DPP
DAILY PRACTICE PROBLEMS

CLASS : XIth **SUBJECT : MATHS**
DATE : **DPP NO. :6**

Topic :-PROBABILITY

1. If the probability density function of a random variable X is $f(x) = \frac{x}{2}$in $0 \le x \le 2$, then $P\left(\frac{X>15}{X>1}\right)$ is equal to

a) $\frac{7}{16}$ b) $\frac{3}{4}$ c) $\frac{7}{12}$ d) $\frac{21}{64}$

2. The probability that A can solve a problem is $2/3$ and B can solve it is $3/4$. If both attempt the problem, what is the probability that the problem gets solved?

a) $11/12$ b) $7/12$ c) $5/12$ d) $9/12$

3. Given $P(A \cup B) = 0.6, P(A \cap B) = 0.2$,the probability of exactly one of the event occurs is

a) 0.4 b) 0.2 c) 0.6 d) 0.8

4. Fifteen coupons are numbered 1 to 15. Seven coupons are selected at random, one at a time with replacement. The probability that the largest number appearing on a selected coupon be 9, is

a) $\left(\frac{1}{15}\right)^7$ b) $\left(\frac{8}{18}\right)^7$ c) $\left(\frac{3}{5}\right)^7$ d) None of these

5. A dice is rolled three times. The probability of getting a larger number than the previous number each time is

a) $\frac{15}{216}$ b) $\frac{5}{54}$ c) $\frac{13}{216}$ d) $\frac{1}{18}$

6. If X has binomial distribution with mean np and variance npq, then$\frac{P(X=k)}{P(X=k-1)}$ is equal to

a) $\frac{n-k}{k-1}\cdot\frac{p}{q}$ b) $\frac{n-k+1}{k}\cdot\frac{p}{q}$ c) $\frac{n+1}{k}\cdot\frac{q}{p}$ d) $\frac{n-1}{k+1}\cdot\frac{q}{p}$

7. The probability distribution of a random variable X is given by

$X = x$	:	0	1	2	3	4
$P(X = x)$	:	0.4	0.3	0.1	0.1	0.1

The variance of X is

a) 1.76 b) 2.45 c) 3.2 d) 4.8

8. A bag contains four tickets marked with numbers 112,121,211,222.One ticket is drawn at random from the bag. Let $E_i (i = 1,2,3)$ denote the event that ith digit on the ticket is 2. Then, which one of the following is incorrect?

a) E_1andE_2 are independent

b) E_2andE_3 are independent

c) E_3andE_1 are independent

d) E_1,E_2,$E_3$are independent

9. If A and B are two events, such that $P(A \cup B) = \frac{3}{4}$, $P(A \cap B) = \frac{1}{4}$,$P(\overline{A}) = \frac{2}{3}$, then $P(\overline{A} \cap B)$ is equal to

a) $\frac{5}{12}$ b) $\frac{3}{8}$ c) $\frac{5}{8}$ d) $\frac{1}{2}$

10. Let S be a set containing n elements. Two subsets A and B os S are chosen at random. The probability that $A \cup B = S$ is

a) $\frac{^{2n}C_n}{2^{2n}}$ b) $\left(\frac{3}{4}\right)^n$ c) $\frac{1}{^{2n}C_n}$ d) None of these

11. A rod of length 10 cm is broken into three parts, so that each part is having a length as an integral multiple of 1 cm,. The probability that the parts are forming a triangle, is

a) 1/4 b) 1/2 c) 3/4 d) 1/3

12. The probability that a company executive will travel by train is $\frac{2}{3}$ and that he will travel by plane is $\frac{1}{5}$. The probability of his journey by train or plane is

a) $\frac{2}{15}$ b) $\frac{13}{15}$ c) $\frac{15}{13}$ d) $\frac{15}{2}$

13. A three digit number, which is a multiple of 11, is chosen at random. Probability that the number so chosen is also a multiple of 9, is equal to

a) $\frac{1}{9}$ b) $\frac{2}{9}$ c) $\frac{1}{100}$ d) $\frac{9}{100}$

14. Four positive integers are taken at random and are multiplied together. Then the probability that the product ends in an odd digit other than 5, is

a) 609/625 b) 16/625 c) 2/5 d) 3/5

15. A pair of fair dice is thrown independently 4 times. The probability of getting a sum of exactly 7 twice is

a) $\frac{5}{81}$ b) $\frac{25}{243}$ c) $\frac{25}{216}$ d) $\frac{125}{648}$

16. Five horses are in a race. Mr. A selects two of the horses at random and bets on them. The probability that Mr. A selected the winning horse, is

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

17. A number$n$ is chosen at random from $S = \{1, 2, 3, ..., 50\}$.

Let $A = \left\{n \in S : n + \frac{50}{n} > 27\right\}$, $B = \{n \in S : n \text{ is a prime}\}$ and

$C = \{n \in S : n \text{ is a square}\}$. Then, correct order of their probabilities is

a) $P(A) < P(B) < P(C)$ b) $P(A) > P(B) > P(C)$ c) $P(B) < P(A) < P(C)$ d) $P(A) > P(C) > P(B)$

18. A bag contains 5 white and 3 black balls and 4 balls are successively drawn out and not replaced. The probability that they are alternately of different colours, is

a) $\frac{1}{196}$ b) $\frac{2}{7}$ c) $\frac{1}{7}$ d) $\frac{13}{56}$

19. Three numbers are chosen at random from 1 to 20. The probability that they are consecutive, is

a) $\frac{1}{190}$ b) $\frac{1}{120}$ c) $\frac{3}{190}$ d) $\frac{5}{190}$

20. Out of 40 consecutive natural numbers, two are chosen at random. Probability that the sum of the numbers is odd, is

a) $\frac{14}{29}$ b) $\frac{20}{39}$ c) $\frac{1}{2}$ d) None of these