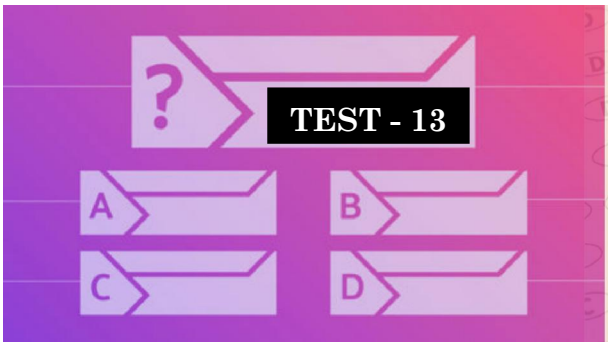

By O.P. GUPTA

MULTIPLE CHOICE TYPE QUESTIONS

For CBSE 2025 Exams - Mathematics (041) - Class 12

Topics : Probability **Max. Marks : 20**

☑ ***Select the correct option in the followings. Each question carries 1 mark.***

Q01. If A and B are independent events and $P(A \cup B) = \frac{3}{8}$, then $P(A').P(B')$ is

(a) $\frac{5}{8}$ (b) $\frac{3}{8}$ (c) $\frac{1}{8}$ (d) $\frac{7}{8}$

Q02. If $P(A) = \frac{3}{8}$, $P(B) = \frac{1}{2}$, $P(A \cap B) = \frac{1}{4}$, then $P(\overline{A} \mid \overline{B})$ is

(a) $\frac{5}{6}$ (b) $\frac{3}{4}$ (c) $\frac{4}{5}$ (d) $\frac{1}{4}$

Q03. Two planes X and Y bomb a target in succession. Their probabilities to hit correctly are 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 Y plane, is

(a) $\frac{8}{20}$ (b) $\frac{8}{25}$ (c) $\frac{1}{25}$ (d) $\frac{7}{22}$

Q04. If A and B are two events such that $P(A) = 0.2$, $P(B) = 0.4$ and $P(A \cup B) = 0.5$, then value of $P(A \mid B)$ is

(a) 0.1 (b) 0.25 (c) 0.5 (d) 0.08

Q05. An urn contains 6 balls of which two are red and four are black. Two balls are drawn at random. Probability that they are of the different colours is

(a) $\frac{2}{5}$ (b) $\frac{1}{15}$ (c) $\frac{8}{15}$ (d) $\frac{4}{15}$

Q06. A card is picked at random from a pack of 52 playing cards. Given that the picked card is a queen, the probability of this card to be a card of spade is

(a) $\frac{1}{3}$ (b) $\frac{4}{13}$ (c) $\frac{1}{4}$ (d) $\frac{1}{2}$

Q07. A die is thrown once. Let A be the event that the number obtained is greater than 3. Let B be the event that the number obtained is less than 5. Then, $P(A \cup B)$ is

(a) $\frac{2}{5}$ (b) $\frac{3}{5}$ (c) 0 (d) 1

Q08. A number is chosen randomly from numbers 1 to 60. The probability that the chosen number is a multiple of 2 or 5, is

(a) $\frac{2}{5}$ (b) $\frac{3}{5}$ (c) $\frac{7}{10}$ (d) $\frac{9}{10}$

Q09. From the set {1, 2, 3, 4, 5}, two numbers a and b ($a \neq b$) are chosen at random. The probability that $\frac{a}{b}$ is an integer is

(a) $\frac{1}{3}$ (b) $\frac{1}{4}$ (c) $\frac{1}{2}$ (d) $\frac{3}{5}$

Q10. A bag contains 3 white, 4 black and 2 red balls. If 2 balls are drawn at random (without replacement), then the probability that both the balls are white is

(a) $\frac{1}{18}$ (b) $\frac{1}{36}$ (c) $\frac{1}{12}$ (d) $\frac{1}{24}$

Q11. Three dice are thrown simultaneously. The probability of obtaining a total score of 5 is

(a) $\frac{5}{216}$ (b) $\frac{1}{6}$ (c) $\frac{1}{36}$ (d) $\frac{1}{49}$

Q12. A bag contains 3 black, 4 red and 2 green balls. If three balls are drawn simultaneously at random, then the probability that the balls are of different colours is

(a) $\frac{2}{7}$ (b) $\frac{1}{7}$ (c) $\frac{6}{7}$ (d) $\frac{5}{7}$

Q13. An unbiased coin is tossed 4 times. Then the probability of getting at least one head, is

(a) $\frac{1}{16}$ (b) $\frac{15}{16}$ (c) $\frac{3}{16}$ (d) $\frac{13}{16}$

Q14. A problem is given to three students whose probabilities of solving it are $\frac{1}{3}, \frac{1}{4}$ and $\frac{1}{6}$ respectively. If the events of solving the problem are independent, then the probability that at least one of them solves it, is given by

(a) $\frac{5}{12}$ (b) $\frac{1}{12}$ (c) $\frac{7}{12}$ (d) $\frac{11}{12}$

Q15. If A and B are two independent events with $P(A) = \frac{1}{3}$ and $P(B) = \frac{1}{4}$, then $P(B' \mid A)$ is equal to

(a) $\frac{1}{4}$ (b) $\frac{1}{3}$ (c) $\frac{3}{4}$ (d) 1

Q16. Two cards are drawn at random and one-by-one without replacement from a well-shuffled pack of 52 playing cards. Then the probability that one card is red and the other is black, is

(a) $\frac{25}{51}$ (b) $\frac{32}{51}$ (c) $\frac{19}{51}$ (d) $\frac{26}{51}$

Q17. The probability of solving a specific question independently by A and B are $\frac{1}{3}$ and $\frac{1}{5}$ respectively. If both try to solve the question independently, the probability that the question is solved, is

(a) $\frac{7}{15}$ (b) $\frac{8}{15}$ (c) $\frac{2}{15}$ (d) $\frac{14}{15}$

Q18. From a pack of 52 cards, 3 cards are drawn at random (without replacement). The probability that they are two red cards and one black card, is

(a) $\frac{21}{34}$ (b) $\frac{13}{34}$ (c) $\frac{1}{34}$ (d) $\frac{33}{34}$

*Question numbers **19** and **20** are Assertion and Reason based questions. Two statements are given, one labelled **Assertion (A)** and the other labelled **Reason (R)**. Select the correct answer from the codes (a), (b), (c) and (d) as given below.*

(a) Both Assertion (A) and Reason (R) are true and Reason (R) is the correct explanation of Assertion (A).
(b) Both Assertion (A) and Reason (R) are true and Reason (R) is **not** the correct explanation of Assertion (A).
(c) Assertion (A) is true but Reason (R) is false.
(d) Assertion (A) is false but Reason (R) is true.

Q19. **Assertion (A) :** A random variable X has the probability distribution as given below.

X	0	1	2	3	4
P(X)	0	K	4K	3K	2K

Then $10K = 1$.

Reason (R) : For a probability distribution of random variable X, we have $\sum P(X) = 1$.

Q20. **Assertion (A) :** Let A and B are two independent events. If $P(A) = 0.2$, $P(B) = 0.1$, then $P(A \cap B) = 0.02$.

Reason (R) : For independent events A and B, we always have $P(A \cup B) = P(A) \times P(B)$.

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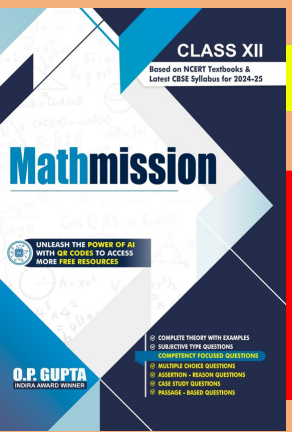

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