}$ and $P\left(\frac{1}{2} < X < \frac{5}{2} \mid X > 1\right) = \frac{8}{97}$
(B) $K = \frac{1}{99}$ and $P\left(\frac{1}{2} < X < \frac{5}{2} \mid X > 1\right) = \frac{8}{99}$
(C) $K = \frac{1}{100}$ and $P\left(\frac{1}{2} < X < \frac{5}{2} \mid X > 1\right) = \frac{8}{99}$
(D) $K = \frac{1}{100}$ and $P\left(\frac{1}{2} < X < \frac{5}{2} \mid X > 1\right) = \frac{10}{99}$

Answer: (C) $K = \frac{1}{100}$ and $P\left(\frac{1}{2} < X < \frac{5}{2} \mid X > 1\right) = \frac{8}{99}$ · The council's preliminary key

Q478 TS EAMCET 2021 · 6 Aug · Shift 1 MCQ

In a college 40% students attend Mathematics class, 30% students attend physics class and 20% students attend both the classes. If a student is chosen at random from the college, the probability that the student chosen attend only one class is

(A) $\frac{3}{10}$
(B) $\frac{1}{3}$
(C) $\frac{2}{3}$
(D) $\frac{1}{4}$

Answer: (A) $\frac{3}{10}$ · The council's preliminary key

Q479 TS EAMCET 2021 · 6 Aug · Shift 1 MCQ

A and B are the two groups of books. Group A consists of 8 science and 5 engineering books and the group B consists of 6 science and 7 engineering books. When an unbiased die is rolled, if 2 or 5 turns up, a book is selected at random from the group A, otherwise a book is selected at random from the B group. When an unbiased die is rolled, the probability of selecting a science book is

(A) $\frac{13}{24}$
(B) $\frac{34}{35}$
(C) $\frac{20}{39}$
(D) $\frac{13}{36}$

Answer: (C) $\frac{20}{39}$ · The council's preliminary key

Q480 TS EAMCET 2021 · 6 Aug · Shift 1 MCQ

Two friends A and B meet every weekend either at a party or at a Sports Club. The probability that they meet at Sports Club is $\frac{4}{9}$. The probability that they will dine together at a party and at the Club are respectively $\frac{1}{3}$ and $\frac{2}{5}$. On a certain weekend the probability that they disperse without dine together

(A) $\frac{86}{135}$
(B) $\frac{10}{27}$
(C) $\frac{17}{27}$
(D) $\frac{56}{135}$

Answer: (A) $\frac{86}{135}$ · The council's preliminary key

Q481 TS EAMCET 2021 · 6 Aug · Shift 1 MCQ

The probability function of a discrete random variable X is given by $P(X = r) = Kr^2$, where $r = -2, -1, 0, 1, 2, 3$ and K is a constant. The sum of the variance of X and the square of the mean of X is

(A) $\frac{81}{19}$
(B) $\frac{27}{19}$
(C) $\frac{18}{19}$
(D) $\frac{115}{19}$

Answer: (D) $\frac{115}{19}$ · The council's preliminary key

Q482 TS EAMCET 2021 · 6 Aug · Shift 1 MCQ

If a random variable X denotes the number that appears on the upper face of a die when it is rolled, then $\frac{\text{Variance of X}}{\text{Mean of X}} =$

(A) $\frac{7}{2}$
(B) $\frac{35}{12}$
(C) $\frac{5}{6}$
(D) $\frac{9}{2}$

Answer: (C) $\frac{5}{6}$ · The council's preliminary key

Q483 TS EAMCET 2021 · 6 Aug · Shift 2 MCQ

Let S be the sample space of a random experiment and P be a probability function defined on the power set of S. Two events A and B of the random experiment are called independent if

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(A) $P(A \cap B^c) = P(A).P(B)$
(B) $P(A^c \cap B) = P(A).P(B)$
(C) $P(A^c \cap B^c) = (1 - P(A))(1 - P(B))$
(D) $P(A \cap B) = P(A).P(B^c)$

Answer: (C) $P(A^c \cap B^c) = (1 - P(A))(1 - P(B))$ · The council's preliminary key

Q484 TS EAMCET 2021 · 6 Aug · Shift 2 MCQ

Three groups of children A, B, and C contains boys and girls as given below. Group A contains 3 girls and one boy, group B contains 2 girls and 2 boys and group C contains 3 boys and 1 girl. One child is selected at random from each group. The probability that the three children selected are 1 girl and 2 boys is

(A) $\frac{9}{32}$
(B) $\frac{3}{32}$
(C) $\frac{13}{32}$
(D) $\frac{19}{32}$

Answer: (C) $\frac{13}{32}$ · The council's preliminary key

Q485 TS EAMCET 2021 · 6 Aug · Shift 2 MCQ

If $P(A \cup B) = 0.8$ and $P(A \cap B) = 0.3$, then $P(A^c) + P(B^c) =$

(A) 0.3
(B) 0.5
(C) 0.7
(D) 0.9

Answer: (D) 0.9 · The council's preliminary key

Q486 TS EAMCET 2021 · 6 Aug · Shift 2 MCQ

The probability distribution of a random variable X is given below:

$X = x$	0	1	2	3	4	5	6	7
$P(X = x)$	0	k	$2k$	$2k$	$3k$	k^2	$2k^2$	$7k^2 + k$

Then $P(0 < x < 4) =$

(A) $\frac{4}{5}$
(B) $\frac{3}{5}$
(C) $\frac{1}{2}$
(D) $\frac{1}{4}$

Answer: (C) $\frac{1}{2}$ · The council's preliminary key

Q487 TS EAMCET 2021 · 6 Aug · Shift 2 MCQ

In a poisson distribution, if $P(X=2)$ is twice $P(X=1)$, then the standard deviation of the distribution is

(A) 1
(B) 2
(C) 4
(D) 8

Answer: (B) 2 · The council's preliminary key

Q488 TS EAMCET 2021 · 5 Aug · Shift 1 MCQ

If a proper divisor of the integer 2520 is selected at random, then the probability that it is an odd number is

(A) $\frac{11}{46}$
(B) $\frac{12}{46}$
(C) $\frac{11}{48}$
(D) $\frac{1}{4}$

Answer: (A) $\frac{11}{46}$ · The council's preliminary key

Q489 TS EAMCET 2021 · 5 Aug · Shift 1 MCQ

Each of the two boxes P and Q contain 100 chits numbered from 1 to 100. If one chit is drawn at random from each box, then the probability that the number on the chit drawn from P is square of the number on the chit drawn from Q, is

(A) $0.1\,\%$
(B) 10%
(C) 1%
(D) 0.01%

Answer: (A) $0.1\,\%$ · The council's preliminary key

Q490 TS EAMCET 2021 · 5 Aug · Shift 1 MCQ

A problem in Algebra is given to two students A and B whose chances of solving it are $\frac{2}{5}$ and $\frac{3}{4}$ respectively. The probability that the problem is solved, if both of them try independently, is

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(A) $\frac{17}{20}$
(B) $\frac{1}{2}$
(C) $\frac{3}{20}$
(D) $\frac{13}{20}$

Answer: (A) $\frac{17}{20}$ · The council's preliminary key

Q491 TS EAMCET 2021 · 5 Aug · Shift 1 MCQ

The probability distribution of a random variable X is given below.

$X = x$	0	1	2	3	4	5	6	7
$P(x)$	0.01	0.10	0.26	0.33	0.18	0.06	K	0.04

Then $P(X \geq 3) - P(X < 6) =$

(A) 0.24
(B) -0.27
(C) 0.57
(D) -0.31

Answer: (D) -0.31 · The council's preliminary key

Q492 TS EAMCET 2021 · 5 Aug · Shift 1 MCQ

If $P(X = x) = 5r^x$, $x = 1, 2, 3 \ldots$ is the probability density function of a discrete random variable X, then $r =$

(A) $\frac{1}{6}$
(B) $\frac{1}{3}$
(C) $\frac{2}{3}$
(D) $\frac{1}{4}$

Answer: (A) $\frac{1}{6}$ · The council's preliminary key

Q493 TS EAMCET 2021 · 5 Aug · Shift 2 MCQ

A box contains 8 red, 3 white and 9 blue balls. If 3 balls are drawn from the box at random one after the other without replacement, then the probability that they are 2 red balls and 1 white ball is

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(A) $\frac{7}{95}$
(B) $\frac{13}{95}$
(C) $\frac{7}{36}$
(D) $\frac{11}{36}$

Answer: (A) $\frac{7}{95}$ · The council's preliminary key

Q494 TS EAMCET 2021 · 5 Aug · Shift 2 MCQ

A bag B contains 4 white balls and 2 black balls. Another bag C contains 3 white balls and 5 black balls. If one ball is drawn randomly from each bag, then the probability that the two balls drawn are both white is

(A) $\frac{1}{4}$
(B) $\frac{5}{24}$
(C) $\frac{13}{24}$
(D) $\frac{3}{4}$

Answer: (A) $\frac{1}{4}$ · The council's preliminary key

Q495 TS EAMCET 2021 · 5 Aug · Shift 2 MCQ

From $3n$ consecutive integers three integers are selected at random. The probability that their sum is divisible by 3 is

(A) $\frac{3\cdot {}^{n}C_3+n^2}{{}^{3n}C_3}$
(B) $\frac{2\cdot {}^{n}C_3+n^3}{{}^{3n}C_3}$
(C) $\frac{3n^2-3n+2}{(3n-1)(3n-2)}$
(D) $\frac{3n^2-3n+2}{(3n+1)(3n+2)}$

Answer: (C) $\frac{3n^2-3n+2}{(3n-1)(3n-2)}$ · The council's preliminary key

Q496 TS EAMCET 2021 · 5 Aug · Shift 2 MCQ

A die is rolled 5 times. Getting an odd number in one trail is considered as a success. The variance of the distribution of successes is

(A) $\frac{8}{3}$
(B) $\frac{3}{8}$
(C) $\frac{4}{5}$
(D) $\frac{5}{4}$

Answer: (D) $\frac{5}{4}$ · The council's preliminary key

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Q497 TS EAMCET 2021 · 5 Aug · Shift 2 MCQ

Face masks are supplied to a junior college in packets of 100. If there is a chance that 1 in 500 face masks is defective, then the number of packets containing no defective face masks in a consignment of 10,000 packets is

(A) $\frac{10,000}{e^{0.2}}$
(B) $(10,000)e^{0.2}$
(C) $(10,000)e^{-0.02}$
(D) $\frac{(10,000)e^{0.002}}{2!}$

Answer: (A) $\frac{10,000}{e^{0.2}}$ · The council's preliminary key

Q498 TS EAMCET 2021 · 4 Aug · Shift 1 MCQ

A, B, C are aiming to shoot a balloon. A will succeed 4 times out of 6 attempts. The chance of B to shoot the balloon is 3 out of 5 and that of C is 2 out of 3. If the three aim to shoot the balloon simultaneously, then the probability that at least two of them hit the balloon is

(A) $\frac{5}{9}$
(B) $\frac{9}{25}$
(C) $\frac{4}{9}$
(D) $\frac{32}{45}$

Answer: (D) $\frac{32}{45}$ · The council's preliminary key

Q499 TS EAMCET 2021 · 4 Aug · Shift 1 MCQ

ω is a complex cube root of unity. When an unbiased die is thrown 3 times, if $\beta_1, \beta_2, \beta_3$ are the numbers appeared on the die, then the probability that β_1, β_2 and β_3 satisfy $\omega^{\beta_1} + \omega^{\beta_2} = -\omega^{\beta_3}$, is

(A) $\frac{212}{513}$
(B) $\frac{1}{3}$
(C) $\frac{3}{5}$
(D) $\frac{2}{9}$

Answer: (D) $\frac{2}{9}$ · The council's preliminary key

Q500 TS EAMCET 2021 · 4 Aug · Shift 1 MCQ

If $P(A/B) = \frac{3}{10}$, $P(B/A) = \frac{4}{5}$ and $P(A \cup B) = K\,P(B)$, then $\frac{1}{K} =$

(A) $\frac{40}{49}$
(B) $\frac{40}{43}$
(C) $\frac{100}{101}$
(D) 1

Answer: (B) $\frac{40}{43}$ · The council's preliminary key

Q501 TS EAMCET 2021 · 4 Aug · Shift 1 MCQ

If the probability that an individual will suffer a bad reaction from an injection is 0.001, then the probability that out of 2000 individuals, exactly 3 individuals suffer a bad reaction is

(A) $\frac{4}{3e^2}$
(B) $\frac{2}{e^2}$
(C) $\frac{2}{3e^2}$
(D) $\frac{4}{5e^2}$

Answer: (A) $\frac{4}{3e^2}$ · The council's preliminary key

Q502 TS EAMCET 2021 · 4 Aug · Shift 1 MCQ

A fair coin is tossed 15 times. The probability that the tail will appear atleast thrice is

(A) $1-\frac{10^5}{2^{15}}$
(B) $1-\frac{121}{2^{15}}$
(C) $1-\frac{1}{2^{15}}$
(D) $1-\frac{16}{2^{15}}$

Answer: (B) $1-\frac{121}{2^{15}}$ · The council's preliminary key

Q503 TS EAMCET 2021 · 4 Aug · Shift 2 MCQ

A non-zero integer x is selected randomly from the set of integers $\{x \in \mathbb{Z} / -25 \leq x \leq 25,\ x \neq 0\}$. The probability that $x+6 \leq \frac{135}{x}$ is

(A) $\frac{12}{25}$
(B) $\frac{2}{5}$
(C) $\frac{3}{5}$
(D) $\frac{14}{25}$

Answer: (B) $\frac{2}{5}$ · The council's preliminary key

Q504 TS EAMCET 2021 · 4 Aug · Shift 2 MCQ

If two cards are drawn one after the other without replacement from a well-shuffled ordinary deck of 52 cards, then the probability that both of them are aces is

(A) $\frac{1}{169}$
(B) $\frac{1}{221}$
(C) $\frac{168}{169}$
(D) $\frac{220}{221}$

Answer: (B) $\frac{1}{221}$ · The council's preliminary key

Q505 TS EAMCET 2021 · 4 Aug · Shift 2 MCQ

Out of 40 consecutive integers two integers are drawn at random. The probability that their sum is odd is

(A) $\frac{15}{29}$
(B) $\frac{20}{39}$
(C) $\frac{25}{29}$
(D) $\frac{40}{39}$

Answer: (B) $\frac{20}{39}$ · The council's preliminary key

Q506 TS EAMCET 2021 · 4 Aug · Shift 2 MCQ

The range of a random variable X is $\{0,1,2\}$. If $P(X=0)=3C^3,\ P(X=1)=4C-10C^2;\ P(X=2)=5C-1$, then $P(0<X\leq 2)=$

(A) $\frac{1}{9}$
(B) $\frac{2}{3}$
(C) $\frac{8}{9}$
(D) $\frac{1}{3}$

Answer: (C) $\frac{8}{9}$ · The council's preliminary key

Q507 TS EAMCET 2021 · 4 Aug · Shift 2 MCQ

If 'm' is the mean of a Poisson distribution, then $P(x>0)=$

(A) e^{-m}

(B) $1 - e^{m}$

(C) $\frac{e^{m} - 1}{e^{m}}$

(D) m^{-e}

Answer: (C) $\frac{e^{m} - 1}{e^{m}}$ · The council's preliminary key

Q508 AP EAMCET 2020 · 7 Oct · Shift 1 MCQ

3 bulbs are drawn at random from a lot of 50 bulbs, 5 of which are defective. Find the probability of the event that all 3 bulbs are non-defective (drawn without replacement)

(A) $\frac{1429}{1960}$

(B) $\frac{1439}{1960}$

(C) $\frac{1149}{1960}$

(D) $\frac{1419}{1960}$

Answer: (D) $\frac{1419}{1960}$ · The council's preliminary key

Q509 AP EAMCET 2020 · 7 Oct · Shift 1 MCQ

The following table represents the probability distribution of a random variable X for some $k \in Q$. Find the mean of X.

$X = x$: -2, -1, 0, 1, 2, 3

$P(X = x)$: 0.1, k, 0.2, $2k$, 0.3, k

(A) 1.7

(B) 1.8

(C) 0.8

(D) 0.7

Answer: (C) 0.8 · The council's preliminary key

Q510 AP EAMCET 2020 · 7 Oct · Shift 1 MCQ

An electronic assembly consists of two subsystems A and B. Past testing procedures data show that probabilities of failure are $P(A \text{ fails}) = 0.2$, $P(B \text{ fails alone}) = 0.15$, $P(A \,\&\, B \text{ fail}) = 0.15$. Then the probability that A fails alone is equal to _____

(A) 0.02
(B) 0.03
(C) 0.04
(D) 0.05

Answer: (D) 0.05 · The council's preliminary key

Q511 AP EAMCET 2020 · 7 Oct · Shift 1 MCQ

The following table represents the probability distribution of a random variable X for some $k \in Q$. Then find the value of k.

$X = x$: -2, -1, 0, 1, 2, 3

$P(X = x)$: 0.1, k, 0.2, $2k$, 0.3, k

(A) 0.25
(B) 0.2
(C) 0.15
(D) 0.1

Answer: (D) 0.1 · The council's preliminary key

Q512 AP EAMCET 2020 · 7 Oct · Shift 1 MCQ

When two dice are rolled, what is the probability that at least one face shows a six?

(A) $\frac{25}{36}$
(B) $\frac{1}{6}$
(C) $\frac{1}{3}$
(D) $\frac{11}{36}$

Answer: (D) $\frac{11}{36}$ · The council's preliminary key

Q513 AP EAMCET 2020 · 23 Sep · Shift 1 MCQ

If on an average 9 mountain climbers out of 10 return safely, what is the probability that with 5 climbers out, at least 4 will return safely?

(A) $\frac{9^5 \times 7}{50000}$
(B) $\frac{9^4 \times 7}{50000}$
(C) $\frac{9^5}{100000}$
(D) $\frac{9^4 \times 3}{50000}$

Answer: (B) $\frac{9^4 \times 7}{50000}$ · The council's preliminary key

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Q514 AP EAMCET 2020 · 23 Sep · Shift 1 MCQ

Three dice are thrown. Given that they have a sum of 8, the probability that one of them is a four is _____

(A) $\frac{9}{11}$
(B) $\frac{3}{7}$
(C) $\frac{4}{9}$
(D) $\frac{3}{8}$

Answer: (B) $\frac{3}{7}$ · The council's preliminary key

Q515 AP EAMCET 2020 · 23 Sep · Shift 1 MCQ

If the mean and standard deviation of a binomial distribution are 20 and 4 respectively, then the number of trials is _____

(A) 25
(B) 50
(C) 200
(D) 100

Answer: (D) 100 · Checked by our team

Q516 AP EAMCET 2020 · 23 Sep · Shift 1 MCQ

A bag contains 5 blue and an unknown number x of red balls. Two balls are drawn at random. If the probability of both of them being blue is $\frac{5}{14}$, then the value of x is equal to

(A) 8
(B) 5
(C) 3
(D) 6

Answer: (C) 3 · The council's preliminary key

Q517 AP EAMCET 2020 · 23 Sep · Shift 1 MCQ

Suppose the number of accidents occurring on a highway in each day follows a Poisson random variable with parameter 3. Then, what is the probability that no accidents occur today?

(A) $\frac{1}{e^3}$
(B) $\frac{-1}{e^3}$
(C) $\frac{1}{e^9}$
(D) $\frac{-1}{e^9}$

Answer: (A) $\frac{1}{e^3}$ · The council's preliminary key

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Q518 AP EAMCET 2020 · 22 Sep · Shift 1 MCQ

Given that a throw of three unbiased dice shows different faces, what is the probability that their total is eight?

(A) $\frac{1}{10}$
(B) $\frac{23}{256}$
(C) $\frac{13}{36}$
(D) $\frac{17}{20}$

Answer: (A) $\frac{1}{10}$ · The council's preliminary key

Q519 AP EAMCET 2020 · 22 Sep · Shift 1 MCQ

Five different books are to be distributed among four students randomly. The probability that each child get atleast one book is

(A) $\frac{21}{64}$
(B) $\frac{15}{64}$
(C) $\frac{31}{64}$
(D) $\frac{51}{64}$

Answer: (B) $\frac{15}{64}$ · The council's preliminary key

Q520 AP EAMCET 2020 · 22 Sep · Shift 1 MCQ

If the letters of the word "ASSASSINATION" are arranged at random in a row, then the probability that no two A's come together is equal to

(A) $\frac{25}{26}$
(B) $\frac{23}{26}$
(C) $\frac{15}{26}$
(D) $\frac{17}{26}$

Answer: (C) $\frac{15}{26}$ · The council's preliminary key

Q521 AP EAMCET 2020 · 22 Sep · Shift 2 MCQ

A determinant is chosen at random from the set of all determinants of order 2 with elements 0 or 1 only. The probability that the determinant chosen is non-zero is _____

(A) $\frac{4}{8}$
(B) $\frac{3}{8}$
(C) $\frac{2}{8}$
(D) $\frac{5}{8}$

Answer: (B) $\frac{3}{8}$ · The council's preliminary key

Q522 AP EAMCET 2020 · 22 Sep · Shift 2 MCQ

A bag contains books numbered 1 to 20. Three books are drawn from the bag with replacement. The probability that largest number on the book is 7.

(A) $\frac{2}{17}$
(B) $\frac{7}{20}$
(C) $1-\left(\frac{7}{20}\right)^3$
(D) $\left(\frac{7}{20}\right)^3-\left(\frac{6}{20}\right)^3$

Answer: (D) $\left(\frac{7}{20}\right)^3-\left(\frac{6}{20}\right)^3$ · The council's preliminary key

Q523 AP EAMCET 2020 · 22 Sep · Shift 2 MCQ

When six coins are tossed simultaneously, the probability of getting at least 4 heads is _____

(A) $\frac{11}{64}$
(B) $\frac{15}{64}$
(C) $\frac{11}{32}$
(D) $\frac{15}{32}$

Answer: (C) $\frac{11}{32}$ · The council's preliminary key

Q524 AP EAMCET 2020 · 22 Sep · Shift 2 MCQ

The probability of a non-leap year having 53 Mondays is _____

(A) $\frac{2}{7}$
(B) $\frac{1}{7}$
(C) $\frac{5}{7}$
(D) $\frac{6}{7}$

Answer: (B) $\frac{1}{7}$ · The council's preliminary key

Q525 AP EAMCET 2020 · 22 Sep · Shift 2 MCQ

A bag contains 10 identical pens, of which 4 are red and 6 are blue. 3 pens are taken out at random one after another. Find probability that all 3 are blue.

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(A) $\frac{6}{10}$
(B) $\frac{3}{10}$
(C) $\frac{1}{6}$
(D) $\frac{3}{6}$

Answer: (C) $\frac{1}{6}$ · The council's preliminary key

Q526 AP EAMCET 2020 · 21 Sep · Shift 1 MCQ

If the probability for A to fail in an exam is 0.2 and that for B is 0.3, then the probability that either A or B fails is $\leq$ ____

(A) 0.2
(B) 0.4
(C) 0.5
(D) 0.3

Answer: (C) 0.5 · The council's preliminary key

Q527 AP EAMCET 2020 · 21 Sep · Shift 1 MCQ

Bill and George go target shooting together. Both shoot at a target at the same time. Suppose Bill hits the target with probability 0.7 where as George, independently, hits the target with probability 0.4. Given that exactly one shot hit the target, what is the probability that it was George's shot?

(A) $\frac{2}{3}$
(B) $\frac{2}{9}$
(C) $\frac{1}{9}$
(D) $\frac{8}{9}$

Answer: (B) $\frac{2}{9}$ · The council's preliminary key

Q528 AP EAMCET 2020 · 21 Sep · Shift 1 MCQ

If a random variable X takes the values $x_1, x_2, x_3, \ldots\ldots x_{100}$ with probability $P(X = x_i) = K\, i(i+1)$, then $200K =$

(A) $\frac{1}{1707}$
(B) $\frac{1}{1717}$
(C) $\frac{1}{1727}$
(D) $\frac{1}{1777}$

Answer: (B) $\frac{1}{1717}$ · The council's preliminary key

Q529 AP EAMCET 2020 · 21 Sep · Shift 2 MCQ

For any two events A, B if $P(A \cup B) = a\,P(A \cap B) + b\,P(A) + c\,P(B)$, then $3a + 2b + 5c =$?

(A) 2
(B) 4
(C) 3
(D) 1

Answer: (B) 4 · The council's preliminary key

Q530 AP EAMCET 2020 · 21 Sep · Shift 2 MCQ

In 3 trials of a binomial distribution, the probability of 2 successes is 9 times the probability of 3 successes. Then the probability of success in each trial is

(A) $\frac{1}{2}$
(B) $\frac{1}{3}$
(C) $\frac{1}{4}$
(D) $\frac{1}{5}$

Answer: (C) $\frac{1}{4}$ · The council's preliminary key

Q531 AP EAMCET 2020 · 21 Sep · Shift 2 MCQ

A random variable X has the probability distribution as given below. Let $E = \{X \mid X \text{ is prime number}\}$ and $F = \{X \mid X < 4\}$, then $P(E \cup F) =$

(see the figure above)

Orientation : Vertical

A random variable X has the probability distribution as given below. Let $E = \{X \mid X \text{ is prime number}\}$ and $F = \{X \mid X < 4\}$, then $P(E \cup F) =$

X యాదృచ్ఛిక చలరాశి యొక్క సంభావ్యత విభాజనము క్రింది పట్టీలో ఇవ్వబడినది. మరియు $F = \{X \mid X < 4\}$, $E = \{X \mid X$ ప్రధానసంఖ్య$\}$ అయిన, $P(E \cup F) =$

X	1	2	3	4	5	6	7	8
$P(X)$	K	$2K$	K^2	$2K^2$	$5K^2$	K	K	$2K$

Options :

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1. $\frac{38}{64}$
2. $\frac{39}{64}$
3. $\frac{42}{64}$
4. $\frac{17}{64}$

(A) $\frac{38}{64}$
(B) $\frac{39}{64}$
(C) $\frac{42}{64}$
(D) $\frac{17}{64}$

Answer: (A) $\frac{38}{64}$ · Checked by our team

Q532 AP EAMCET 2020 · 18 Sep · Shift 1 MCQ

There are two dice A and B. Die A has 4 red and 2 white faces and B has 2 red and 4 white faces. A coin is tossed once, if it shows head, die A is rolled, if it shows tail, die B is rolled if the probability that die A is used is $(32/33)$ when it is given that red turns up every time in first n throws, then $n =$

(A) 5
(B) 6
(C) 4
(D) 3

Answer: (A) 5 · The council's preliminary key

Q533 AP EAMCET 2020 · 18 Sep · Shift 1 MCQ

Suppose X has the following probability mass function $P(X = 0) = 0.2$, $P(X = 1) = 0.5$, $P(X = 2) = 0.3$. What $E[X^2] =$?

(A) 2.89
(B) 1.70
(C) 1.10
(D) 1.21

Answer: (B) 1.70 · The council's preliminary key

Q534 AP EAMCET 2020 · 18 Sep · Shift 1 MCQ

In a game, a person wins 5 rupees for getting a number greater than 4 and loses 1 rupee otherwise, when a fair die is thrown. A man participated in the game, but decided to throw the die at most thrice but to quit as and when he gets a number greater than 4. Then the expected value (mean value) of the amount he wins/ loses is

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(A) $\frac{9}{19}$
(B) $\frac{8}{19}$
(C) $\frac{19}{9}$
(D) $\frac{19}{8}$

Answer: (C) $\frac{19}{9}$ · The council's preliminary key

Q535 AP EAMCET 2020 · 18 Sep · Shift 1 MCQ

A number is selected at random from the set $\{1, 2, 3, 4, \cdots\cdots, 1000\}$, then the probability of getting a number which is neither a perfect cube nor a natural number having an odd number of divisors is

(A) $\frac{481}{500}$
(B) $\frac{483}{500}$
(C) $\frac{479}{500}$
(D) $\frac{477}{500}$

Answer: (A) $\frac{481}{500}$ · The council's preliminary key

Q536 AP EAMCET 2020 · 18 Sep · Shift 1 MCQ

The binomial distribution whose mean is 9 and whose standard deviation is $\frac{3}{2}$ is equal to

(A) $\left(\frac{1}{4}+\frac{3}{4}\right)^{12}$
(B) $\left(\frac{3}{4}+\frac{1}{4}\right)^{12}$
(C) $\left(\frac{1}{2}+\frac{3}{2}\right)^{12}$
(D) $\left(\frac{3}{2}+\frac{1}{2}\right)^{12}$

Options (1) or (2) were accepted. More than one answer was accepted. · The council's preliminary key

Q537 AP EAMCET 2020 · 18 Sep · Shift 2 MCQ

Three squares of a chessboard are selected at random. The probability of selecting two squares of one colour and the other of a different color is equal to

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(A) $\frac{10}{17}$
(B) $\frac{15}{19}$
(C) $\frac{17}{23}$
(D) $\frac{16}{21}$

Answer: (D) $\frac{16}{21}$ · The council's preliminary key

Q538 AP EAMCET 2020 · 18 Sep · Shift 2 MCQ

When a coin is tossed 6 times, the probability of getting more heads than tails is _____

(A) $\frac{13}{32}$
(B) $\frac{15}{32}$
(C) $\frac{9}{32}$
(D) $\frac{11}{32}$

Answer: (D) $\frac{11}{32}$ · The council's preliminary key

Q539 AP EAMCET 2020 · 18 Sep · Shift 2 MCQ

If P and Q each toss three coins. The probability that both gets same number of heads, is

(A) $\frac{3}{8}$
(B) $\frac{1}{9}$
(C) $\frac{3}{16}$
(D) $\frac{5}{16}$

Answer: (D) $\frac{5}{16}$ · The council's preliminary key

Q540 AP EAMCET 2020 · 18 Sep · Shift 2 MCQ

A speaks truth in 20% of the cases and B in 80% of the cases. Find the probability that their statements about an incident match.

(A) $\frac{3}{25}$
(B) $\frac{7}{25}$
(C) $\frac{4}{25}$
(D) $\frac{8}{25}$

Answer: (D) $\frac{8}{25}$ · The council's preliminary key

Q541 AP EAMCET 2020 · 18 Sep · Shift 2 MCQ

A and B are two candidates seeking admission in a college. The probability that A is selected is 0.7 and the probability that exactly one of them is selected is 0.6 . Find the probability that B is selected.

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(A) 0.15
(B) 0.20
(C) 0.25
(D) 0.30

Answer: (C) 0.25 · The council's preliminary key

Q542 AP EAMCET 2020 · 17 Sep · Shift 1 MCQ

Let X be a random variable such that $X(x)$ is the number of heads in X (sic) for each $x \in S$, where S is the sample space of random experiment of tossing three fair coins simultaneously. Find the value of $P\left(X^{-1}(2)\right)$

(A) $\frac{3}{8}$
(B) $\frac{5}{8}$
(C) $\frac{1}{8}$
(D) $\frac{3}{4}$

Answer: (A) $\frac{3}{8}$ · The council's preliminary key

Q543 AP EAMCET 2020 · 17 Sep · Shift 1 MCQ

A bag consists of 3 red balls, 5 blue balls, and 8 green balls. A ball is selected at random. What is the probability of not getting a blue ball?

(A) $\frac{11}{16}$
(B) $\frac{3}{16}$
(C) $\frac{1}{2}$
(D) $\frac{5}{16}$

Answer: (A) $\frac{11}{16}$ · The council's preliminary key

Q544 AP EAMCET 2020 · 17 Sep · Shift 2 MCQ

Suppose A, B be two events such that $P(A) = 0.9$ and $P(B) = 0.8$ and $P(A \cap B) \geq 0.7$. Then we can conclude that such a case is _____

(A) Always true
(B) Always false
(C) Not true in some examples
(D) True only in some cases

Answer: (A) Always true · The council's preliminary key

Q545 AP EAMCET 2020 · 17 Sep · Shift 2 MCQ

A die is rolled three times. The probability of getting their sum equal to a prime number of the form $4n + 1$ is _____

(A) $\frac{1}{6}$
(B) $\frac{7}{36}$
(C) $\frac{5}{36}$
(D) $\frac{11}{36}$

Answer: (C) $\frac{5}{36}$ · The council's preliminary key

Q546 AP EAMCET 2020 · 17 Sep · Shift 2 MCQ

A box contains 4 defective and 6 good machines. Two machines are selected at random without replacement. Find the probability that both the machines are good.

(A) $\frac{1}{2}$
(B) $\frac{1}{3}$
(C) $\frac{1}{4}$
(D) $\frac{1}{5}$

Answer: (B) $\frac{1}{3}$ · The council's preliminary key

Q547 AP EAMCET 2020 · 17 Sep · Shift 2 MCQ

The content of the 3 boxes are as follows. If One box is chosen at random and three balls are drawn from it and they are all of different colours, find the probability that they come from box 2?
Box 1: contains 1 black, 2 white, 3 red balls, and
Box 2: contains 1 black, 1 white, 2 red balls, and
Box 3: has 5 black, 4 white, 1 red balls.

(A) $\frac{9}{29}$
(B) $\frac{15}{29}$
(C) $\frac{5}{29}$
(D) $\frac{6}{29}$

Answer: (B) $\frac{15}{29}$ · The council's preliminary key

Q548 TS EAMCET 2020 · 14 Sep · Shift 1 MCQ

A person tossing a biased coin indefinitely wins the game by getting head for the first time. The probability that he wins the game in odd number of tosses is $\frac{3}{4}$. If 5 such coins are tossed at a time then the probability that head appears on all the coins is

(A) $\frac{32}{3125}$
(B) $\frac{243}{3125}$
(C) $\frac{1}{243}$
(D) $\frac{32}{243}$

Answer: (D) $\frac{32}{243}$ · Official TGCHE final key

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Q549 TS EAMCET 2020 · 14 Sep · Shift 1 MCQ

Let $B(\alpha, \beta, \gamma)$ represents that a bag B contains α red balls, β green balls and γ blue balls. Given $B_1(2,3,2)$, $B_2(3,2,2)$, $B_3(2,2,3)$. A die is rolled. If the die shows up 2 or 3 or 5, then a ball will be drawn at random from bag B_1. If the die shows up 4 or 6, then a ball will be drawn at random from bag B_2. If the die shows up 1, then from bag B_3 a ball will be drawn at random. Then the probability of drawing a green ball from a bag thus chosen is

(A) $\frac{2}{7}$
(B) $\frac{5}{14}$
(C) $\frac{3}{5}$
(D) $\frac{2}{3}$

Answer: (B) $\frac{5}{14}$ · Official TGCHE final key

Q550 TS EAMCET 2020 · 14 Sep · Shift 1 MCQ

If the coefficients a and b of a quadratic expression $x^2 + ax + b$ are chosen from the sets $A = \{3,4,5\}$ and $B = \{1,2,3,4\}$ respectively, then the probability that the equation $x^2 + ax + b = 0$ has real roots is

(A) $\frac{1}{6}$
(B) $\frac{5}{6}$
(C) $\frac{3}{4}$
(D) $\frac{7}{12}$

Answer: (B) $\frac{5}{6}$ · Official TGCHE final key

Q551 TS EAMCET 2020 · 14 Sep · Shift 1 MCQ

A random variable X has the following probability distribution:
$X = x$: 1, 2, 3, 4, 5, 6, 7, 8
$P(X = x)$: 0.15, 0.23, K, 0.10, 0.20, 0.08, 0.07, 0.05
For the event $E = \{X/X \text{ is a prime number}\}$ and the event $F = \{X/X < 4\}$, the probability $P(E \cup F) =$

(A) 0.35
(B) 0.57
(C) 0.87
(D) 0.77

Answer: (D) 0.77 · Official TGCHE final key

Q552 TS EAMCET 2020 · 14 Sep · Shift 1 MCQ

A fair coin is tossed K times so that the probability of getting four heads is equal to that of getting six heads. If the probability is maximum for getting r heads then r =

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(A) 9
(B) 5
(C) 8
(D) 10

Answer: (B) 5 · Official TGCHE final key

Q553 TS EAMCET 2020 · 14 Sep · Shift 2 MCQ

If a man throws a die until he gets a number bigger than 3, then the probability that he gets a 5 in his last throw is

(A) $\frac{1}{3}$
(B) $\frac{1}{4}$
(C) $\frac{3}{5}$
(D) $\frac{2}{3}$

Answer: (A) $\frac{1}{3}$ · Official TGCHE final key

Q554 TS EAMCET 2020 · 14 Sep · Shift 2 MCQ

A diagnostic test has the probability 0.95 of giving a positive result when applied to a person suffering from a certain disease, and a probability 0.10 of giving a positive result when given to a non-sufferer. It is estimated that 0.5% of the population are suffering from the disease. If this test is now administered to a person from this population about whom there is no information relating to the incidence of this disease and the test gives a positive result, then the probability that he is a sufferer, is

(A) 0.9545
(B) 0.2194
(C) 0.0455
(D) 0.9499

Answer: (C) 0.0455 · Official TGCHE final key

Q555 TS EAMCET 2020 · 14 Sep · Shift 2 MCQ

Consider the following statements:
Assertion (A): If P_1, P_2, P_3 are probability of happening of three independent events, then probability of happening of atleast one of them is $1-[(1-P_1)(1-P_2)(1-P_3)]$
Reason (R): For any three independent events A, B and C, $P(A\cup B\cup C)=P(A)+P(B)+P(C)-P(A)P(B)-P(A)P(C)-P(B)P(C)+P(A)P(B)P(C)$
The correct option among the following is

(A) (A) is true, (R) is true and (R) is the correct explanation for (A)
(B) (A) is true, (R) is true but (R) is not the correct explanation for (A)
(C) (A) is true but (R) is false
(D) (A) is false but (R) is true

Answer: (A) (A) is true, (R) is true and (R) is the correct explanation for (A) · Official TGCHE final key

Q556 TS EAMCET 2020 · 14 Sep · Shift 2 MCQ

If probability function of a discrete random variable X is $P(X=r)=\frac{r}{k}, r=1,2,3,4,5$ then $P\left(X=2 \text{ or } X=\frac{k}{3}\right)$, is

(A) $P(X=1 \text{ or } X=6)$
(B) $P\left(X=4 \text{ or } X=\frac{k}{5}\right)$
(C) $P\left(X=\frac{k}{5} \text{ or } X=5\right)$
(D) $P\left(X=\frac{k}{3} \text{ or } X=0\right)$

Answer: (B) $P\left(X=4 \text{ or } X=\frac{k}{5}\right)$ · Official TGCHE final key

Q557 TS EAMCET 2020 · 14 Sep · Shift 2 MCQ

If the probability that an individual will suffer a reaction from an injection of a drug is 0.001, then the probability that out of 2000 individuals having that injection, more than 2 individuals will suffer a reaction, is

(A) $\frac{5}{e^2}$
(B) $1-\frac{5}{e^2}$
(C) $1-\frac{4}{e^2}$
(D) $\frac{4}{e^2}$

Answer: (B) $1-\frac{5}{e^2}$ · Official TGCHE final key

Q558 TS EAMCET 2020 · 11 Sep · Shift 1 MCQ

If the roots of each of the equations $2x^2+x-1=0$, $3x^2-10x+3=0$ and $6x^2+11x-2=0$ corresponds to probabilities of three events of a random experiment, then those events are

(A) equally likely
(B) exhaustive
(C) mutually exclusive
(D) mutually independent

Options (2) or (3) were accepted. More than one answer was accepted. · Official TGCHE final key

Q559 TS EAMCET 2020 · 11 Sep · Shift 1 MCQ

Cards are drawn one after the other without replacement from a well shuffled pack of cards until an ace card appears. If the probability that exactly 5 cards are drawn before the first ace card appears is

$\frac{4}{49}\left(\frac{P_1 \cdot P_2 \cdot P_3}{P_4 \cdot P_5 \cdot P_6}\right)$, ($p_i$ is prime, $i = 1, 2, 3, 4, 5, 6$) then $(\max\{p_i\} - \min\{p_i\}) =$

(A) 12

(B) 18

(C) 20

(D) 22

Answer: (C) 20 · Official TGCHE final key

Q560 TS EAMCET 2020 · 11 Sep · Shift 1 MCQ

A number is selected at random from the set $\{1, 2, \ldots\ldots\ldots, 100\}$. Given that the number selected is divisible 2, the probability that it is also divisible by 3 or 5, is

(A) $\frac{26}{50}$

(B) $\frac{23}{50}$

(C) $\frac{7}{50}$

(D) $\frac{13}{50}$

Answer: (B) $\frac{23}{50}$ · Official TGCHE final key

Q561 TS EAMCET 2020 · 11 Sep · Shift 1 MCQ

A target is to be destroyed in a bombing exercise and there is a 75% chance that a bomb will hit the target. Assuming that two direct hits are required to destroy the target completely, the minimum number of bombs to be dropped in order that the probability of destroying the target is not less than 99%, is

(A) 4

(B) 5

(C) 6

(D) 7

Answer: (C) 6 · Official TGCHE final key

Q562 TS EAMCET 2020 · 11 Sep · Shift 1 MCQ

Let $X \sim B(n, p)$ with mean μ and variance σ^2. If $\mu = 2\sigma^2$ and $\mu + \sigma^2 = 3$, then $P(X \leq 3) =$

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(A) $\frac{15}{16}$
(B) $\frac{2}{3}$
(C) $\frac{14}{17}$
(D) $\frac{1}{3}$

Answer: (A) $\frac{15}{16}$ · Official TGCHE final key

Q563 TS EAMCET 2020 · 11 Sep · Shift 2 MCQ

4 – digit numbers are formed using the digits 4, 5, 6, 7, 8, 9 allowing repetition of the given digits. If a number is chosen at random from those numbers thus formed, then the probability that it is exactly divisible by 3 is

(A) $\frac{7}{36}$
(B) $\frac{5}{18}$
(C) $\frac{5}{6}$
(D) $\frac{1}{3}$

Answer: (D) $\frac{1}{3}$ · Official TGCHE final key

Q564 TS EAMCET 2020 · 11 Sep · Shift 2 MCQ

If $E_1, E_2, \ldots, E_n$ are an independent events such that $P(E_r) = \frac{1}{1+r}$, $(r = 1, 2 \ldots n)$, then the probability that at least one of $E_1, E_2, \ldots, E_n$ happens is

(A) $\frac{1}{n+1}$
(B) $\frac{n+1}{n(2n+1)}$
(C) $\frac{n}{n+1}$
(D) $\frac{1}{2n+1}$

Answer: (C) $\frac{n}{n+1}$ · Official TGCHE final key

Q565 TS EAMCET 2020 · 11 Sep · Shift 2 MCQ

An urn contains five balls. Two balls are drawn at random and they are found to be white. The probability that all the balls in the urn are white, is

EdLoop EAPCET

(A) $\frac{1}{2}$
(B) $\frac{3}{8}$
(C) $\frac{2}{5}$
(D) $\frac{2}{3}$

Answer: (A) $\frac{1}{2}$ · Official TGCHE final key

Q566 TS EAMCET 2020 · 11 Sep · Shift 2 MCQ

If the probability function of a random variable X is given by $P(X=n)=\frac{k(n+1)}{3^n}$ for $n \in \mathbb{N} \cup \{0\}$ where k is a constant, then $P(X<2)=$

(A) $\frac{20}{27}$
(B) $\frac{20}{81}$
(C) $\frac{2}{27}$
(D) $\frac{8}{81}$

Answer: (A) $\frac{20}{27}$ · Official TGCHE final key

Q567 TS EAMCET 2020 · 11 Sep · Shift 2 MCQ

An observer counts 240 vehicles per hour at a specific location on a highway. Assuming that the arrival of vehicles at the location follows a Poisson distribution, the probability that more than two vehicles arrive over a 30 sec time interval is

(A) $\frac{e^2-5}{e^2}$
(B) $\frac{e^2-2}{e^2}$
(C) $\frac{1}{12e^2}$
(D) $\frac{12-e^2}{e^2}$

Answer: (A) $\frac{e^2-5}{e^2}$ · Official TGCHE final key

Q568 TS EAMCET 2020 · 10 Sep · Shift 1 MCQ

If A and B are events of a sample space such that $P(A \cup B)=\frac{3}{4}$, $P(A \cap B)=\frac{1}{4}$ and $P(\bar{A})=\frac{2}{3}$, then $P(\bar{A} \cap B)$ is

EdLoop EAPCET

(A) $\frac{5}{12}$
(B) $\frac{3}{8}$
(C) $\frac{4}{5}$
(D) $\frac{5}{4}$

Answer: (A) $\frac{5}{12}$ · Official TGCHE final key

Q569 TS EAMCET 2020 · 10 Sep · Shift 1 MCQ

Let X and Y be two events of a sample space such that $P(X) = \frac{1}{3}$, $P(X/Y) = \frac{1}{2}$ and $P(Y/X) = \frac{2}{5}$ then

(A) $P(X \cap Y) = \frac{1}{5}$
(B) $P(X \cup Y) = \frac{2}{5}$
(C) $P(Y) = \frac{1}{6}$
(D) $P(\bar{X}/Y) = \frac{1}{2}$

Answer: (D) $P(\bar{X}/Y) = \frac{1}{2}$ · Official TGCHE final key

Q570 TS EAMCET 2020 · 10 Sep · Shift 1 MCQ

Let A and B be not mutually exclusive events. If $P(A) = \frac{4}{9}$, $P(A \cap \bar{B}) = \frac{3}{7}$ then $P(B/A) =$

(A) 0
(B) $\frac{1}{28}$
(C) $\frac{3}{13}$
(D) $\frac{4}{7}$

Answer: (B) $\frac{1}{28}$ · Official TGCHE final key

Q571 TS EAMCET 2020 · 10 Sep · Shift 1 MCQ

If 20% of the bolts produced by a machine are defective then the probability that out of 4 bolts chosen at random, less than 2 bolts will be defective, is

(A) 0.2048
(B) 0.4096
(C) 0.8192
(D) 0.1024

Answer: (C) 0.8192 · Official TGCHE final key

Q572 TS EAMCET 2020 · 10 Sep · Shift 1 MCQ

In a book consisting of 600 pages, there are 60 typographical errors. The probability that a randomly chosen page will contain atmost two errors, is

(A) $\frac{1}{5}\sqrt{e}$
(B) $\frac{1}{e^{0.1}}\left(\frac{221}{200}\right)$
(C) $\frac{1}{e^{0.1}}\left(\frac{111}{200}\right)$
(D) $\frac{1}{5}e^{0.1}$

Answer: (B) $\frac{1}{e^{0.1}}\left(\frac{221}{200}\right)$ · Official TGCHE final key

Q573 TS EAMCET 2020 · 10 Sep · Shift 2 MCQ

If $A_1, A_2, \ldots A_{15}$ are the events of a random experiment, then which one of the following is true?

(A) $P\left(\bigcap_{i=1}^{15} A_i\right) \leq \sum_{i=1}^{15} P(A_i) - 15$
(B) $P\left(\bigcap_{i=1}^{15} A_i\right) \geq \sum_{i=1}^{15} P(A_i) - 14$
(C) $P\left(\bigcup_{i=1}^{15} A_i\right) \geq \sum_{i=1}^{15} P(A_i)$
(D) $P\left(\bigcup_{i=1}^{15} A_i\right) < \sum_{i=1}^{15} P(A_i) - \sum_{1\leq i<j<15} P(A_i \cap A_j)$

Answer: (B) $P\left(\bigcap_{i=1}^{15} A_i\right) \geq \sum_{i=1}^{15} P(A_i) - 14$ · Official TGCHE final key

Q574 TS EAMCET 2020 · 10 Sep · Shift 2 MCQ

In an examination there are four Yes/No type of questions. The probability that the answer by the student to a question without guess to be correct is $\frac{2}{3}$. The probability that a student guesses a correct answer is $\frac{1}{2}$. A student writes the examination either by without guessing answers to all the 4 questions or by guessing answers to all 4 questions. The probability that he attempt the exam by guessing answers to all questions is $\frac{3}{7}$. Given that a student answered at least 3 questions correctly, the probability that he answered all the questions without guessing is

(A) $\frac{13}{15}$
(B) $\frac{405}{1429}$
(C) $\frac{1024}{1429}$
(D) $\frac{2}{15}$

Answer: (C) $\frac{1024}{1429}$ · Official TGCHE final key

Q575 TS EAMCET 2020 · 10 Sep · Shift 2 MCQ

Four boxes A, B, C and D contain 5000, 3000, 2000 and 1000 fuses respectively. The percentages of defective fuses in these boxes are 3%, 2%, 1% and 0.5% respectively. If a fuse selected at random from one of the boxes is found to be defective, then the probability that it has come from box D is

(A) $\frac{1}{13}$
(B) $\frac{4}{65}$
(C) $\frac{1}{65}$
(D) $\frac{2}{13}$

Answer: (A) $\frac{1}{13}$ · Official TGCHE final key

Q576 TS EAMCET 2020 · 10 Sep · Shift 2 MCQ

A die is thrown thrice. If getting 1 or 6 in a single throw is considered as success, then the variance of the number of successes is

(A) 1
(B) $\frac{5}{3}$
(C) $\frac{2}{3}$
(D) $\frac{2}{9}$

Answer: (C) $\frac{2}{3}$ · Official TGCHE final key

Q577 TS EAMCET 2020 · 10 Sep · Shift 2 MCQ

In a hospital, on an average if there are 35 births in a week, then the probability that there will be less than 3 births in a day, is

(A) $\frac{118}{e^{35}}$
(B) $\frac{37}{2e^5}$
(C) $\frac{6}{2.e^{35}}$
(D) $1-\frac{118}{3e^5}$

Answer: (B) $\frac{37}{2e^5}$ · Official TGCHE final key

Q578 TS EAMCET 2020 · 9 Sep · Shift 1 MCQ

When two dice are rolled, let x be the probability of getting a sum of the numbers appear on the dice is at most 7. Let y be the probability of getting a sum 7 at least once when a pair of dice are rolled n

times. In order to have $y > x$, the minimum n is

(A) 3
(B) 6
(C) 5
(D) 4

Answer: (C) 5 · Official TGCHE final key

Q579 TS EAMCET 2020 · 9 Sep · Shift 1 MCQ

Two numbers are selected at random from the set $\{1, 2, 3, \ldots\ldots\ldots, 13\}$. If the sum of the selected numbers is even, the probability that both the numbers are odd is

(A) $\frac{2}{13}$
(B) $\frac{1}{2}$
(C) $\frac{7}{12}$
(D) $\frac{5}{26}$

Answer: (C) $\frac{7}{12}$ · Official TGCHE final key

Q580 TS EAMCET 2020 · 9 Sep · Shift 1 MCQ

Let X be the discrete random variable representing the number (x) appeared on the face of a biased die when it is rolled. The probability distribution of X is

X = x: 1 | 2 | 3 | 4 | 5 | 6
P(X = x): 0.1 | 0.15 | 0.3 | 0.25 | k | k

Then variance of X is

(A) 1.64
(B) 1.93
(C) 2.16
(D) 2.28

Answer: (B) 1.93 · Official TGCHE final key

Q581 TS EAMCET 2020 · 9 Sep · Shift 1 MCQ

$2n$ unbiased coins are tossed. The probability of having the number of heads is not equal to the number of tails is

(A) $\frac{2n!}{(n!)^2}\left(\frac{1}{2}\right)^{2n}$
(B) $1 - \frac{2n!}{(n!)^2}$
(C) $\frac{2n!}{(n!)^2}$
(D) $1 - \frac{2n!}{(n!)^2} \cdot \frac{1}{4^n}$

Answer: (D) $1 - \frac{2n!}{(n!)^2} \cdot \frac{1}{4^n}$ · Official TGCHE final key

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Q582 TS EAMCET 2020 · 9 Sep · Shift 1 MCQ

Let $p(x)$ represent the probability mass function of a Poisson distribution. If its mean $\lambda = 3.725$, then value of x at which $p(x)$ is maximum is

(A) 2
(B) 3
(C) 4
(D) 5

Answer: (B) 3 · Official TGCHE final key

Q583 TS EAMCET 2020 · 9 Sep · Shift 2 MCQ

If A, B, C are three events of a sample space such that $P(B) = \frac{3}{2}P(A)$ and $P(C) = \frac{1}{2}P(B)$ then which of the following is correct

(A) $P(A \cup C) = \frac{7}{13}$ when A, B, C are exhaustive and mutually exclusive events
(B) $\frac{10}{13} \leq P(B \cup C) \leq 1$ when A, B, C are exclusive events
(C) $P(C) = \frac{7}{13}$ when A, B, C are exhaustive events
(D) $P(A \cup B \cup C) = P(A)P(B)P(C)$

Answer: (A) $P(A \cup C) = \frac{7}{13}$ **when A, B, C are exhaustive and mutually exclusive events** · Official TGCHE final key

Q584 TS EAMCET 2020 · 9 Sep · Shift 2 MCQ

E_1 and E_2 are two independent events of a random experiment with $P(E_1) = \frac{1}{2}$ and $P(E_1 \cup E_2) = \frac{2}{3}$. Then match the items of List - I with those of List - II

A) $P(E_2) =$
B) $P(E_1 \mid E_2) =$
C) $P(\bar{E}_2 \mid E_1) =$
D) $P(\bar{E}_1 \cup \bar{E}_2) =$

I) $\frac{2}{3}$
II) $\frac{5}{6}$
III) $\frac{1}{3}$
IV) $\frac{1}{2}$
V) $\frac{1}{6}$

The correct match is

(A) A-III, B-II, C-I, D-IV
(B) A-III, B-IV, C-I, D-II
(C) A-III, B-IV, C-II, D-I
(D) A-IV, B-III, C-I, D-II

Answer: (B) A-III, B-IV, C-I, D-II · Official TGCHE final key

Q585 TS EAMCET 2020 · 9 Sep · Shift 2 MCQ

If E_1 and E_2 are two events of the sample space such that $P(E_1) = \frac{1}{4}$, $P(E_1/E_2) = \frac{1}{2}$ and $P(E_2/E_1) = \frac{1}{3}$, then $P(E_1/\overline{E_2}) =$

(A) $\frac{2}{15}$
(B) $\frac{1}{10}$
(C) $\frac{1}{5}$
(D) $\frac{3}{10}$

Answer: (C) $\frac{1}{5}$ · Official TGCHE final key

Q586 TS EAMCET 2020 · 9 Sep · Shift 2 MCQ

A random experiment is conducted five times. If the number of successes of the experiment follows binomial distribution such that the difference of mean and variance of the successes is $\frac{5}{9}$, then the probability of getting atmost two successes is

(A) $\frac{64}{81}$
(B) $\frac{32}{243}$
(C) $\frac{17}{81}$
(D) $\frac{211}{243}$

Answer: (A) $\frac{64}{81}$ · Official TGCHE final key

Q587 TS EAMCET 2020 · 9 Sep · Shift 2 MCQ

If a random variable X follows the Poisson distribution with variance 3, then $P(X = r)$ is maximum, when $r =$

(A) 0
(B) 1
(C) 2
(D) 4

Answer: (C) 2 · Official TGCHE final key

Q588 TS EAMCET 2019 · 6 May · Shift 1 MCQ

In a town the probability that a sick person may need to be admitted to an ICU is 10%. If the probability that a person getting admitted to an ICU goes above 5%, then the threat level is raised. The minimum percentage of the population of the town that should fall sick in order to raise the threat level is

(A) 15
(B) 30
(C) 50
(D) 70

Answer: (C) 50 · Official TGCHE final key

Q589 TS EAMCET 2019 · 6 May · Shift 1 MCQ

A bag contains 6 red, 2 white and 8 blue balls. Three balls are drawn at random from the bag. Match the items of List - I with those items of List - II.
List - I
A) Probability that none of the balls is white
B) Probability of getting 2 white and 1 blue ball
C) Probability of getting 2 blue and 1 white ball
D) Probability of getting 1 red, 1 white and 1 blue ball
List - II
I) $\frac{1}{70}$
II) $\frac{6}{35}$
III) $\frac{13}{20}$
IV) $\frac{1}{10}$
V) $\frac{2}{5}$
The correct match is

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(A) A-III, B-I, C-IV, D-II
(B) A-III, B-IV, C-V, D-II
(C) A-IV, B-III, C-I, D-V
(D) A-II, B-I, C-V, D-IV

Answer: (A) A-III, B-I, C-IV, D-II · Official TGCHE final key

Q590 TS EAMCET 2019 · 6 May · Shift 1 MCQ

A boy speaks truth in 3 out of 5 times. If he throws a die and tells that the number appeared on it is five, then the probability that it is actually five, is

(A) $\frac{1}{3}$
(B) $\frac{1}{10}$
(C) $\frac{13}{30}$
(D) $\frac{3}{13}$

Answer: (D) $\frac{3}{13}$ · Official TGCHE final key

Q591 TS EAMCET 2019 · 6 May · Shift 1 MCQ

A fair coin is tossed a fixed number of times. If the probability of getting five heads is equal to that of getting seven heads, then the probability of getting four heads is

(A) $\frac{495}{4096}$
(B) $\frac{429}{2048}$
(C) $\frac{165}{1024}$
(D) $\frac{35}{512}$

Answer: (A) $\frac{495}{4096}$ · Official TGCHE final key

Q592 TS EAMCET 2019 · 6 May · Shift 1 MCQ

If a Poisson variate X satisfies $P(X=2)=P(X=3)$, then $P(X=5)=$

(A) $\frac{81}{40e^5}$
(B) $\frac{81}{40e^3}$
(C) $\frac{243}{40e^3}$
(D) $\frac{243}{40e^5}$

Answer: (B) $\frac{81}{40e^3}$ · Official TGCHE final key

Q593 TS EAMCET 2019 · 4 May · Shift 1 MCQ

If two events E_1, E_2 are such that $P(E_1 \cup E_2) = \frac{5}{8}$, $P(\overline{E_1}) = \frac{3}{4}$, $P(E_2) = \frac{1}{2}$, then E_1 and E_2 are

(A) independent events
(B) mutually exclusive events
(C) exhaustive events
(D) not independent events

Answer: (A) independent events · Official TGCHE final key

Q594 TS EAMCET 2019 · 4 May · Shift 1 MCQ

If a die is rolled twice and the sum of the numbers appearing on them is observed to be 6, then the probability that the number 1 appears atleast once on them is

(A) $\frac{5}{36}$
(B) $\frac{2}{5}$
(C) $\frac{11}{36}$
(D) $\frac{1}{3}$

Answer: (B) $\frac{2}{5}$ · Official TGCHE final key

Q595 TS EAMCET 2019 · 4 May · Shift 1 MCQ

An examination is attempted by 5,000 graduates, 2,000 post-graduates and 1,000 doctorate holders. The probabilities that a graduate, a post graduate and a doctorate holder will pass the examination are $\frac{2}{3}, \frac{3}{4}, \frac{4}{5}$ respectively. If one of the examinee passed the examination, then the probability that he is a post-graduate is

(A) $\frac{45}{169}$
(B) $\frac{100}{169}$
(C) $\frac{24}{169}$
(D) $\frac{5}{64}$

Answer: (A) $\frac{45}{169}$ · Official TGCHE final key

Q596 TS EAMCET 2019 · 4 May · Shift 1 MCQ

The probability distribution of a discrete random variable X is given below.
If $E(X^2) = \sum x^2 P(X = x)$, then $6E(X^2) - \mathrm{Var}(X) =$

X = x:	-1	0	1	2
P(X = x):	$\frac{1}{3}$	$\frac{1}{6}$	$\frac{1}{6}$	$\frac{1}{3}$

(A) $\frac{1}{12}$
(B) $\frac{19}{12}$
(C) $\frac{113}{12}$
(D) $\frac{12}{113}$

Answer: (C) $\frac{113}{12}$ · Official TGCHE final key

Q597 TS EAMCET 2019 · 4 May · Shift 1 MCQ

If X is a Poisson variable representing number of successes in 50 trials such that $2P(X=1) = 5P(X=5) + 2P(X=3)$ then the probability of getting success in one trial is

(A) $2e^{-2}$
(B) 0.03
(C) 0.04
(D) 0.05

Answer: (C) 0.04 · Official TGCHE final key

Q598 TS EAMCET 2019 · 4 May · Shift 1 MCQ

Let $\lim_{t\to 0}(1+5t)^{\frac{1}{t}} = K$ and X be the random variable representing number of succusses (sic) in 100 independent trials. If the probability of success in each trial is 0.05, then the probability of getting at least one success is

(A) $\frac{1-K}{K}$
(B) $\frac{K-1}{K}$
(C) $\frac{K+1}{2K}$
(D) $\frac{5K+2}{7K}$

Answer: (B) $\frac{K-1}{K}$ · Official TGCHE final key

Q599 TS EAMCET 2019 · 4 May · Shift 2 MCQ

If a number is selected from the first 30 natural numbers, then the probability that the number selected is divisible by 4 or 7, is

(A) $\frac{4}{3}$
(B) $\frac{1}{5}$
(C) $\frac{7}{30}$
(D) $\frac{1}{3}$

Answer: (D) $\frac{1}{3}$ · Official TGCHE final key

Q600 TS EAMCET 2019 · 4 May · Shift 2 MCQ

If 80% of flights depart on time, 70% of flights arrive on time and 65% of flights depart on time and arrive on time, then the probability that a flight that has just departed on time will arrive on time is

(A) $\frac{13}{16}$
(B) $\frac{11}{16}$
(C) $\frac{13}{14}$
(D) $\frac{11}{14}$

Answer: (A) $\frac{13}{16}$ · Official TGCHE final key

Q601 TS EAMCET 2019 · 4 May · Shift 2 MCQ

A computer program has two modules X and Y and errors in them occur independently. X has an error with probability 0.1 and Y has an error with probability 0.3. If an error in X alone causes the program to crash with probability 0.5, an error in Y alone causes the program to crash with probability 0.7 and an error in both X and Y cause the program to crash with probability 0.8, then the probability that the program is crashed is

(A) $\frac{23}{125}$
(B) $\frac{26}{125}$
(C) $\frac{29}{125}$
(D) $\frac{31}{125}$

Answer: (D) $\frac{31}{125}$ · Official TGCHE final key

Q602 TS EAMCET 2019 · 4 May · Shift 2 MCQ

Two dice are rolled. If a random variable X denotes the sum of the numbers on them and μ denotes the mean of X, then $\mu + P(X < 5) + P(X > 9) + P(X = 7) =$

(A) $\frac{15}{2}$
(B) 17
(C) $\frac{17}{2}$
(D) 15

Answer: (A) $\frac{15}{2}$ · Official TGCHE final key

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Q603 TS EAMCET 2019 · 4 May · Shift 2 MCQ

A boy rolled a die once. If an even number appear on that die, then the number of chocolates the boy gets is equal to two more than the number appeared. If an odd number appear on that die, then the number of chocolates he gets is equal to three more than the number appeared. If a random variable X represents the number of chocolates the boy receive, then the range of X is

(A) $\{4, 6, 8\}$
(B) $\{3, 5, 7\}$
(C) $\{3, 4, 7\}$
(D) $\{2, 3\}$

Answer: (A) $\{4, 6, 8\}$ · Official TGCHE final key

Q604 TS EAMCET 2019 · 3 May · Shift 1 MCQ

If five dice are thrown simultaneously, then the probability that atleast three of them show the same numbered face is

(A) $\frac{16}{6^4}$
(B) $\frac{452}{6^5}$
(C) $\frac{226}{6^4}$
(D) $\frac{123}{6^5}$

Answer: (C) $\frac{226}{6^4}$ · Official TGCHE final key

Q605 TS EAMCET 2019 · 3 May · Shift 1 MCQ

If two unbiased dice are rolled simultaneously until a sum of the number appeared on these dice is either 7 or 11, then the probability that 7 comes before 11, is

(A) $\frac{3}{8}$
(B) $\frac{3}{4}$
(C) $\frac{5}{6}$
(D) $\frac{2}{9}$

Answer: (B) $\frac{3}{4}$ · Official TGCHE final key

Q606 TS EAMCET 2019 · 3 May · Shift 1 MCQ

A box contains 10 mangoes out of which 4 are spoiled. 2 mangoes are taken together at random. If one of them is found to be good, then the probability that the other is also good, is

(A) $\frac{1}{3}$
(B) $\frac{2}{3}$
(C) $\frac{8}{15}$
(D) $\frac{5}{13}$

Answer: (D) $\frac{5}{13}$ · Official TGCHE final key

Q607 TS EAMCET 2019 · 3 May · Shift 1 MCQ

Two dice are rolled. If a random variable X is defined as the absolute difference of the two numbers that appear on them, then the mean of X is

(A) 0
(B) $\frac{13}{18}$
(C) $\frac{19}{9}$
(D) $\frac{35}{18}$

Answer: (D) $\frac{35}{18}$ · Official TGCHE final key

Q608 TS EAMCET 2019 · 3 May · Shift 1 MCQ

If getting a head on a coin when it is tossed is considered as success, then the probability of having more number of failures when ten fair coins are tossed simultaneously, is

(A) $\frac{105}{2^8}$
(B) $\frac{73}{2^7}$
(C) $\frac{193}{2^9}$
(D) $\frac{638}{2^{10}}$

Answer: (C) $\frac{193}{2^9}$ · Official TGCHE final key

Q609 TS EAMCET 2019 · 3 May · Shift 2 MCQ

If A and B are two events such that $P(\bar{A}) = 0.3$, $P(B) = 0.4$ and $P(A \cap \bar{B}) = 0.5$, then $P(B|A \cup \bar{B}) =$

(A) 0.3
(B) 0.1
(C) 0.25
(D) 0.75

Answer: (C) 0.25 · Official TGCHE final key

Q610 TS EAMCET 2019 · 3 May · Shift 2 MCQ

Bag I contains 3 red and 4 black balls. Bag II contains 5 red and 6 black balls. If one ball is drawn at random from one of the bags and it is found to be red, then the probability that it was drawn from Bag II, is

(A) $\frac{33}{68}$
(B) $\frac{35}{68}$
(C) $\frac{37}{68}$
(D) $\frac{41}{68}$

Answer: (B) $\frac{35}{68}$ · Official TGCHE final key

Q611 TS EAMCET 2019 · 3 May · Shift 2 MCQ

Two dice A and B are rolled. If it is known that the number on B is 5, then the probability that the sum of the numbers on the two dice will be greater than 9 is

(A) $\frac{1}{3}$
(B) $\frac{1}{4}$
(C) $\frac{1}{5}$
(D) $\frac{1}{2}$

Answer: (A) $\frac{1}{3}$ · Official TGCHE final key

Q612 TS EAMCET 2019 · 3 May · Shift 2 MCQ

As a business strategy, 20% of the new internet service subscribers selected randomly receive a special promotion. If a group of 5 such subscribers signs for the service, then the probability that at least two of them get the special promotion is

(A) $\frac{819}{3125}$
(B) $\frac{821}{3125}$
(C) $\frac{823}{3125}$
(D) $\frac{817}{3125}$

Answer: (B) $\frac{821}{3125}$ · Official TGCHE final key

Q613 TS EAMCET 2019 · 3 May · Shift 2 MCQ

In a communication network, ninety eight percent of messages are transmitted with no error. If a random variable X denotes the number of incorrectly transmitted messages, then the probability that atmost one message is transmitted incorrectly out of 500 messages sent, is

(A) $\frac{11}{e^{10}}$
(B) $\frac{e^{10}-1}{e^{10}}$
(C) $\frac{10}{e^{10}}$
(D) $\frac{98}{e^{10}}$

Answer: (A) $\frac{11}{e^{10}}$ · Official TGCHE final key

Q614 AP EAMCET 2019 · 23 Apr · Shift 1 MCQ

From a group of 50 students, two sections comprising of 20 and 30 students are formed. If Ram and Rahim are two particular students among the 50 students, then the probability that they both belong to the same section is

(A) $\frac{25}{49}$
(B) $\frac{12}{23}$
(C) $\frac{13}{23}$
(D) $\frac{24}{49}$

Answer: (A) $\frac{25}{49}$ · Official APSCHE final key

Q615 AP EAMCET 2019 · 23 Apr · Shift 1 MCQ

If E_1 and E_2 are two events of a random experiment such that $P(E_1)=\frac{1}{8},\ P(E_1|E_2)=\frac{1}{3},\ P(E_2|E_1)=\frac{1}{4}$, then match the items of List - I with the items of List - II.

List - I

A) $P(E_2)$
B) $P(E_1 \cup E_2)$
C) $P(\overline{E_1}|\overline{E_2})$
D) $P(E_1|\overline{E_2})$

List - II

I) $\frac{3}{16}$
II) $\frac{3}{29}$
III) $\frac{3}{32}$
IV) $\frac{26}{29}$
V) $\frac{13}{32}$

The correct match is

(A) A-I, B-III, C-IV, D-II
(B) A-III, B-I, C-IV, D-V
(C) A-III, B-I, C-IV, D-II
(D) A-I, B-II, C-V, D-IV

Answer: (C) A-III, B-I, C-IV, D-II · Official APSCHE final key

Q616 AP EAMCET 2019 · 23 Apr · Shift 1 MCQ

A Box B_1 contains 3 blue balls and 6 red balls. Another Box B_2 contains 8 blue balls and 'n' red balls ($n \in \mathbb{N}$). A ball selected at random from a box is found to be red. If p is the probability that this red ball drawn is from box B_2, then

(A) $\frac{1}{7} \leq p < \frac{3}{5}$
(B) $\frac{3}{5} \leq p < 1$
(C) $0 < p \leq \frac{3}{5}$
(D) $0 \leq p \leq \frac{1}{7}$

Answer: (A) $\frac{1}{7} \leq p < \frac{3}{5}$ · Official APSCHE final key

Q617 AP EAMCET 2019 · 23 Apr · Shift 1 MCQ

From a bag containing 4 white and 5 red balls, if 3 balls are drawn at random, then the mean of the number of red balls among the balls drawn, is

(A) $\frac{5}{3}$
(B) $\frac{20}{7}$
(C) $\frac{22}{7}$
(D) $\frac{25}{9}$

Answer: (A) $\frac{5}{3}$ · Official APSCHE final key

Q618 AP EAMCET 2019 · 23 Apr · Shift 1 MCQ

If the mean of a Poisson variate X is 1, then $\sum_{r=0}^{\infty} |r-1| \, P(X=r) =$

(A) 1
(B) 0
(C) $\frac{2}{e}$
(D) $\frac{1}{e}$

Answer: (C) $\frac{2}{e}$ · Official APSCHE final key

Q619 AP EAMCET 2019 · 22 Apr · Shift 1 MCQ

The probability of occurrence of an event is $\frac{2}{5}$ and the probability of non-occurrence of another event is $\frac{3}{10}$. If these events are independent, then the probability that only one of the two events occur is

(A) $\frac{27}{25}$
(B) $\frac{27}{50}$
(C) $\frac{7}{25}$
(D) $\frac{14}{25}$

Answer: (B) $\frac{27}{50}$ · Official APSCHE final key

Q620 AP EAMCET 2019 · 22 Apr · Shift 1 MCQ

Let α be a root of $x^2 + x + 1 = 0$ and suppose that a fair die is thrown 3 times. If a, b, c are the numbers shown on the die, then the probability that $\alpha^a + \alpha^b + \alpha^c = 0$ is

(A) $\frac{2}{36}$
(B) $\frac{1}{27}$
(C) $\frac{1}{72}$
(D) $\frac{2}{9}$

Answer: (D) $\frac{2}{9}$ · Official APSCHE final key

Q621 AP EAMCET 2019 · 22 Apr · Shift 1 MCQ

Suppose that a bag A contains n red and 2 black balls and another bag B contains 2 red and n black balls. One of the two bags is selected at random and two balls are drawn from it at a time. When it is known that the two balls drawn are red, if the probability that those two balls drawn are from bag A is $\frac{6}{7}$, then $n =$

(A) 6
(B) 4
(C) 8
(D) 7

Answer: (B) 4 · Official APSCHE final key

Q622 AP EAMCET 2019 · 22 Apr · Shift 1 MCQ

A random variable X has its range $\{-1, 0, 1\}$. If its mean is 0.2 and $P(X = 0) = 0.2$, then $P(X = 1) =$

(A) 0.1
(B) 0.7
(C) 0.4
(D) 0.5

Answer: (D) 0.5 · Official APSCHE final key

Q623 AP EAMCET 2019 · 22 Apr · Shift 1 MCQ

There are 800 families with four children in each family. Assuming equal chance for every child to be a boy or a girl, the number of families expected to have children of both sexes is

(A) 700
(B) 100
(C) 500
(D) 300

Answer: (A) 700 · Official APSCHE final key

Q624 AP EAMCET 2019 · 22 Apr · Shift 2 MCQ

If two dice are rolled at a time, then the probability of getting an odd number on the first die or a total of 7 on both dice is

(A) $\frac{5}{9}$
(B) $\frac{2}{3}$
(C) $\frac{1}{12}$
(D) $\frac{7}{12}$

Answer: (D) $\frac{7}{12}$ · Official APSCHE final key

Q625 AP EAMCET 2019 · 22 Apr · Shift 2 MCQ

If A and B are two events of a random experiment such that $P(\bar{A}) = 0.3$, $P(B) = 0.4$ and $P(A \cap \bar{B}) = 0.5$, then $P(A \cup B) + P(B|A \cup \bar{B}) =$

(A) 0.95
(B) 1.15
(C) 1.25
(D) 0.25

Answer: (B) 1.15 · Official APSCHE final key

Q626 AP EAMCET 2019 · 22 Apr · Shift 2 MCQ

A speaks truth in 4 out of 5 times. A die is tossed. If A reports that there is 4 on the die, then the probability that there was 4 on the die, is

(A) $\frac{2}{3}$
(B) $\frac{4}{9}$
(C) $\frac{1}{3}$
(D) $\frac{2}{9}$

Answer: (B) $\frac{4}{9}$ · Official APSCHE final key

Q627 AP EAMCET 2019 · 22 Apr · Shift 2 MCQ

Let $S = \{1, 2, 3, \ldots, 50\}$ and A_k be the set of multiples of k in S for $k \in N$. If x_k is a number chosen from A_k, then match the items of List - I with the items of List - II.

List - I

A) $P(x_3 < 30)$
B) $P(15 < x_4 \leq 36)$
C) $P(x_7 > 35)$
D) $P(x_{11} > 11)$

List - II

I) $\frac{1}{2}$
II) $\frac{2}{3}$
III) $\frac{2}{7}$
IV) $\frac{1}{4}$
V) $\frac{3}{4}$
VI) $\frac{9}{16}$

The correct match is

(A) A-VI, B-I, C-IV, D-V
(B) A-III, B-I, C-VI, D-V
(C) A-II, B-V, C-I, D-IV
(D) A-VI, B-I, C-III, D-V

Answer: (D) A-VI, B-I, C-III, D-V · Official APSCHE final key

Q628 AP EAMCET 2019 · 22 Apr · Shift 2 MCQ

If X is a Poisson variate such that $P(X = 2) = 9\,P(X = 4) + 90\,P(X = 6)$, then the ordered pair (Mean (X), Variance (X)) =

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(A) $(1, 2)$
(B) $(1, 1)$
(C) $(2, 1)$
(D) $(2, 2)$

Answer: (B) $(1, 1)$ · Official APSCHE final key

Q629 AP EAMCET 2019 · 21 Apr · Shift 1 MCQ

A and B each select one number at random from the distinct numbers $1, 2, 3, \ldots, n$ and the probability that the number selected by A is less than the number selected by B is $\frac{1009}{2019}$. Now, the probability that the number selected by B is the number immediately next to the number selected by A is

(A) $\frac{2018}{2019}$
(B) $\frac{2018}{(2019)^2}$
(C) $\frac{2000}{(2019)}$
(D) $\frac{2000}{(2019)^2}$

Answer: (B) $\frac{2018}{(2019)^2}$ · Official APSCHE final key

Q630 AP EAMCET 2019 · 21 Apr · Shift 1 MCQ

There are 3 bags A, B and C. Bag A contains 2 white and 3 black balls, bag B contains 4 white and 2 black balls and Bag C contains 3 white and 2 black balls. If a ball is drawn at random from a randomly chosen bag, then the probability that the ball drawn is black, is

(A) $\frac{2}{3}$
(B) $\frac{4}{9}$
(C) $\frac{5}{9}$
(D) $\frac{1}{9}$

Answer: (B) $\frac{4}{9}$ · Official APSCHE final key

Q631 AP EAMCET 2019 · 21 Apr · Shift 1 MCQ

The following table shows the probability of selecting the boxes A, B and C and the number of balls of different colours contained in them

Box | White | Green | Red | Probability
A | 1 | 2 | 3 | $\frac{1}{2}$
B | 2 | 3 | 1 | $\frac{1}{3}$
C | 3 | 1 | 2 | $\frac{1}{6}$

A box is selected at random and a ball is drawn from it. If it is given that the ball drawn is green, then the probability that it has come from box C is

(A) $\frac{1}{13}$
(B) $\frac{6}{13}$
(C) $\frac{5}{13}$
(D) $\frac{7}{13}$

Answer: (A) $\frac{1}{13}$ · Official APSCHE final key

Q632 AP EAMCET 2019 · 21 Apr · Shift 1 MCQ

If a random variable X has the probability distribution given by $P(X=0)=3C^3$, $P(X=2)=5C-10C^2$ and $P(X=4)=4C-1$, then the variance of that distribution is

(A) $\frac{68}{9}$
(B) $\frac{22}{9}$
(C) $\frac{612}{81}$
(D) $\frac{128}{81}$

Answer: (D) $\frac{128}{81}$ · Official APSCHE final key

Q633 AP EAMCET 2019 · 21 Apr · Shift 1 MCQ

A box contains 30 toys of same size in which 10 toys are white and all the remaining toys are blue. A toy is drawn at random from the box and it is replaced in the box after noting down its colour. If 5 toys are drawn in this way, then the probability of getting atmost 2 white toys is

(A) $\left(\frac{6}{9}\right)^2$
(B) $\left(\frac{8}{9}\right)^2$
(C) $\left(\frac{7}{9}\right)^2$
(D) $\left(\frac{2}{3}\right)^5$

Answer: (B) $\left(\frac{8}{9}\right)^2$ · Official APSCHE final key

Q634 AP EAMCET 2019 · 21 Apr · Shift 2 MCQ

If two unbiased six-faced dice are thrown simultaneously until a sum of either 7 or 11 occurs, then the probability that 7 comes before 11 is

(A) $\frac{1}{4}$
(B) $\frac{3}{4}$
(C) $\frac{5}{9}$
(D) $\frac{5}{18}$

Answer: (B) $\frac{3}{4}$ · Official APSCHE final key

Q635 AP EAMCET 2019 · 21 Apr · Shift 2 MCQ

If A and B throw two dice 100 times each simultaneously, then the probability that both of them will get even number as the total score at the same time in all the throws is

(A) $\left(\frac{1}{6}\right)^{100}$

(B) $\left(\frac{1}{4}\right)^{100}$

(C) $\left(\frac{1}{2}\right)^{100}$

(D) $\left(\frac{3}{4}\right)^{100}$

Answer: (B) $\left(\frac{1}{4}\right)^{100}$ · Official APSCHE final key

Q636 AP EAMCET 2019 · 21 Apr · Shift 2 MCQ

The probabilities of having a defective toy in three cartons A, B, C are $\frac{1}{3}, \frac{1}{4}, \frac{2}{5}$ respectively. If a carton is selected at random and a toy drawn randomly from it is found to be defective, then the probability that it is drawn from carton B is

(A) $\frac{15}{47}$

(B) $\frac{20}{47}$

(C) $\frac{20}{59}$

(D) $\frac{15}{59}$

Answer: (D) $\frac{15}{59}$ · Official APSCHE final key

Q637 AP EAMCET 2019 · 21 Apr · Shift 2 MCQ

A die is thrown twice. If getting a number greater than four on the die is considered a success, then the variance of the probability distribution of the number of successes is

(A) $\frac{2}{3}$

(B) $\frac{1}{3}$

(C) $\frac{4}{9}$

(D) $\frac{8}{9}$

Answer: (C) $\frac{4}{9}$ · Official APSCHE final key

Q638 AP EAMCET 2019 · 21 Apr · Shift 2 MCQ

If X is a Poisson variate such that $2P(X=1)=5P(X=5)+2P(X=3)$, then the standard deviation of X is

(A) 4
(B) 2
(C) $\frac{1}{2}$
(D) $\sqrt{2}$

Answer: (D) $\sqrt{2}$ · Official APSCHE final key

Q639 AP EAMCET 2019 · 20 Apr · Shift 1 MCQ

If two sections of strengths 30 and 45 are formed from 75 students who are admitted in a school, then the probability that two particular students are always together in the same section is

(A) $\frac{66}{185}$
(B) $\frac{19}{37}$
(C) $\frac{29}{185}$
(D) $\frac{18}{37}$

Answer: (B) $\frac{19}{37}$ · Official APSCHE final key

Q640 AP EAMCET 2019 · 20 Apr · Shift 1 MCQ

A bag contains $2n$ coins out of which $n-1$ are unfair with heads on both sides and the remaining are fair. One coin is picked from the bag at random and tossed. If the probability that head falls in the toss is $\frac{41}{56}$, then the number of unfair coins in the bag is

(A) 18
(B) 15
(C) 13
(D) 14

Answer: (C) 13 · Official APSCHE final key

Q641 AP EAMCET 2019 · 20 Apr · Shift 1 MCQ

Bag A contains 6 Green and 8 Red balls and bag B contains 9 Green and 5 Red balls. A card is drawn at random from a well shuffled pack of 52 playing cards. If it is a spade, two balls are drawn at random from bag A, otherwise two balls are drawn at random from bag B. If the two balls drawn are found to be of the same colour, then the probability that they are drawn from bag A is

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(A) $\frac{43}{181}$
(B) $\frac{1}{4}$
(C) $\frac{48}{131}$
(D) $\frac{43}{138}$

Answer: (A) $\frac{43}{181}$ · Official APSCHE final key

Q642 AP EAMCET 2019 · 20 Apr · Shift 1 MCQ

A random variable X has the probability distribution
$X = x_i$: 1, 2, 3, 4, 5, 6
$P(X = x_i)$: 0.2, 0.3, 0.12, 0.1, 0.2, 0.08
If $A = \{x_i / x_i \text{ is a prime number}\}$, $B = \{x_i / x_i < 4\}$ are two events then $P(A \cup B) =$

(A) 0.31
(B) 0.62
(C) 0.82
(D) 0.41

Answer: (C) 0.82 · Official APSCHE final key

Q643 AP EAMCET 2019 · 20 Apr · Shift 1 MCQ

In a Poisson distribution with unit mean, $\sum_{x=0}^{\infty} |x - \bar{x}| P(X = x) =$ ($\bar{x}$ is the mean of the distribution)

(A) e
(B) $\frac{1}{e}$
(C) $\frac{2}{e}$
(D) $\frac{2}{3e}$

Answer: (C) $\frac{2}{e}$ · Official APSCHE final key

Q644 AP EAMCET 2019 · 20 Apr · Shift 2 MCQ

Each of the two boxes A and B contain 10 chits numbered 1 to 10. If one chit is drawn at random from each of A and B, then the probability that the number on the chit drawn from A is smaller than the number on the chit drawn from B, is

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(A) $\frac{9}{10}$
(B) $\frac{9}{20}$
(C) $\frac{19}{20}$
(D) $\frac{17}{20}$

Answer: (B) $\frac{9}{20}$ · Official APSCHE final key

Q645 AP EAMCET 2019 · 20 Apr · Shift 2 MCQ

An envelope is known to have come from either 'LONDON' or 'CLIFTON'. On the postal mark only two successive letters ON are legible. The probability that the envelope comes from LONDON is

(A) $\frac{12}{17}$
(B) $\frac{5}{17}$
(C) $\frac{3}{17}$
(D) $\frac{2}{5}$

Answer: (A) $\frac{12}{17}$ · Official APSCHE final key

Q646 AP EAMCET 2019 · 20 Apr · Shift 2 MCQ

The probability function of a random variable X is given by $P(X = k) = ck^2$, where c is a constant and $k \in \{0, 1, 2, 3, 4\}$. If σ^2 is the variance of X and μ is the mean of X, then $\sigma^2 + \mu^2 =$

(A) 3.33
(B) 11.8
(C) $\frac{1}{30}$
(D) 354

Answer: (B) 11.8 · Official APSCHE final key

Q647 AP EAMCET 2019 · 20 Apr · Shift 2 MCQ

In a book of 250 pages, there are 200 typographical errors. Assuming that the number of errors per page follow the Poisson law, then the probability that a random sample of 5 pages will contain no typographical error is

(A) e^{-4}
(B) $e^{-\frac{4}{5}}$
(C) $e^{-\frac{16}{25}}$
(D) e^{-1}

Answer: (A) e^{-4} · Official APSCHE final key

Q648 TS EAMCET 2018 · 7 May · Shift 1 MCQ

Ten persons with badges numbered 1 to 10 are in a room. If three of them are asked to leave the room, Then the probability to have the person with the smallest badge number as 5 among the three

persons that left the room, is

(A) $\frac{3}{10}$
(B) $\frac{1}{6}$
(C) $\frac{1}{12}$
(D) $\frac{2}{5}$

Answer: (C) $\frac{1}{12}$ · The council's preliminary key

Q649 TS EAMCET 2018 · 7 May · Shift 1 MCQ

A bag P contains 3 blue and 5 red balls. Another bag Q contains 4 blue and 6 red balls. A ball is drawn at random from one of the bags and is found to be red. The probability that it is from bag Q is

(A) $\frac{24}{49}$
(B) $\frac{28}{49}$
(C) $\frac{36}{49}$
(D) $\frac{42}{49}$

Answer: (A) $\frac{24}{49}$ · The council's preliminary key

Q650 TS EAMCET 2018 · 7 May · Shift 1 MCQ

Match the items from List-I that of List-II :
A bag contains 4 red, 3 white and 5 blue balls. Three balls are drawn at a time randomly from the bag.
List-I
a) Probability of getting 1 red, 1 white and 1 blue ball
b) Probability of getting 2 white and 1 blue ball
c) Probability of getting 2 red and 1 white ball
d) Probability that none of the balls is white
List-II
i) $\frac{3}{44}$
ii) $\frac{21}{55}$
iii) $\frac{38}{55}$
iv) $\frac{3}{11}$
v) $\frac{9}{110}$
The correct answer is

(A) a-v, b-ii, c-iii, d-iv
(B) a-iv, b-i, c-v, d-ii
(C) a-iv, b-i, c-v, d-iii
(D) a-v, b-iii, c-iv, d-i

Answer: (B) a-iv, b-i, c-v, d-ii · The council's preliminary key

Q651 TS EAMCET 2018 · 7 May · Shift 1 MCQ

In a game of throwing 3 coins, a player will loose Rs. 5/- for each head and gain Rs.10/- for each tail. If a random variable $X : S \to \mathbb{R}$ is defined as $X(a) =$ net gain $(a \in S)$, then the mean of the random variable is (in rupees)

(A) $\frac{15}{2}$
(B) $-\frac{15}{2}$
(C) 15
(D) 25

Answer: (A) $\frac{15}{2}$ · The council's preliminary key

Q652 TS EAMCET 2018 · 7 May · Shift 1 MCQ

A person fails 4 times in a game when he plays 9 times. If he plays 15 times, the probability of having success at most once is

(A) $\frac{65}{9}\left(\frac{5}{9}\right)^{14}$
(B) $\frac{65}{9}\left(\frac{5}{9}\right)^{15}$
(C) $\frac{79}{9}\left(\frac{4}{9}\right)^{14}$
(D) $\frac{79}{9}\left(\frac{4}{9}\right)^{15}$

Answer: (C) $\frac{79}{9}\left(\frac{4}{9}\right)^{14}$ · The council's preliminary key

Q653 TS EAMCET 2018 · 5 May · Shift 1 MCQ

In a battery manufacturing factory, machines P, Q and R manufacture 20%, 30%, and 50% respectively of the total output. The chances that a defective battery is produced by these machines are 1%, 1.5% and 2% respectively. If a battery is selected as random from production then the probability that it is defective is

(A) $\frac{69}{2000}$
(B) $\frac{33}{2000}$
(C) $\frac{1}{40}$
(D) $\frac{29}{2000}$

Answer: (B) $\frac{33}{2000}$ · The council's preliminary key

Q654 TS EAMCET 2018 · 5 May · Shift 1 MCQ

Suppose A and B are events of a random experiment such that $P(A) = \frac{1}{3}$, $P(A \cap B) = \frac{1}{5}$ and $P(A \cup B) = \frac{3}{5}$.
Then match the items of List-I with the items of List-II
List-I
a) $P\left(\frac{A}{B}\right)$
b) $P(\bar{B})$
c) $P(A \cap \bar{B})$
d) $P(B \cap \bar{A})$
List-II
i) $\frac{2}{15}$
ii) $\frac{4}{15}$
iii) $\frac{8}{15}$
iv) $\frac{2}{3}$
v) $\frac{3}{7}$
The correct answer is

(A) a-iv, b-i, c-iii, d-ii
(B) a-v, b-i, c-ii, d-iii
(C) a-iv, b-ii, c-i, d-v
(D) a-v, b-iii, c-i, d-ii

Answer: (D) a-v, b-iii, c-i, d-ii · The council's preliminary key

Q655 TS EAMCET 2018 · 5 May · Shift 1 MCQ

In a test, a student either guesses or copies or knows the answer to a multiple choice question with four choices having one correct answer. The probability that he guesses the answer is $\frac{1}{3}$ and the probability that he copies it is $\frac{1}{12}$. The probability that his answer is correct given that he copied it is $\frac{1}{6}$. The probability that he knew the answer, given that he has correctly answered it, is

(A) $\frac{6}{7}$
(B) $\frac{15}{49}$
(C) $\frac{7}{12}$
(D) $\frac{10}{13}$

Answer: (A) $\frac{6}{7}$ · The council's preliminary key

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Q656 TS EAMCET 2018 · 5 May · Shift 1 MCQ

The probability that a mechanic making an error while using a machine on the nth day is given by $P(E_n) = \frac{1}{2^n}$. If he has operated the machine for 4 days, the probability that he has not made a mistake on 3 out of 4 days is

(A) $\frac{1}{2}$
(B) $\frac{1}{4}$
(C) $\frac{243}{512}$
(D) $\frac{343}{1024}$

Answer: (C) $\frac{243}{512}$ · The council's preliminary key

Q657 TS EAMCET 2018 · 5 May · Shift 1 MCQ

If the probability of a bad reaction from a vaccination is 0.01, then the probability that exactly two out of 300 people will get bad reaction is

(A) $\frac{7}{2e^3}$
(B) $\frac{9}{2e^3}$
(C) $\frac{7}{e^3}$
(D) $\frac{9}{e^3}$

Answer: (B) $\frac{9}{2e^3}$ · The council's preliminary key

Q658 TS EAMCET 2018 · 5 May · Shift 2 MCQ

A number n is chosen at random from the natural numbers 2 to 1001. The probability that n is a number that leaves remainder 1 when divided by 7, is

(A) $\frac{73}{500}$
(B) $\frac{71}{1000}$
(C) $\frac{143}{1000}$
(D) $\frac{71}{500}$

Answer: (D) $\frac{71}{500}$ · The council's preliminary key

Q659 TS EAMCET 2018 · 5 May · Shift 2 MCQ

If A and B are two independent events such that $P(B) = \frac{2}{7}$ and $P\left(A \cup B^C\right) = 0.8$ then $P(A \cup B) =$

(A) $\frac{29}{35}$
(B) $\frac{39}{70}$
(C) $\frac{1}{2}$
(D) $\frac{41}{105}$

Answer: (C) $\frac{1}{2}$ · The council's preliminary key

Q660 TS EAMCET 2018 · 5 May · Shift 2 MCQ

In a certain recruitment test with multiple choice questions, there are four options to each question, out of which only one is correct. An intelligent student knows 90% of the correct answers while a weak student knows only 20% of the correct answers. If a weak student gets the correct answer, the probability that he was guessing is

(A) 0.03
(B) 0.27
(C) 0.40
(D) 0.50

Answer: (D) 0.50 · The council's preliminary key

Q661 TS EAMCET 2018 · 5 May · Shift 2 MCQ

If the mean and variance of a Binomial variable X are $\frac{5}{2}$ and $\frac{5}{4}$ respectively, then $P(X > 1) =$

(A) $\frac{3}{16}$
(B) $\frac{11}{16}$
(C) $\frac{13}{16}$
(D) $\frac{15}{16}$

Answer: (C) $\frac{13}{16}$ · The council's preliminary key

Q662 TS EAMCET 2018 · 5 May · Shift 2 MCQ

If a random variable X follows a Poisson distribution such that $P(X = 1) = 3P(X = 2)$, then $P(X = 3) =$

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(A) $\frac{4}{81}e^{-\frac{2}{3}}$
(B) $\frac{2}{81}e^{-\frac{2}{3}}$
(C) $\frac{2}{27}e^{-\frac{2}{3}}$
(D) $\frac{4}{81}e^{-\frac{1}{3}}$

Answer: (A) $\frac{4}{81}e^{-\frac{2}{3}}$ · The council's preliminary key

Q663 TS EAMCET 2018 · 4 May · Shift 1 MCQ

Two dice are thrown and two coins are tossed simultaneously. The probability of getting prime numbers on both the dice along with a head and a tail on the two coins is

(A) $\frac{1}{8}$
(B) $\frac{1}{2}$
(C) $\frac{3}{16}$
(D) $\frac{1}{4}$

Answer: (A) $\frac{1}{8}$ · The council's preliminary key

Q664 TS EAMCET 2018 · 4 May · Shift 1 MCQ

5 persons entered a lift cabin on the ground floor of a 7 floor house. Suppose that each o[f] them independently and with equal probability can leave the cabin at any floor beginnin[g] with the first. The probability of all the 5 persons leaving the cabin at different floors, is

(A) $\frac{360}{2401}$
(B) $\frac{5}{54}$
(C) $\frac{5}{18}$
(D) $\frac{5!}{7!}$

Answer: (A) $\frac{360}{2401}$ · Checked by our team

Q665 TS EAMCET 2018 · 4 May · Shift 1 MCQ

A company produces 10,000 items per day. On a particular day 2500 items were produce[d] on machine A, 3500 on machine B and 4000 on machine C. The probability that an ite[m] produced by the machines A, B, C to be defective is respectively 2%, 3% and 5%. If on[e] item is selected at random from the output and is found to be defective, then the probabilit[y] that it was produced by machine C, is

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(A) $\frac{10}{71}$
(B) $\frac{16}{71}$
(C) $\frac{40}{71}$
(D) $\frac{21}{71}$

Answer: (C) $\frac{40}{71}$ · The council's preliminary key

Q666 TS EAMCET 2018 · 4 May · Shift 1 MCQ

A random variable X takes the values 1, 2, 3 and 4 such that $2P(X=1)=3P(X=2)=P(X=3)=5P(X=4)$. If σ^2 is the variance and μ is the mean of X then $\sigma^2+\mu^2=$

(A) $\frac{421}{61}$
(B) $\frac{570}{61}$
(C) $\frac{149}{61}$
(D) $\frac{3480}{3721}$

Answer: (A) $\frac{421}{61}$ · The council's preliminary key

Q667 TS EAMCET 2018 · 4 May · Shift 1 MCQ

An executive in a company makes on an average 5 telephone calls per hour at a cost o[f] Rs.2 per cell (sic). The probability that in any hour the cost of the calls exceeds a sum of Rs.4 i[s]

(A) $\frac{2e^4-35}{2e^5}$
(B) $\frac{2e^5-37}{2e^5}$
(C) $1-\frac{37}{e^4}$
(D) $1-(18.5)e^5$

Answer: (B) $\frac{2e^5-37}{2e^5}$ · The council's preliminary key

Q668 TS EAMCET 2018 · 4 May · Shift 2 MCQ

From a certain population, the probability of choosing a colour blind man is $\frac{1}{20}$ and that of a colour blind woman is $\frac{1}{10}$. If a randomly choosen person is found to be colour blind, then the probability that the person is a man is

(A) $\frac{2}{9}$
(B) $\frac{2}{3}$
(C) $\frac{1}{3}$
(D) $\frac{1}{9}$

Answer: (C) $\frac{1}{3}$ · The council's preliminary key

Q669 TS EAMCET 2018 · 4 May · Shift 2 MCQ

From a lot containing n good and m bad articles, if 2 articles are picked at random in succession without replacement, then the probability that the second article picked is bad is

(A) $\frac{m}{m+n}$
(B) $\frac{m-1}{m+n}$
(C) $\frac{(n-1)(m-1)}{(m+n)^2}$
(D) $\frac{mn}{(m+n)^2}$

Answer: (A) $\frac{m}{m+n}$ · The council's preliminary key

Q670 TS EAMCET 2018 · 4 May · Shift 2 MCQ

In a class room 5% of the boys and 2% of the girls are taller than 1.6 metres. The class consists of 60% girl students. The probability that a randomly selected student is taller than 1.6 metres is

(A) $\frac{121}{125}$
(B) $\frac{5}{8}$
(C) $\frac{3}{8}$
(D) $\frac{4}{125}$

Answer: (D) $\frac{4}{125}$ · The council's preliminary key

Q671 TS EAMCET 2018 · 4 May · Shift 2 MCQ

The distribution of a random variable X is given below:
(see the figure above)
Then the standard deviation of X is

Question Number : 40 Question Id : 4928631800 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical
Correct : 1 Wrong : 0

The distribution of a random variable X is given below:

$X = x$	1	2	3	4
$P(X = x)$	2c	4c	6c	8c

Then the standard deviation of X is

ఒక యాదృచ్ఛిక చలరాశి X యొక్క విభాజనము క్రింద యివ్వబడినది

$X = x$	1	2	3	4
$P(X = x)$	2c	4c	6c	8c

అయితే X యొక్క క్రమ విచలనము

Options :
1. 4
2. $\frac{3}{2}$
3. 2
4. 1

(A) 4
(B) $\frac{3}{2}$
(C) 2
(D) 1

Answer: (D) 1 · The council's preliminary key

Q672 TS EAMCET 2018 · 4 May · Shift 2 MCQ

The probability of securing a success in a trial is three times that of a failure. The probability of getting atleast 4 successes in 5 trials is

(A) $\frac{649}{1024}$
(B) $\frac{81}{128}$
(C) $\frac{27}{64}$
(D) $\frac{243}{1024}$

Answer: (B) $\frac{81}{128}$ · The council's preliminary key

Q673 AP EAMCET 2018 · 24 Apr · Shift 1 MCQ

If two numbers a and b are chosen from the set of integers 1 to 39, then the probability that those numbers satisfy the equation $7a - 9b = 0$ is

(A) $\frac{1}{742}$
(B) $\frac{4}{743}$
(C) $\frac{4}{741}$
(D) $\frac{5}{741}$

Answer: (C) $\frac{4}{741}$ · The council's preliminary key

Q674 AP EAMCET 2018 · 24 Apr · Shift 1 MCQ

Two balls are drawn from an urn containing 7 white, 6 red and 8 black balls one after the other without replacement. Then the probability that atleast one of them is white, is

(A) $\frac{4}{9}$
(B) $\frac{13}{30}$
(C) $\frac{11}{30}$
(D) $\frac{17}{30}$

Answer: (D) $\frac{17}{30}$ · The council's preliminary key

Q675 AP EAMCET 2018 · 24 Apr · Shift 1 MCQ

In a manufacturing company, three machines A, B and C respectively produce 20%, 30% and 50% of the total product. The defective products from A, B and C are respectively 5%, 3% and 2%. If an article produced by the company is selected at random and is found to be defective, then the probability that it is produced by machine B is

(A) $\frac{10}{29}$
(B) $\frac{8}{29}$
(C) $\frac{9}{29}$
(D) $\frac{11}{29}$

Answer: (C) $\frac{9}{29}$ · The council's preliminary key

Q676 AP EAMCET 2018 · 24 Apr · Shift 1 MCQ

The variance of the random variable X having the following distribution
$X = k$: $-2, -1, 0, 1, 2$
$P(X = k)$: $\frac{1}{6}, \frac{1}{6}, \frac{1}{3}, \frac{1}{6}, \frac{1}{6}$
is

(A) $\frac{1}{3}$
(B) $\frac{2}{3}$
(C) $\frac{4}{3}$
(D) $\frac{5}{3}$

Answer: (D) $\frac{5}{3}$ · The council's preliminary key

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Q677 AP EAMCET 2018 · 24 Apr · Shift 1 MCQ

Given that the probability of a man hitting a target with a gun is $\frac{1}{3}$. If he fires 8 times, then the probability of his hitting the target atleast twice is

(A) $5\left(\frac{2}{3}\right)^8$
(B) $1-5\left(\frac{2}{3}\right)^8$
(C) $\left(\frac{2}{3}\right)^8$
(D) $\left(\frac{3}{8}\right)^4$

Answer: (B) $1-5\left(\frac{2}{3}\right)^8$ · The council's preliminary key

Q678 AP EAMCET 2018 · 24 Apr · Shift 2 MCQ

If three distinct vertices are chosen at random from the vertices of a cube, then the probability that they form the vertices of an equilateral triangle, is

(A) $\frac{1}{7}$
(B) $\frac{2}{7}$
(C) $\frac{1}{2}$
(D) $\frac{1}{8}$

Answer: (A) $\frac{1}{7}$ · The council's preliminary key

Q679 AP EAMCET 2018 · 24 Apr · Shift 2 MCQ

Let A and B be two independent events such that P(B) > P(A). If the probability that both A and B happen is $\frac{1}{12}$ and the probability that neither A nor B happens is $\frac{1}{2}$ then

(A) $\mathrm{P(A)}=\frac{1}{6},\ \mathrm{P(B)}=\frac{1}{2}$
(B) $\mathrm{P(A)}=\frac{1}{4},\ \mathrm{P(B)}=\frac{1}{3}$
(C) $\mathrm{P(A)}=\frac{1}{6},\ \mathrm{P(B)}=\frac{1}{5}$
(D) $\mathrm{P(A)}=\frac{1}{6},\ \mathrm{P(B)}=\frac{1}{3}$

Answer: (B) $\mathrm{P(A)}=\frac{1}{4},\ \mathrm{P(B)}=\frac{1}{3}$ · The council's preliminary key

Q680 AP EAMCET 2018 · 24 Apr · Shift 2 MCQ

A person is known to speak truth in 3 out of 5 times. If he throws a die and reports that it is six, then the probability that it is actually six, is

(A) $\frac{3}{30}$
(B) $\frac{13}{30}$
(C) $\frac{10}{13}$
(D) $\frac{3}{13}$

Answer: (D) $\frac{3}{13}$ · The council's preliminary key

Q681 AP EAMCET 2018 · 24 Apr · Shift 2 MCQ

If the probability function of a random variable X is given by $P(X=j)=\frac{1}{2^j};\ j=1,2,3,\ldots,\infty$ then the variance of X is

(A) 2
(B) 3
(C) 4
(D) 5

Answer: (A) 2 · The council's preliminary key

Q682 AP EAMCET 2018 · 24 Apr · Shift 2 MCQ

If the sum and product of the mean and variance of a binomial distribution are 15 and 54 respectively, then the number of trails (sic) in it is

(A) 27
(B) 54
(C) 28
(D) 81

Answer: (A) 27 · The council's preliminary key

Q683 AP EAMCET 2018 · 23 Apr · Shift 1 MCQ

If a number is chosen at random from out of the four digited numbers formed by using the digits 0, 1, 2, 3, 4, 6 without repetition, then the probability that it is divisible by 4, is

(A) $\frac{17}{100}$
(B) $\frac{17}{50}$
(C) $\frac{13}{50}$
(D) $\frac{13}{25}$

Answer: (B) $\frac{17}{50}$ · The council's preliminary key

Q684 AP EAMCET 2018 · 23 Apr · Shift 1 MCQ

Four cards are drawn at random from a pack of playing cards. The probability of getting exactly two cards from the same suit and the remaining two cards from two different suits is

(A) $\frac{72\times169}{425\times49}$
(B) $\frac{24\times169}{425\times49}$
(C) $\frac{18\times169}{425\times49}$
(D) $\frac{6\times169}{425\times49}$

Answer: (A) $\frac{72\times169}{425\times49}$ · The council's preliminary key

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Q685 AP EAMCET 2018 · 23 Apr · Shift 1 MCQ

A random variable X has the following probability distribution

(see the figure above)

The variance of this random variable is

Question Number : 39 Question Id : 4557344039 Question Type : MCQ Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

A random variable X has the following probability distribution

$X = x_i$	-2	-1	0	1	2
$P(X = x_i)$	$\frac{1}{6}$	k	$\frac{1}{4}$	k	$\frac{1}{6}$

ఒక యాదృచ్ఛిక చలరాశి X, ఈ క్రింది సంభావ్యతా విభాజనాన్ని కలిగి ఉంది

$X = x_i$	-2	-1	0	1	2
$P(X = x_i)$	$\frac{1}{6}$	k	$\frac{1}{4}$	k	$\frac{1}{6}$

The variance of this random variable is

ఈ యాదృచ్ఛిక చలరాశి యొక్క విస్తృతి

Options :

1. 0
2. $\frac{5}{24}$
3. $\frac{3}{24}$
4. $\frac{7}{4}$

(A) 0

(B) $\frac{5}{24}$

(C) $\frac{3}{24}$

(D) $\frac{7}{4}$

Answer: (D) $\frac{7}{4}$ · The council's preliminary key

Q686 AP EAMCET 2018 · 23 Apr · Shift 1 MCQ

For a binomial variate X with parameters $n = 5$ and $p = \frac{3}{4}$, if $\alpha = \frac{1}{9}P(X \geq 3)$ and $\beta = P(X \leq 2)$, then $256(\beta - \alpha) =$

(A) -1

(B) 0

(C) 1

(D) 2

Answer: (C) 1 · The council's preliminary key

Q687 AP EAMCET 2018 · 23 Apr · Shift 2 MCQ

A die is formed so that the probability of getting a number i when it is rolled is proportional to i, $(i = 1, 2, 3, 4, 5, 6)$. The probability of getting an odd number on the die when it is rolled is

(A) $\frac{1}{2}$
(B) $\frac{4}{7}$
(C) $\frac{2}{7}$
(D) $\frac{3}{7}$

Answer: (D) $\frac{3}{7}$ · The council's preliminary key

Q688 AP EAMCET 2018 · 23 Apr · Shift 2 MCQ

A problem is given to 3 students A, B and C whose chances of solving it are $\frac{1}{2}$, $\frac{1}{3}$ and $\frac{1}{4}$ respectively. Then the probability of the problem being solved by exactly one of them, if all the three try independently, is

(A) $\frac{3}{4}$
(B) $\frac{11}{24}$
(C) $\frac{23}{24}$
(D) $\frac{1}{4}$

Answer: (B) $\frac{11}{24}$ · The council's preliminary key

Q689 AP EAMCET 2018 · 23 Apr · Shift 2 MCQ

In a certain recruitment test with multiple choice questions, there are four options to answer each question, out of which only one is correct. An intelligent student knows 90% correct answers while a weak student knows only 20% correct answers. If an intelligent student gets the correct answer for a question, then the probability that he was guessing it, is

(A) $\frac{1}{37}$
(B) $\frac{1}{10}$
(C) $\frac{9}{37}$
(D) $\frac{1}{2}$

Answer: (A) $\frac{1}{37}$ · The council's preliminary key

Q690 AP EAMCET 2018 · 23 Apr · Shift 2 MCQ

A random variable X has the following probabilty distribution
Values of X(x): 0, 1, 2, 3, 4, 5, 6, 7
P(X$= x$): 0, k, $2k$, $2k$, $3k$, k^2, $2k^2$, $7k^2 + k$
Then P(0<X<6)$=$

(A) $\frac{9}{10}$
(B) $\left(\frac{9}{10}\right)^2$
(C) $\left(\frac{3}{10}\right)$
(D) $\frac{1}{10}$

Answer: (B) $\left(\frac{9}{10}\right)^2$ · The council's preliminary key

Q691 AP EAMCET 2018 · 23 Apr · Shift 2 MCQ

An unbiased coin is tossed n times. If the probability of getting at least one head is greater than 0.8, then the least value of n is

(A) 2
(B) 3
(C) 4
(D) 5

Answer: (B) 3 · The council's preliminary key

Q692 AP EAMCET 2018 · 22 Apr · Shift 1 MCQ

If a die is rolled three times, then the probability of getting a larger number on its face than the previous number each time, is

(A) $\frac{15}{216}$
(B) $\frac{5}{54}$
(C) $\frac{13}{216}$
(D) $\frac{1}{18}$

Answer: (B) $\frac{5}{54}$ · The council's preliminary key

Q693 AP EAMCET 2018 · 22 Apr · Shift 1 MCQ

A man is known to speak the truth 2 out of 3 times. If he throws a die and reports that it is six, then the probability that it is actually five, is

(A) $\frac{3}{8}$
(B) $\frac{1}{7}$
(C) $\frac{2}{7}$
(D) $\frac{4}{5}$

Answer: (B) $\frac{1}{7}$ · The council's preliminary key

Q694 AP EAMCET 2018 · 22 Apr · Shift 1 MCQ

If the probability function of a random variable X is defined by $P(X=k)=a\left(\frac{k+1}{2^k}\right)$ for $k=0,1,2,3,4,5$ then the probability that X takes a prime value is

(A) $\frac{13}{20}$
(B) $\frac{23}{60}$
(C) $\frac{11}{20}$
(D) $\frac{19}{60}$

Answer: (B) $\frac{23}{60}$ · The council's preliminary key

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Q695 AP EAMCET 2018 · 22 Apr · Shift 1 MCQ

If X is a binomial variate with mean 6 and variance 2, then the value of $P(5 \leq X \leq 7)$ is

(A) $\frac{4762}{6561}$
(B) $\frac{4672}{6561}$
(C) $\frac{5264}{6561}$
(D) $\frac{5462}{6651}$

Answer: (B) $\frac{4672}{6561}$ · The council's preliminary key

Q696 AP EAMCET 2018 · 22 Apr · Shift 2 MCQ

A and B are two events such that $P(A) = 0.58$, $P(B) = 0.32$ and $P(A \cap B) = 0.28$. Then the probability that neither A nor B occurs is

(A) 0.38
(B) 0.62
(C) 0.72
(D) 0.9

Answer: (A) 0.38 · The council's preliminary key

Q697 AP EAMCET 2018 · 22 Apr · Shift 2 MCQ

Two dice are thrown simultaneously. If A is event of getting the sum of the numbers on two dice as greater than or equal to 8 and B is the event of getting a number less than or equal to 3 on atleast one of the die. Then $P(B/A) =$

(A) $\frac{5}{15}$
(B) $\frac{6}{15}$
(C) $\frac{7}{15}$
(D) $\frac{8}{15}$

Answer: (B) $\frac{6}{15}$ · The council's preliminary key

Q698 AP EAMCET 2018 · 22 Apr · Shift 2 MCQ

A bag contains 6 balls. If 4 balls are drawn at a time and all of them are found to be red, then the probability that exactly 5 of the balls in the bag are red is

(A) $\frac{10}{19}$
(B) $\frac{5}{21}$
(C) $\frac{1}{21}$
(D) $\frac{5}{7}$

Answer: (B) $\frac{5}{21}$ · The council's preliminary key

Q699 AP EAMCET 2018 · 22 Apr · Shift 2 MCQ

If the probability distribution of a random variable X is given by
$X = x_i$: 0, 1, 2, 3
$P(X = x_i) : \frac{1}{8}, \frac{3}{8}, 3K, K$
then the variance of X is

(A) 3
(B) $\frac{9}{4}$
(C) $\frac{3}{2}$
(D) $\frac{3}{4}$

Answer: (D) $\frac{3}{4}$ · The council's preliminary key

Q700 AP EAMCET 2018 · 22 Apr · Shift 2 MCQ

A manufacturer of locks knows that 2% of his product is defective. If he sells the locks in boxes each with 100 locks and guarantees that not more than 2 locks will be defective in a box, then the probability that a box will fail to meet the guaranteed quality is

(A) $1 - 5e^{-2}$
(B) $\sum_{k=2}^{100} {}^{100}C_k \left(\frac{1}{50}\right)^k \left(\frac{49}{50}\right)^{100-k}$
(C) 0.02
(D) $1 - 3e^{-2}$

Answer: (A) $1 - 5e^{-2}$ · The council's preliminary key

Q701 TS EAMCET 2017 · 12 May · Offline MCQ

The probability distribution of a random variable X is given below.

$X = k$	0	1	2	3	4
$P(X = k)$	0.1	0.4	0.3	0.2	0

The variance of X is

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(A) 1.6
(B) 0.24
(C) 0.84
(D) 0.75

Answer: (C) 0.84 · The council's preliminary key

Q702 TS EAMCET 2017 · 12 May · Offline MCQ

A bag contains 5 red balls, 3 black balls and 4 white balls. Three balls are drawn at random. The probability that they are not of same colour is

(A) $\frac{37}{44}$
(B) $\frac{31}{44}$
(C) $\frac{21}{44}$
(D) $\frac{41}{44}$

Answer: (D) $\frac{41}{44}$ · The council's preliminary key

Q703 TS EAMCET 2017 · 12 May · Offline MCQ

The probability distribution of a random variable X is given below.

x	1	2	3	4	5	6
$P(X=x)$	a	a	a	b	b	0.3

If mean of X is 4.2, then a and b are respectively equal to

(A) 0.3, 0.2
(B) 0.1, 0.4
(C) 0.1, 0.2
(D) 0.2, 0.1

Answer: (C) 0.1, 0.2 · The council's preliminary key

Q704 TS EAMCET 2017 · 12 May · Offline MCQ

An integer is choosen (sic) from $\{2k \,/\, -9 \leq k \leq 10\}$. The probability that it is divisible by both 4 and 6 is

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(A) $\frac{1}{10}$
(B) $\frac{1}{20}$
(C) $\frac{1}{4}$
(D) $\frac{3}{20}$

Answer: (D) $\frac{3}{20}$ · The council's preliminary key

Q705 TS EAMCET 2017 · 12 May · Offline MCQ

If A and B are events having probabilities, $P(A) = 0.6$, $P(B) = 0.4$ and $P(A \cap B) = 0$, then the probability that neither A nor B occurs is

(A) $\frac{1}{4}$
(B) 1
(C) $\frac{1}{2}$
(D) 0

Answer: (D) 0 · The council's preliminary key

Q706 AP EAMCET 2017 · 26 Apr · Shift 1 MCQ

If three numbers are drawn at random successively without replacement from a set $S = \{1, 2, \ldots, 10\}$, then the probability that the minimum of the chosen numbers is 3 or their maximum is 7, is

(A) $\frac{1}{40}$
(B) $\frac{3}{40}$
(C) $\frac{5}{40}$
(D) $\frac{11}{40}$

Answer: (D) $\frac{11}{40}$ · The council's preliminary key

Q707 AP EAMCET 2017 · 26 Apr · Shift 1 MCQ

A bag P contains 5 white marbles and 3 black marbles. Four marbles are drawn at random from P and are put in an empty bag Q. If a marble drawn at random from Q is found to be black, then the probability that all the three black marbles in P are transfered (sic) to the bag Q is

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(A) $\frac{1}{8}$
(B) $\frac{7}{8}$
(C) $\frac{6}{7}$
(D) $\frac{1}{7}$

Answer: (D) $\frac{1}{7}$ · The council's preliminary key

Q708 AP EAMCET 2017 · 26 Apr · Shift 1 MCQ

Given below is the distribution of a random variable X

$X = x$ 1 2 3 4

$P(X = x)$ λ 2λ 3λ 4λ

If $\alpha = P(X < 3)$ and $\beta = P(X > 2)$, then $\alpha : \beta =$

(A) $2 : 5$
(B) $3 : 4$
(C) $4 : 5$
(D) $3 : 7$

Answer: (D) $3 : 7$ · The council's preliminary key

Q709 AP EAMCET 2017 · 26 Apr · Shift 1 MCQ

If the mean and variance of a binomial variate X are $\frac{4}{3}, \frac{8}{9}$ respectively, then $P(X = 2) =$

(A) $\frac{4}{27}$
(B) $\frac{8}{81}$
(C) $\frac{16}{81}$
(D) $\frac{8}{27}$

Answer: (D) $\frac{8}{27}$ · The council's preliminary key

Q710 AP EAMCET 2017 · 26 Apr · Shift 2 MCQ

A box contains 4 black, 2 white and 6 red balls. Another box contains 3 black and 5 white balls. Throwing an unbiassed die, a ball is drawn from the first box if either 1 or 2 appears on the die- otherwise a ball is drawn from the second box. If the drawn ball is black then the probability that 2 appeared on the die is

(A) $\frac{1}{13}$
(B) $\frac{2}{13}$
(C) $\frac{5}{13}$
(D) $\frac{8}{13}$

Answer: (B) $\frac{2}{13}$ · The council's preliminary key

Q711 AP EAMCET 2017 · 26 Apr · Shift 2 MCQ

If A, B and C are mutually exclusive and exhaustive events of a random experiment such that $P(A) = \frac{2}{3}P(B)$ and $P(B) = 2.P(C)$ then $P(A \cup C) =$

(A) $\frac{3}{13}$
(B) $\frac{5}{13}$
(C) $\frac{7}{13}$
(D) $\frac{9}{13}$

Answer: (C) $\frac{7}{13}$ · The council's preliminary key

Q712 AP EAMCET 2017 · 26 Apr · Shift 2 MCQ

The probability distribution of a random variable X is

X = x_i: 3 | 5 | 7 | 9

P(X = x_i): k | $2k$ | $3k$ | $4k$

Then the standard deviation of X is

(A) 1
(B) 2
(C) 4
(D) 7

Answer: (B) 2 · The council's preliminary key

Q713 AP EAMCET 2017 · 26 Apr · Shift 2 MCQ

A die is thrown $(2n + 1)$ times. The probability of getting 1 or 3 or 4 atmost n times on it

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(A) $\frac{1}{n}$
(B) $\frac{1}{2n+1}$
(C) $\frac{n}{2n+4}$
(D) $\frac{1}{2}$

Answer: (D) $\frac{1}{2}$ · The council's preliminary key

Q714 AP EAMCET 2017 · 25 Apr · Shift 1 MCQ

Boxes B_1, B_2, and B_3, contain balls as given below:
Box | White | Black
B_1 | 1 | 2
B_2 | 3 | 1
B_3 | 2 | 3
One ball is drawn at random from each box. Then, among the balls drawn, the probability that two are black and one is white, is

(A) $\frac{5}{12}$
(B) $\frac{7}{12}$
(C) $\frac{9}{12}$
(D) $\frac{11}{12}$

Answer: (A) $\frac{5}{12}$ · The council's preliminary key

Q715 AP EAMCET 2017 · 25 Apr · Shift 1 MCQ

If A and B are two events of a random experiment such that $P(A) = 0.6$, $P(B) = 0.3$ and $P(A|B) = 0.5$ then $P(\bar{B}|\bar{A}) =$

(A) 0.75
(B) 0.625
(C) 0.525
(D) 0.4

Answer: (B) 0.625 · The council's preliminary key

Q716 AP EAMCET 2017 · 25 Apr · Shift 1 MCQ

A player tosses two coins. He wins Rs. 1 if 1 head appears, Rs. 2 if 2 heads appear. But he loses Rs. 3 if no head appears. The mean of the prized money is

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(A) $\frac{1}{2}$
(B) $\frac{1}{3}$
(C) $\frac{1}{4}$
(D) $\frac{1}{5}$

Answer: (C) $\frac{1}{4}$ · The council's preliminary key

Q717 AP EAMCET 2017 · 25 Apr · Shift 1 MCQ

If X is a binomial variate with $n = 7$ and $P(X = 3) = P(X = 4)$ then $P(X = 5) =$

(A) $21 \cdot \frac{3^2}{4^7}$
(B) $21 \cdot \frac{3^5}{4^7}$
(C) $7 \cdot \frac{2^5}{3^6}$
(D) $\frac{21}{2^7}$

Answer: (D) $\frac{21}{2^7}$ · The council's preliminary key

Q718 AP EAMCET 2017 · 25 Apr · Shift 2 MCQ

If E_1, E_2 are two events of a sample space such that $P(E_1) = \frac{1}{4}$, $P(E_2|E_1) = \frac{1}{2}$, $P(E_1|E_2) = \frac{1}{4}$, then $P(\bar{E}_1|E_2) =$

(A) $\frac{1}{3}$
(B) $\frac{1}{4}$
(C) $\frac{2}{3}$
(D) $\frac{3}{4}$

Answer: (D) $\frac{3}{4}$ · The council's preliminary key

Q719 AP EAMCET 2017 · 25 Apr · Shift 2 MCQ

If A and B are any two events such that $P(\overline{A \cup B}) = \frac{1}{6}$, $P(A \cap B) = \frac{1}{4}$ and $P(\bar{A}) = \frac{1}{4}$, then the events A and B are

(A) Equally likely but not independent
(B) Equally likely and mutually exclusive
(C) Mutually exclusive and independent
(D) Independent but not equally likely

Answer: (D) Independent but not equally likely · The council's preliminary key

Q720 AP EAMCET 2017 · 25 Apr · Shift 2 MCQ

For a random variable X if $P(X = k) = \frac{(k+1)a}{3^k}$ for $k = 0, 1, 2, \ldots$ then $a =$

(A) $\frac{2}{3}$
(B) $\frac{4}{9}$
(C) $\frac{8}{27}$
(D) $\frac{16}{81}$

Answer: (B) $\frac{4}{9}$ · The council's preliminary key

Q721 AP EAMCET 2017 · 25 Apr · Shift 2 MCQ

On an average if one out of 100 electric bulbs produced by a Company is found to be defective, then the probability that there are at least two defective bulbs in a consignment of 600 bulbs, is

(A) $1 - 7e^{-6}$
(B) $1 - 6e^{-6}$
(C) $1 - 6e^{-1}$
(D) $1 - 8e^{-4}$

Answer: (A) $1 - 7e^{-6}$ · The council's preliminary key

Q722 AP EAMCET 2017 · 24 Apr · Shift 1 MCQ

Three faces of a fair die are yellow, two faces are red and one face is blue. If the die is tossed 3 times, then the probability that the colours yellow, red and blue appear is (need not be in that order)

(A) $\frac{1}{36}$
(B) $\frac{1}{6}$
(C) $\frac{5}{6}$
(D) $\frac{1}{2}$

Answer: (B) $\frac{1}{6}$ · The council's preliminary key

Q723 AP EAMCET 2017 · 24 Apr · Shift 1 MCQ

A college student has to appear for two examinations A and B. The probabilities that the student passes in A and B are $\frac{2}{3}$ and $\frac{3}{4}$ respectively. If it is known that the student passes at least one among the two examinations, then the probability that the student will pass both the examinations is

(A) $\frac{1}{6}$
(B) $\frac{1}{2}$
(C) $\frac{1}{3}$
(D) $\frac{6}{11}$

Answer: (D) $\frac{6}{11}$ · The council's preliminary key

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Q724 AP EAMCET 2017 · 24 Apr · Shift 1 MCQ

If X is a random variable with the following probability distribution

$X = x$: -3, 6, 9

$P(X = x)$: $\frac{1}{6}$, $\frac{1}{2}$, $\frac{1}{3}$

then the variance of X is

(A) $\frac{65}{4}$

(B) $\frac{65}{2}$

(C) $\frac{65}{3}$

(D) 65

Answer: (A) $\frac{65}{4}$ · The council's preliminary key

Q725 AP EAMCET 2017 · 24 Apr · Shift 1 MCQ

6 coins are tossed 320 times. The probability of getting 5 heads 2 times is

(A) $30^2 \times \frac{e^{-30}}{2}$

(B) $30 \times e^{-30}$

(C) $30^2 \times e^{-30}$

(D) $30 \times e^{-10}$

Answer: (A) $30^2 \times \frac{e^{-30}}{2}$ · The council's preliminary key

Q726 AP EAMCET 2017 · 24 Apr · Shift 2 MCQ

If 5 red roses and 5 white roses of different sizes are used in preparing a garland, the probability that red and white roses come alternately is

(A) $\frac{1}{252}$

(B) $\frac{1}{126}$

(C) $\frac{1}{63}$

(D) $\frac{5}{126}$

Answer: (B) $\frac{1}{126}$ · The council's preliminary key

Q727 AP EAMCET 2017 · 24 Apr · Shift 2 MCQ

There are eight different coloured balls and 8 bags having the same colours as that of the balls. If one ball is placed at random in each one of the bags, then the probability that 5 of the balls are placed in the respective coloured bags, is

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(A) $\frac{1}{120}$
(B) $\frac{1}{160}$
(C) $\frac{1}{180}$
(D) $\frac{1}{360}$

Answer: (D) $\frac{1}{360}$ · The council's preliminary key

Q728 AP EAMCET 2017 · 24 Apr · Shift 2 MCQ

If the probability function of a random variable X is given by $P(X=k)=\frac{3^{ck}}{k!}$ for $k=1,2,3,\ldots$ (where c is a constant), then $c=$

(A) $\frac{1}{2}\log_3(\log_e 2)$
(B) $\frac{1}{2}\log_2(\log_e 3)$
(C) $\log_3(\log_e 2)$
(D) $\log_2(\log_e 3)$

Answer: (C) $\log_3(\log_e 2)$ · The council's preliminary key

Q729 AP EAMCET 2017 · 24 Apr · Shift 2 MCQ

If X is a Poisson variate with mean 2, then $P\left(X>\frac{3}{2}\right)=$

(A) $\frac{e^2-1}{2}$
(B) $\frac{e^2-1}{e}$
(C) $\frac{e^2-3}{e^2}$
(D) $\frac{e^2-1}{e^2}$

Answer: (C) $\frac{e^2-3}{e^2}$ · The council's preliminary key

Q730 TS EAMCET 2016 · 15 May · Offline MCQ

Two events A and B are such that $P(A)=\frac{1}{4}$, $P(A|B)=\frac{1}{4}$ and $P(B|A)=\frac{1}{2}$. Consider the following statements :
(I) $P(\bar{A}|\bar{B})=\frac{3}{4}$
(II) A and B are mutually exclusive
(III) $P(A|B)+P(A|\bar{B})=1$
Then

(A) Only (I) is correct
(B) Only (I) and (II) are correct
(C) Only (I) and (III) are correct
(D) Only (II) and (III) are correct

Answer: (A) Only (I) is correct · Official TGCHE final key

Q731 TS EAMCET 2016 · 15 May · Offline MCQ

A five digit number is formed by the digits 1, 2, 3, 4, 5 with no digit being repeated. The probability that the number is divisible by 4, is

(A) $\frac{1}{5}$
(B) $\frac{2}{5}$
(C) $\frac{3}{5}$
(D) $\frac{4}{5}$

Answer: (A) $\frac{1}{5}$ · Official TGCHE final key

Q732 TS EAMCET 2016 · 15 May · Offline MCQ

When a pair of six faced fair dice are thrown, the probability that the sum of the numbers on the two dice is greater than 7, is

(A) $\frac{1}{3}$
(B) $\frac{5}{12}$
(C) $\frac{1}{2}$
(D) $\frac{1}{4}$

Answer: (B) $\frac{5}{12}$ · Official TGCHE final key

Q733 TS EAMCET 2016 · 15 May · Offline MCQ

In a family with 4 children, the probability that there are at least two girls is

(A) $\frac{1}{2}$
(B) $\frac{9}{16}$
(C) $\frac{3}{4}$
(D) $\frac{11}{16}$

Answer: (D) $\frac{11}{16}$ · Official TGCHE final key

Q734 TS EAMCET 2016 · 15 May · Offline MCQ

On an average nine out of 10 ships that have departed at A reach B safely. The probability that out of five ships that have departed at A at least four will reach B safely is

(A) $14(0.9)^5$
(B) $1.4(0.9)^5$
(C) $0.14(0.9)^4$
(D) $1.4(0.9)^4$

Answer: (D) $1.4(0.9)^4$ · Official TGCHE final key

Q735 AP EAMCET 2016 · 29 Apr · Offline MCQ

3 out of 6 vertices of a regular hexagon are chosen at a time at random. The probability that the triangle formed with these three vertices is an equilateral triangle, is

(A) $\frac{1}{2}$
(B) $\frac{1}{5}$
(C) $\frac{1}{10}$
(D) $\frac{1}{20}$

Answer: (C) $\frac{1}{10}$ · The council's preliminary key

Q736 AP EAMCET 2016 · 29 Apr · Offline MCQ

A speaks truth in 75% of the cases and B in 80% of the cases. Then the probability that their statements about an incident do not match, is

(A) $\frac{7}{20}$
(B) $\frac{3}{20}$
(C) $\frac{2}{7}$
(D) $\frac{5}{7}$

Answer: (A) $\frac{7}{20}$ · The council's preliminary key

Q737 AP EAMCET 2016 · 29 Apr · Offline MCQ

If the mean and variance of a binomial distribution are 4 and 2 respectively, then the probability of 2 successes of that binomial variate X, is

(A) $\frac{1}{2}$
(B) $\frac{219}{256}$
(C) $\frac{37}{256}$
(D) $\frac{7}{64}$

Answer: (D) $\frac{7}{64}$ · The council's preliminary key

Q738 AP EAMCET 2016 · 29 Apr · Offline MCQ

In a city 10 accidents take place in a span of 50 days. Assuming that the number of accidents follow the Poisson distribution, the probability that three or more accidents occur in a day, is

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(A) $\sum_{k=3}^{\infty} \frac{e^{-\lambda}\lambda^k}{k!},\ \lambda = 0.2$
(B) $\sum_{k=3}^{\infty} \frac{e^{\lambda}\lambda^k}{k},\ \lambda = 0.2$
(C) $1 - \sum_{k=0}^{3} \frac{e^{-\lambda}\lambda^k}{k!},\ \lambda = 0.2$
(D) $\sum_{k=0}^{3} \frac{e^{-\lambda}\lambda^k}{k!},\ \lambda = 0.2$

Answer: (A) $\sum_{k=3}^{\infty} \frac{e^{-\lambda}\lambda^k}{k!},\ \lambda = 0.2$ · The council's preliminary key

Q739 AP EAMCET 2014 · 22 May · Offline MCQ

If the mean and variance of a binomial variate X are 8 and 4 respectively then $P(X < 3) =$

(A) $\frac{265}{2^{15}}$
(B) $\frac{137}{2^{16}}$
(C) $\frac{697}{2^{16}}$
(D) $\frac{265}{2^{16}}$

Answer: (B) $\frac{137}{2^{16}}$ · The council's preliminary key

Q740 AP EAMCET 2014 · 22 May · Offline MCQ

A random variable X has the probability distribution given below. Its variance is

X	1	2	3	4	5
$P(X = x)$	k	$2k$	$3k$	$2k$	k

(A) $\frac{16}{3}$
(B) $\frac{4}{3}$
(C) $\frac{5}{3}$
(D) $\frac{10}{3}$

Answer: (B) $\frac{4}{3}$ · The council's preliminary key

Q741 AP EAMCET 2014 · 22 May · Offline MCQ

A candidate takes three tests in succession and the probability of passing the first test is p. The probability of passing each succeeding test is p or $\frac{p}{2}$ according as he passes or fails in the preceding one. The candidate is selected if he passes at least two tests. The probability that the candidate is selected is

(A) $p^2(2 - p)$
(B) $p(2 - p)$
(C) $p + p^2 + p^3$
(D) $p^2(1 - p)$

Answer: (A) $p^2(2 - p)$ · The council's preliminary key

Q742 AP EAMCET 2014 · 22 May · Offline MCQ

A six-faced unbiased die is thrown twice and the sum of the numbers appearing on the upper face is observed to be 7. The probability that the number 3 has appeared at least once is

(A) $\frac{1}{5}$
(B) $\frac{1}{2}$
(C) $\frac{1}{3}$
(D) $\frac{1}{4}$

Answer: (C) $\frac{1}{3}$ · The council's preliminary key

Q743 AP EAMCET 2014 · 22 May · Offline MCQ

If A, B and C are mutually exclusive and exhaustive events of a random experiment such that $P(B)=\frac{3}{2}P(A)$ and $P(C)=\frac{1}{2}P(B)$ then $P(A\cup C)=$

(A) $\frac{10}{13}$
(B) $\frac{3}{13}$
(C) $\frac{6}{13}$
(D) $\frac{7}{13}$

Answer: (D) $\frac{7}{13}$ · The council's preliminary key

Q744 AP EAMCET 2013 · 10 May · Offline MCQ

Two numbers are chosen at random from $\{1,2,3,4,5,6,7,8\}$ at a time. The probability that smaller of the two numbers is less than 4 is

(A) $\frac{7}{14}$
(B) $\frac{8}{14}$
(C) $\frac{9}{14}$
(D) $\frac{10}{14}$

Answer: (C) $\frac{9}{14}$ · The council's preliminary key

Q745 AP EAMCET 2013 · 10 May · Offline MCQ

Two fair dice are rolled. The probability of the sum of digits on their faces to be greater than or equal to 10 is

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(A) $\frac{1}{5}$
(B) $\frac{1}{4}$
(C) $\frac{1}{8}$
(D) $\frac{1}{6}$

Answer: (D) $\frac{1}{6}$ · The council's preliminary key

Q746 AP EAMCET 2013 · 10 May · Offline MCQ

A bag contains $2n+1$ coins. It is known that n of these coins have a head on both sides, whereas the remaining $n+1$ coins are fair. A coin is picked up at random from the bag and tossed. If the probability that the toss results in a head is $\frac{31}{42}$, then $n=$

(A) 10
(B) 11
(C) 12
(D) 13

Answer: (A) 10 · The council's preliminary key

Q747 AP EAMCET 2013 · 10 May · Offline MCQ

The random variable takes the values $1, 2, 3, \ldots\ldots, m$. If $P(X=n)=\frac{1}{m}$ to each n, then the variance of X is

(A) $\frac{(m+1)(2m+1)}{6}$
(B) $\frac{m^2-1}{12}$
(C) $\frac{m+1}{2}$
(D) $\frac{m^2+1}{12}$

Answer: (B) $\frac{m^2-1}{12}$ · The council's preliminary key

Q748 AP EAMCET 2013 · 10 May · Offline MCQ

If X is a Poisson variate and $P(X=1)=2P(X=2)$ then $P(X=3)=$

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(A) $\frac{e^{-1}}{6}$
(B) $\frac{e^{-2}}{2}$
(C) $\frac{e^{-1}}{2}$
(D) $\frac{e^{-1}}{3}$

Answer: (A) $\frac{e^{-1}}{6}$ · The council's preliminary key

Q749 AP EAMCET 2012 · 12 May · Offline MCQ

A fair coin is tossed 100 times. The probability of getting tails an odd number of times is

(A) $\frac{1}{2}$
(B) $\frac{1}{4}$
(C) $\frac{1}{8}$
(D) $\frac{3}{8}$

Answer: (A) $\frac{1}{2}$ · Official APSCHE final key

Q750 AP EAMCET 2012 · 12 May · Offline MCQ

There are four machines and it is known that exactly two of them are faulty. They are tested one by one, in a random order till both the faulty machines are identified. Then the probability that only two tests are needed is

(A) $\frac{1}{3}$
(B) $\frac{1}{6}$
(C) $\frac{1}{2}$
(D) $\frac{1}{4}$

Answer: (A) $\frac{1}{3}$ · Official APSCHE final key

Q751 AP EAMCET 2012 · 12 May · Offline MCQ

In an entrance test there are multiple choice questions. There are four possible answers to each question, of which one is correct. The probability that a student knows the answer to a question is 9/10. If he gets the correct answer to a question, then the probability that he was guessing is

(A) $\frac{37}{40}$
(B) $\frac{1}{37}$
(C) $\frac{36}{37}$
(D) $\frac{1}{9}$

Answer: (B) $\frac{1}{37}$ · Official APSCHE final key

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Q752 AP EAMCET 2012 · 12 May · Offline MCQ

Suppose X follows a binomial distribution with parameters n and p, where $0 < p < 1$. If $\frac{P(X=r)}{P(X=n-r)}$ is independent of n for every r, then p =

(A) $\frac{1}{2}$
(B) $\frac{1}{3}$
(C) $\frac{1}{4}$
(D) $\frac{1}{8}$

Answer: (A) $\frac{1}{2}$ · Official APSCHE final key

Q753 AP EAMCET 2012 · 12 May · Offline MCQ

If X is a Poisson variate such that $\alpha = P(X = 1) = P(X = 2)$ then $P(X = 4) =$

(A) 2α
(B) $\frac{\alpha}{3}$
(C) αe^{-2}
(D) αe^{2}

Answer: (B) $\frac{\alpha}{3}$ · Official APSCHE final key

Q754 AP EAMCET 2011 · 8 May · Offline MCQ

A class has fifteen boys and five girls. Suppose three students are selected at random from the class. The probability that there are two boys and one girl is

(A) $\frac{35}{76}$
(B) $\frac{35}{38}$
(C) $\frac{7}{76}$
(D) $\frac{35}{72}$

Answer: (A) $\frac{35}{76}$ · The council's preliminary key

Q755 AP EAMCET 2011 · 8 May · Offline MCQ

Seven white balls and three black balls are randomly arranged in a row. The probability that no two black balls are placed adjacently is

(A) $\frac{1}{2}$
(B) $\frac{7}{15}$
(C) $\frac{2}{15}$
(D) $\frac{1}{3}$

Answer: (B) $\frac{7}{15}$ · The council's preliminary key

Q756 AP EAMCET 2011 · 8 May · Offline MCQ

Let A and B be events in a sample space S such that $P(A) = 0.5$, $P(B) = 0.4$ and $P(A \cup B) = 0.6$. Observe the following lists :

List I

(i) $P(A \cap B)$

(ii) $P(A \cap \bar{B})$

(iii) $P(\bar{A} \cap B)$

(iv) $P(\bar{A} \cap \bar{B})$

List II

(a) 0.4

(b) 0.2

(c) 0.3

(d) 0.1

The correct match of List I from List II is

(A) (i)-(a), (ii)-(b), (iii)-(c), (iv)-(d)

(B) (i)-(c), (ii)-(b), (iii)-(d), (iv)-(a)

(C) (i)-(c), (ii)-(b), (iii)-(a), (iv)-(d)

(D) (i)-(c), (ii)-(a), (iii)-(b), (iv)-(d)

Answer: (B) (i)-(c), (ii)-(b), (iii)-(d), (iv)-(a) · The council's preliminary key

Q757 AP EAMCET 2011 · 8 May · Offline MCQ

The probability distribution of a random variable X is given below :

$X = x$: 0, 1, 2, 3

$P(X = x)$: $\frac{1}{10}$, $\frac{2}{10}$, $\frac{3}{10}$, $\frac{4}{10}$

Then the variance of X is

(A) 1

(B) 2

(C) 3

(D) 4

Answer: (A) 1 · The council's preliminary key

Q758 AP EAMCET 2011 · 8 May · Offline MCQ

The probability that an individual suffers a bad reaction from an injection is 0.001. The probability that out of 2000 individuals exactly three will suffer bad reaction is

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(A) $\frac{1}{e^2}$
(B) $\frac{2}{3e^2}$
(C) $\frac{8}{3e^2}$
(D) $\frac{4}{3e^2}$

Answer: (D) $\frac{4}{3e^2}$ · The council's preliminary key

Q759 AP EAMCET 2010 · 30 May · Offline MCQ

An urn A contains 3 white and 5 black balls. Another urn B contains 6 white and 8 black balls. A ball is picked from A at random and then transferred to B. Then a ball is picked at random from B. The probability that it is a white ball is :

(A) $\frac{14}{40}$
(B) $\frac{15}{40}$
(C) $\frac{16}{40}$
(D) $\frac{17}{40}$

Answer: (D) $\frac{17}{40}$ · Official APSCHE final key

Q760 AP EAMCET 2010 · 30 May · Offline MCQ

If A_i $(i = 1, 2, 3, \ldots\ldots\ldots, n)$ are n independent events with $\mathrm{P}(\mathrm{A}_i) = \frac{1}{1+i}$ for each i, then the probability that none of A_i occurs is :

(A) $\frac{n-1}{n+1}$
(B) $\frac{n}{n+1}$
(C) $\frac{n}{n+2}$
(D) $\frac{1}{n+1}$

Answer: (D) $\frac{1}{n+1}$ · Official APSCHE final key

Q761 AP EAMCET 2010 · 30 May · Offline MCQ

Suppose A and B are two events such that $P(A \cap B) = \frac{3}{25}$ and $P(B - A) = \frac{8}{25}$. Then $P(B) =$

(A) $\frac{11}{25}$
(B) $\frac{3}{11}$
(C) $\frac{1}{11}$
(D) $\frac{9}{11}$

Answer: (A) $\frac{11}{25}$ · Official APSCHE final key

Q762 AP EAMCET 2010 · 30 May · Offline MCQ

Suppose that a random variable X follows Poisson distribution. If $\mathrm{P}(X=1)=\mathrm{P}(X=2)$ then $\mathrm{P}(X=5)=$

(A) $\frac{2}{3}e^{-2}$
(B) $\frac{3}{4}e^{-2}$
(C) $\frac{4}{15}e^{-2}$
(D) $\frac{7}{8}e^{-2}$

Answer: (C) $\frac{4}{15}e^{-2}$ · Official APSCHE final key

Q763 AP EAMCET 2010 · 30 May · Offline MCQ

If the mean and variance of a binomial variable X are 2 and 1 respectively, then $\mathrm{P}(X\geq 1)=$

(A) $\frac{2}{3}$
(B) $\frac{15}{16}$
(C) $\frac{7}{8}$
(D) $\frac{4}{5}$

Answer: (B) $\frac{15}{16}$ · Official APSCHE final key

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