DPP
DAILY PRACTICE PROBLEMS

CLASS : XIth **SUBJECT : MATHS**
DATE : **DPP NO. :3**

Topic :-PROBABILITY

1. If A and B are two independent events, then the probability that only one of A and B occur is
   a) $P(A) + P(B) - 2\,P\,(A \cap B)$
   b) $P(A) + P(B) - P(A \cap B)$
   c) $P(A) + P(B)$
   d) None of these

2. Let $0 < P(A) < 1, 0 < P(B) < 1$ and $P(A \cap B) = P(A) + P(B) - P(A)P(B)$, then
   a) $P(B|A) = P(B) - P(A)$ b) $P(A^c \cup B^c) = P(A^c) + P(B^c)$
   c) $P(A \cup B)^c = P(A^c)P(B^c)$ d) $P(A|B) = P(A) + P(B^c)$

3. The probability distribution of a random variable X is given as
   $\boldsymbol{X}$-5-4-3-2-1012345
   $\boldsymbol{P}(\boldsymbol{X})p2p3p4p5p7p8p9p10p11p12p$
   Then, the value of P is
   a) $\frac{1}{72}$
   b) $\frac{3}{73}$
   c) $\frac{5}{72}$
   d) $\frac{1}{74}$

4. In a college 25% boys and 10% girls offer Mathematics. There are 60% girls in the college. If a Mathematics student is chosen at random, then the probability that the student is a girl, will be
   a) $\frac{1}{6}$ b) $\frac{3}{8}$ c) $\frac{5}{8}$ d) $\frac{5}{6}$

5. A biased coin with probability $p, 0 < p < 1$ of heads is tossed until a head appears for the first time. If the probability that the number of tossed required is even is $\frac{2}{5}$, then p equals
   a) $\frac{1}{3}$ b) $\frac{2}{3}$ c) $\frac{2}{5}$ d) $\frac{3}{5}$

6. For any two independent events E_1 and $E_2, P\{(E_1 \cup E_2) \cap (\bar{E}_1) \cap (\bar{E}_2)\}$ is
   a) $\leq 1/4$ b) $> 1/4$ c) $\geq 1/2$ d) None of these

7. $A$and$B$ are the independent events. The probability that both occur simultaneously is $\frac{1}{6}$ and the probability that neither occur is $\frac{1}{3}$. The probability of occurrence of the events A and B is
   a) $\frac{1}{2}, \frac{3}{2}$ b) $\frac{1}{2}, \frac{1}{3}$ c) Not possible d) None of these

8. If in a distribution each x is replaced by corresponding value of $f(x)$, then the probability of getting

$f(x_i)$ when the probability of getting x_i is p_i, is

a) p_i b) $f(p_i)$ c) $f\left(\frac{1}{p_i}\right)$ d) None of these

9. The distribution of a random variable X is given below

$\boldsymbol{X}$	-2	-1	0	1	2	3
$\boldsymbol{P(X)}$	$\frac{1}{10}$	k	$\frac{1}{5}$	2k	$\frac{3}{10}$	k

The value of k is

a) $\frac{1}{10}$ b) $\frac{2}{10}$ c) $\frac{3}{10}$ d) $\frac{7}{10}$

10. The probability that a man can hit a target is $3/4$. He tries 5 times. The probability that he will hit the target at least three times is

a) $291/364$ b) $371/464$ c) $471/502$ d) $459/512$

11. Two cards are drawn from a well shuffled deck of 52 cards. The probability that one is red card and the other is a queen is

a) $4/51$ b) $16/221$ c) $50/663$ d) None of these

12. If $4P(A) = 6P(B) = 10P(A \cap B) = 1$, then$P\left(\frac{B}{A}\right)$ is equal to

a) $\frac{2}{5}$ b) $\frac{3}{5}$ c) $\frac{7}{10}$ d) $\frac{19}{60}$

13. In a binomial distribution, the mean is 4 and variance is 3. Then, its mode is

a) 5 b) 6 c) 4 d) None of these

14. If two events A and B are such that $P(A^c) = 0.3, P(B) = 0.4$ and $P(A \cap B^c) = 0.5$, then $P\left[\frac{B}{(A \cup B^c)}\right]$ is equal to

a) $\frac{1}{2}$ b) $\frac{1}{3}$ c) $\frac{1}{4}$ d) None of these

15. A and Bplay a game where each is asked to select a number from 1 to25. 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) $\frac{1}{25}$ b) $\frac{24}{25}$ c) $\frac{2}{25}$ d) None of these

16. A box contains 100 bulbs out of which 10 are defective. A sample of 5 bulbs is drawn. The probability that none is defective, is

a) $\left(\frac{1}{10}\right)^5$ b) $\left(\frac{1}{2}\right)^5$ c) $\left(\frac{9}{10}\right)^5$ d) $\frac{9}{10}$

17. A random variable X can attain only the value 1, 2, 3, 4, 5 with respective probabilities $k, 2k, 3k, 2k, k$. If m is the mean of the probability distribution, then$(k, m)$is equal to

a) $\left(3, \frac{1}{9}\right)$ b) $\left(\frac{1}{9}, 3\right)$ c) $\left(\frac{1}{8}, 4\right)$ d) $(1, 3)$

18. A complete cycle of a traffic light takes 60 s. During each cycle the light is green for 25 s, yellow for 5 s and red for 30 s. At a randomly chosen time, the probability that the light will not be green, is

a) $\frac{1}{3}$ b) $\frac{1}{4}$ c) $\frac{4}{17}$ d) $\frac{7}{12}$

19. From a group of 8 boys and 3 girls, a committee of 5 members to be formed. Find the probability that 2 particular girls are included in the committee

a) $\frac{4}{11}$ b) $\frac{2}{11}$ c) $\frac{6}{11}$ d) $\frac{8}{11}$

20. There are n letters and n addressed envelopes, the probability that all the letters are not kept in the right envelope, is

a) $\frac{1}{n!}$ b) $1-\frac{1}{n!}$ c) $1-\frac{1}{n}$ d) $n!$