DPP

DAILY PRACTICE PROBLEMS

CLASS : XIIth
DATE :

SUBJECT : MATHS
DPP No. : 7

Topic :-PROBABILITY

1. If and are the probabilities of three mutually exclusive events, then the set of all values of p is-

(A) $\frac{1}{3} \le p \le \frac{1}{2}$ (B) $\frac{1}{3} < p < \frac{1}{2}$ (C) $\frac{1}{2} \le p \le \frac{2}{3}$ (D) $\frac{1}{2} < p < \frac{2}{3}$

2. A speaks truth in 75% cases and B in 80% cases. What is the probability that they contradict each other in stating the same fact ?

(A) $\frac{7}{20}$ (B) $\frac{13}{20}$ (C) $\frac{3}{20}$ (D) $\frac{1}{5}$

3. The mean and the variance of a binomial distribution are 4 and 2 respectively. Then the probability of 2 successes is-

(A) $\frac{128}{256}$ (B) $\frac{219}{256}$ (C) $\frac{37}{256}$ (D) $\frac{28}{256}$

4. It is given that the events A and B are such that P(A) = , P() = and P() = . Then P(B) is

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

5. A die is thrown. 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 is

(A) $\frac{3}{5}$ (B) 0 (C) 1 (D) $\frac{2}{5}$

6. One ticket is selected at random from 50 tickets numbered 00, 01, 02, ..., 49. Then the probability that the sum of the digits on the selected ticket is 8, given that the product of these digits is zero, equals

(A) 5/14 (B) 1/50 (C) 1/14 (D) 1/7

7. In a binomial distribution B, if the probability of at least one success is greater than or equal to , then n is greater than

(A) $\frac{9}{1\log_{10}4 - \log_{10}3}$ (B) $\frac{4}{1\log_{10}4 - \log_{10}3}$ (C) $\frac{1}{1\log_{10}4 - \log_{10}3}$ (D) $\frac{1}{1\log_{10}4 + \log_{10}3}$

8. An urn contains nine balls of which three are red, four are blue and two are green. Three balls are drawn at random without replacement from the urn. The probability that the three balls have difference colours is

(A) $\frac{1}{3}$ (B) $\frac{2}{7}$ (C) $\frac{1}{21}$ (D) $\frac{2}{23}$

9. If C and D are two events such that and P(D) ≠ 0, then the correct statement among the following is :-

(A) $P(C \mid D) < P(C)$ (B) $P(C \mid D) = \frac{P(D)}{P(C)}$ (C) P(C|D) = P(C) (D) P(C|D) ≥ P(C)

10. Consider 5 independent Bernoulli's trials each with probability of success p. If the probability of at least one failure is greater than or equal to , then p lies in the interval

(A) $\left[0, \frac{1}{2}\right]$ (B) $\left(\frac{11}{12}, 1\right]$ (C) $\left(\frac{1}{2}, \frac{3}{4}\right]$ (D) $\left(\frac{3}{4}, \frac{11}{12}\right]$

11. Let A, B, C be pairwise independent events with P(C)> 0 and P(A∩B∩C)=0. Then $P(A^c \cap B^c|C)$ is equal to:

(A) $P(A^c) - P(B)$ (B) $P(A) - P(B^c)$ (C) $P(A^c) + P(B^c)$ (D) $P(A^c) - P(B^c)$

12. Three numbers are chosen at random without replacement from {1, 2, 3, ... , 8}. The probability that their minimum is 3, given that their maximum is 6, is :

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

13. A multiple choice examination has 5 questions. Each question has three alternative answers of which exactly one is correct. The probability that a student will get 4 or more correct answers just by guessing is

(A) $\frac{17}{3^5}$ (B) $\frac{13}{3^5}$ (C) $\frac{11}{3^5}$ (D) $\frac{10}{3^5}$

14. Let A and B be two events such that , and , where stands for the complement of the event A. Then the events A and B are :

(A) mutually exclusive and independent (B) equally likely but not independent.
(C) independent but not equally likely. (D) independent and equally likely.

15. If 12 identical balls are to be placed in 3 identical boxes, then the probability that one of the boxes contains exactly 3 balls is :

(A) $220\left(\frac{1}{3}\right)^{12}$ (B) $22\left(\frac{1}{3}\right)^{11}$ (C) $\frac{55}{3}\left(\frac{2}{3}\right)^{11}$ (D) $55\left(\frac{2}{3}\right)^{10}$

16. South African cricket captain lost the toss of a coin 13 times out of 14. The chance of this happening was

(A) $\frac{7}{2^{13}}$ (B) $\frac{1}{2^{13}}$ (C) $\frac{13}{2^{14}}$ (D) $\frac{13}{2^{13}}$

17. In a room there are 4 students each of which is equally likely to be a girl or a boy. 2 students have walked out from the room, first is found to be a boy and the second a girl. The probability that the remaining students are boys is

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

18. There are two urns. There are m white & n black balls in the first urn and p white & q black balls in the second urn. One ball is taken from the first urn & placed into the second. Now, the probability of drawing a white ball from the second urn is:

(A) $\frac{pm + (p+1)n}{(m+n)(p+q+1)}$ (B) $\frac{(p+1)m + pn}{(m+n)(p+q+1)}$ (C) $\frac{qm + (q+1)n}{(m+n)(p+q+1)}$ (D) $\frac{(q+1)m + qn}{(m+n)(p+q+1)}$

19. Let set 'A' has 7 elements and set B has 5 elements. If one function is selected from all possible defined functions from A to B then the probability that it is onto is

(A) $\frac{7!\times 2}{3\times 5^6}$ (B) $\frac{7!}{10\times 5^6}$ (C) $\frac{7!}{5^6}$ (D) $\frac{7!}{5^7}$

20. The probability that 4^{th} power of a positive integer ends in the digit 6 is:

(A) 10 % (B) 20 % (C) 25 % (D) 40 %