CUET Mathematics Test - Set 23

Unit VI: Probability (Intermediate)

General Instructions

1. Total Questions: **15**
2. Duration: **60 Minutes**
3. All questions are compulsory.
4. Each question carries **5 marks**.
5. For each correct answer: **+5 marks**.
6. For each incorrect answer: **-1 mark**.
7. No negative marking for unanswered questions.
8. Use of calculator or electronic devices is strictly prohibited.
9. Choose the most appropriate answer from the given options.

1. If $P(A) = 0.8$ and $P(B) = 0.5$, then the minimum possible value of $P(A \cap B)$ is:
   (A) 0.3
   (B) 0.4
   (C) 0.5
   (D) 0

2. A problem in mathematics is given to three students whose chances of solving it are $1/2, 1/3$ and $1/4$ respectively. What is the probability that the problem is solved?
   (A) 1/4
   (B) 1/2
   (C) 3/4
   (D) 7/12

3. If A and B are two independent events such that $P(A \cup B) = 0.60$ and $P(A) = 0.2$, then $P(B)$ is:
   (A) 0.4
   (B) 0.5
   (C) 0.33
   (D) 0.8

4. Two cards are drawn from a pack of 52 cards one after another without replacement. The probability that one is a red card and the other is a black card is:
   (A) 26/51
   (B) 26/52
   (C) 25/51
   (D) 1/2

5. An unbiased die is thrown twice. Let A be the event "odd number on first throw" and B be the event "odd number on second throw". Check the independence of A and B.
   (A) Dependent
   (B) Independent
   (C) Mutually Exclusive
   (D) Exhaustive

6. If $P(A) = 6/11, P(B) = 5/11$ and $P(A \cup B) = 7/11$, then $P(A|B)$ is:
   (A) 2/3
   (B) 4/5
   (C) 3/5
   (D) 1

7. A random variable X takes values $0, 1, 2$ with probabilities $1/3, 1/6, 1/2$ respectively. The expectation $E(X)$ is:
   (A) 1.16
   (B) 1.5
   (C) 1.25
   (D) 1.33

8. The probability of a shooter hitting a target is 3/4. How many minimum number of times must he fire so that the probability of hitting the target at least once is more than 0.99?
   (A) 3
   (B) 4
   (C) 5
   (D) 2

9. A box contains 100 tickets numbered $1, 2, \ldots, 100$. If a ticket is drawn at random, what is the probability that the ticket has a number which is a multiple of 3 or 7?
   (A) 43/100
   (B) 47/100
   (C) 33/100
   (D) 41/100

10. If A and B are two events such that $P(A) = 0.4, P(B) = 0.3$ and $P(A \cup B) = 0.5$, then $P(\bar{B} \cap A)$ is:
   (A) 0.1
   (B) 0.2
   (C) 0.3
   (D) 0.4

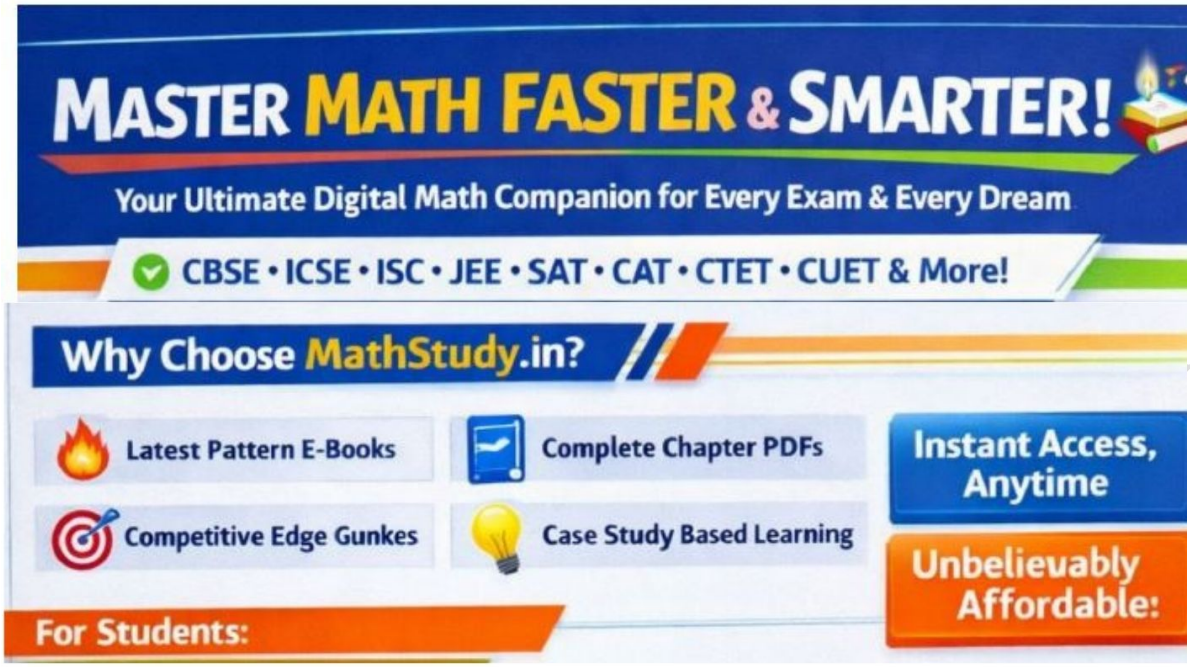
11. In a class, 60% of students study Mathematics, 40% study Biology and 20% study both. If a student is selected at random and studies Mathematics, the probability that they also study Biology is:
   (A) 1/2
   (B) 1/3
   (C) 1/4
   (D) 1/5

12. The mean of a binomial distribution is 4 and its variance is 3. The number of trials n is:
   (A) 12
   (B) 16
   (C) 20
   (D) 8

13. $P(A) = 0.5, P(B) = 0.4$ and $P(A \cap B) = 0.3$. The value of $P(A'|B')$ is:
   (A) 1/3
   (B) 1/2
   (C) 2/3
   (D) 3/4

14. A random variable X has a mean 2 and variance 4. Then $E(X^2)$ is:
   (A) 4
   (B) 6
   (C) 8
   (D) 10

15. Given $P(A \cup B) = 0.8$ and $P(A \cap B) = 0.3$, then $P(A') + P(B')$ is:
   (A) 0.3
   (B) 0.5
   (C) 0.7
   (D) 0.9



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