

GATE ALL BRANCHES

ENGINEERING MATHEMATICS

DPP

- Q1** A pack of cards consists of 15 cards numbered 1 to 15. Three cards are drawn at random with replacement. Then, the probability of getting 2 odd and one even numbered card is :
 (A) 348/1125 (B) 398/1125
 (C) 448/1125 (D) 498/1125
- Q2** The probability that the 13th day of a randomly chosen month is a second Saturday, is:
 (A) 1/7 (B) 1/12
 (C) 1/84 (D) 19/84
- Q3** A and B play a game where each is asked to select a number from 1 to 25. If the two numbers match both of them win a prize. The probability that they will not win a prize in a single trial is:
 (A) 1/25 (B) 24/25
 (C) 2/25 (D) None of these
- Q4** If A and B are two independent events such that $P(\bar{A} \cap B) = 2/15$, and $P(A \cap \bar{B}) = 1/6$ then $P(B)$ is :
 (A) 1/5 (B) 1/6
 (C) 4/5 (D) 5/6
- Q5** If A and B are two events, the probability that exactly one of them occurs is given by :
 (A) $P(A) + P(B) - 2P(A \cap B)$
 (B) $P(A \cap \bar{B}) + P(\bar{A} \cap B)$
 (C) $P(A \cup B) - P(A \cap B)$
 (D) $P(\bar{A}) + P(\bar{B}) - 2P(\bar{A} \cap \bar{B})$
- Q6** For two events A and B it is given that $P(A) = P(A/B) = \frac{1}{4}$ and $P(B/A) = \frac{1}{2}$
 Then :
 (A) A and B are mutually exclusive events
 (B) A and B are independent events
 (C) $P(\bar{A}/B) = \frac{3}{4}$
 (D) $P(\bar{A}/B) = \frac{1}{2}$
- Q7** If A and B are two independent events such that $P(A) = \frac{1}{4}$ and $P(B) = \frac{1}{2}$
 Then :
 (A) $P(A \cup B) = \frac{3}{5}$
 (B) $P(A/B) = \frac{1}{2}$
 (C) $P(A/A \cup B) = \frac{2}{5}$
 (D) $P(A \cap B / \bar{A} \cup \bar{B}) = 0$
- Q8** The probabilities that a student passes in mathematics, physics and chemistry are m, p and c respectively. of these subjects, a student has a 75% chance of passing in at least one, 50% chance of passing in at least two and a 40% chance of passing in exactly two subjects. Which of the following relations are true ?
 (A) $p + m + c = \frac{19}{20}$
 (B) $p + m + c = \frac{27}{20}$
 (C) $pmc = \frac{1}{10}$
 (D) $pmc = \frac{1}{4}$
- Q9** An urn contains 6 white and 4 black balls. A fair die is rolled, and that number of balls are chosen from the urn.
 The probability that the balls selected are white is:
 (A) 1/5 (B) 1/6
 (C) 1/7 (D) 1/8
- Q10** If the probability of a random variable X is given by $f(x) = k(2x - 1)$, $x = 1, 2, 3, \dots, 12$. Find k.
- Q11** The density function for the continuous random variable X is

$$f_x(x) = \begin{cases} e^{-x} & \text{for } x > 0 \\ 0 & \text{for } x \leq 0 \end{cases}$$

 Find the Probability $P[X \leq 2 | X > 1]$
- Q12** A continuous random variable X has density function



$$f(x) = \begin{cases} 2x & 0 < x < \frac{1}{2} \\ \frac{4-2x}{3} & \frac{1}{2} \leq x < 2 \\ 0 & \text{elsewhere} \end{cases}$$

Find $P[0.25 < x \leq 1.25]$

- Q13** Let X be a continuous random variable with the probability density function

$$f(x) = \begin{cases} \frac{x}{8} & 0 < x < 2 \\ \frac{k}{8} & 2 \leq x \leq 4 \\ \frac{6-x}{8} & 4 < x < 6 \\ 0 & \text{otherwise} \end{cases}$$

Where k is a real constant. Then $P(1 < X < 5)$ equals _____.

- Q14** If ' x ' is normally distributed with mean = 20 and $\sigma = 3.33$. The probability of $P(21.11 \leq x \leq 26.66)$ is _____.

$P(0 < z < 1/3) = 0.1293$.

- Q15** If ' x ' is normally distributed with mean = 30 and $\sigma = 5$, $P(|x - 30| > 5) =$ _____.



Answer Key

Q1 (C)
Q2 (A)
Q3 (B)
Q4 (B, C)
Q5 (B)
Q6 (B, C)
Q7 (C, D)
Q8 (A, C)

Q9 (A)
Q10 0.006~0.007
Q11 0.6~0.7
Q12 0.7~0.8
Q13 0.8~0.9
Q14 0.3~0.4
Q15 0.6~0.7



[Android App](#)

| [iOS App](#)

| [PW Website](#)

