DPP
DAILY PRACTICE PROBLEMS

CLASS : XIth **SUBJECT : MATHS**
DATE : **DPP NO. :1**

Topic :-PROBABILITY

1. A random variable has the following probability distribution.
x : 0 1 2 3 4 5 6 7
$p(x)$: 0 $2p$ $2p$ $3p$ p p^2 $2p^2$ $7p^2$ $2p$
The value of p, is
a) $1/10$ b) -1 c) $-1/10$ d) None of these

2. Let E and F be two independent events. The probability that both E and F happen is $1/12$ and the probability that neither E nor F occurs is $1/2$. Then,
a) $P(E)=\frac{1}{3}, P(F)=\frac{1}{4}$ b) $P(E)=\frac{1}{2}, P(F)=\frac{1}{6}$ c) $P(E)=\frac{1}{6}, P(F)=\frac{1}{2}$ d) $P(E)=\frac{1}{4}, P(F)=\frac{2}{3}$

3. Six ordinary dice are rolled. The probability that at least half of them will show at least 3 is
a) $41\times\frac{2^4}{3^6}$ b) $\frac{2^4}{3^6}$ c) $20\times\frac{2^4}{3^6}$ d) None of these

4. The probability that atleast one of A and B occurs is 0.6. If A and B occur simultaneously with probability 0.3, then $P(A')+P(B')$ is
a) 0.9 b) 0.15 c) 1.1 d) 1.2

5. A pair of dice is rolled together till a sum of either 5 or 7 is obtained. The probability that 5 comes before 7 is
a) $2/5$ b) $1/5$ c) $3/5$ d) None of these

6. If events are independent and $P(A)=\frac{1}{3}, P(B)=\frac{1}{3}, P(C)=\frac{1}{4}$, then $P(A'\cap B'\cap C')$ is equal to
a) $\frac{1}{4}$ b) $\frac{1}{12}$ c) $\frac{1}{3}$ d) $\frac{5}{12}$

7. Three dice are thrown. The probability that the sum of the number appearing is 15, is
a) $1/216$ b) $1/72$ c) $5/108$ d) $1/18$

8. In a poisson distribution mean is 16, then standard deviation is
a) 16 b) 256 c) 128 d) 4

9. Six faces of an unbiased die are numbered with 2, 3, 5, 7, 11 and 13. If two such dice are thrown, then the probability that the sum on the uppermost faces of the dice is an odd number, is
a) $\frac{5}{18}$ b) $\frac{5}{36}$ c) $\frac{13}{18}$ d) $\frac{25}{36}$

10. The mean and variance of a binomial distribution are 4 and 3 respectively, then the probability of getting exactly six successes in this distribution is
a) ${}^{16}C_6\left(\frac{1}{4}\right)^{10}\left(\frac{3}{4}\right)^6$ b) ${}^{16}C_6\left(\frac{1}{4}\right)^{6}\left(\frac{3}{4}\right)^{10}$ c) ${}^{12}C_6\left(\frac{1}{4}\right)^{10}\left(\frac{3}{4}\right)^6$ d) ${}^{12}C_6\left(\frac{1}{4}\right)^{6}\left(\frac{3}{4}\right)^6$

11. $A$and$B$ are two independent events. The probability that both A and B occur is $1/6$ and the probability that neither of them occurs is $1/3$. Then,
a) $P(A) = 1/2, P(B) = 1/3$
b) $P(A) = 1/2, P(B) = 1/6$
c) $P(A) = 1/3, P(B) = 1/6$
d) None of these

12. If A and B are independent events of a random experiments such that $P(A \cap B) = \frac{1}{6}$ and $P(\bar{A} \cap \bar{B}) = \frac{1}{3}$, then $P(A)$ is equal to
a) $\frac{1}{4}$ b) $\frac{1}{3}$ c) $\frac{5}{7}$ d) $\frac{2}{3}$

13. If the integers m and n are chosen at random between 1 and 100, then the probability that a number of the form $7^m + 7^n$ is divisible by 5, equals
a) $\frac{1}{4}$ b) $\frac{1}{7}$ c) $\frac{1}{8}$ d) $\frac{1}{49}$

14. Let ω be a complex cube root of unity with$\omega \neq 1$. A fair die is thrown three times. If $r_1, r_2$and r_3 are the numbers obtained on the die, then the probability that $\omega^{r_1} + \omega^{r_2} + \omega^{r_3} = 0$ is
a) $\frac{1}{18}$ b) $\frac{1}{9}$ c) $\frac{2}{9}$ d) $\frac{1}{36}$

15. A mapping is selected at random from the set of all the mappings of the set $A = \{1,2, \ldots, n\}$ into itself. The probability that the mapping selected is an injection is
a) $\frac{1}{n^n}$ b) $\frac{1}{n!}$ c) $\frac{(n-1)!}{n^{n-1}}$ d) $\frac{n!}{n^{n-1}}$

16. An urn contains five balls. Two balls are drawn and are found to be white. The probability that the balls selected are white is
a) 3/4 b) 3/5 c) 3/10 d) 1/2

17. A single letter is selected at random from the word 'PROBABILITY'. The probability that it is a vowel is
a) 3/11 b) 4/11 c) 2/11 d) None of these

18. A die is thrown. If it shows a six, we draw a ball from a bag consisting 2 black balls and 6 white balls. If it does not show a six, then we toss a coin. Then, the sample space of this experiment consists of
a) 13 points b) 18 points c) 10 points d) None of these

19. For a binomial variate $X$with $n = 6$, if $P(X = 2) = 9P(X = 4)$, then its variance is
a) $\frac{8}{9}$ b) $\frac{1}{4}$ c) $\frac{9}{8}$ d) 4

20. Out of 13 applicants for a job, there are 5 women and 8 men. It is desired to select 2 persons for the job. The probability that at least one of the selected persons will be a women is
a) 25/39 b) 14/39 c) 5/13 d) 10/13