DPP
DAILY PRACTICE PROBLEMS

CLASS : XIIth

DATE :

SUBJECT : MATHS

DPP NO. : 4

Topic :- PROBABILITY

1. A car is parked among N cars standing in a row, but not at either end. On his return, the owner finds that exactly 'r' of the N palces are still occupied. The probability that the places neighouring his car are empty is

   a) $\frac{(r-1)!}{(N-1)!}$
   b) $\frac{(r-1)!(N-r)!}{(N-1)!}$
   c) $\frac{(N-r)(N-r-1)}{(N+1)(N+2)}$
   d) $\frac{^{N-r}C_2}{^{N-1}C_2}$

2. If three square are selected at random from chessboard, then the probability that they form the letter 'L' is

   a) $196/\,^{64}C_3$
   b) $49/\,^{64}C_3$
   c) $36/\,^{64}C_3$
   d) $98/\,^{64}C_3$

3. Three houses are available in a locality. Three persons apply for the houses. Each applies for one houses without consulting others. The probability that all three apply for the same houses is

   a) $1/9$
   b) $2/9$
   c) $7/9$
   d) $8/9$

4. One ticket is selected at random from 100 tickets numbered 00, 01, 02, …, 99. Suppose A and B are the sum and product of the digit found on the ticket. Then $P((A=7)/(B=0))$ is given by

   a) $2/13$
   b) $2/19$
   c) $1/50$
   d) None of these

5. A doctor is called to see a sick child. The doctor knows (prior to the visit) that 90% of the sick children in that neighborhood are sick with the flu, denoted by F, while 10% are sick with the measles, denoted by M. A well-known symptom of measles is a rash, denoted by R. The probability of having a rash for a child sick with the measles is 0.95. however, occasionally children with the flu also develop a rash, with conditional children with the flu also develop a rash, with conditional probability 0.08. Upon examination the child, the doctor finds a rash. Then what is the probability that the child has the measles?

   a) $91/165$
   b) $90/163$
   c) $82/161$
   d) $95/167$

6. An artillery may be either at point I with probability 8/9 or at point II with probability 1/9. We have 55 shells, each of which can be fired either rat point I or II. Each shell may hit the target, independent of the other shells, with probability 1/2. Maximum number of shells must be fired at point I to have maximum probability is

   a) 20
   b) 25
   c) 29
   d) 35

7. An urn contains 3 red balls and n white balls. Mr. A draws two balls together from the urn. The probability that they have the same colour is 1/2. Mr. B draws one balls form the urn, notes its

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colour and replaces it. He then draws a second ball from the urn and finds that both balls have the same colour is 5/8. The possible value of n is

    a) 9   b) 6   c) 5   d) 1

8. Let E be an event which is neither a certainty nor an impossibility. If probability is such that $P(E) = 1 + \lambda + \lambda^2$ and $P(E') = (1 + \lambda)^2$ in terms of an unknown λ. Then $P(E)$ is equal to

    a) 1   b) 3/4   c) 1/4   d) None of these

9. There are 3 bags which are known to contain 2 white and 3 black, 4 white and 1 black, and 3 white and 7 black balls, respectively. A ball is drawn at random from one of the bags and found to be a black ball. Then the probability that it was drawn from the bag containing the most black ball is

    a) 7/15   b) 5/19   c) 3/4   d) None of these

10. Thirty-two players ranked 1 to 32 are playing in a knockout tournament. Assume that in every match between any two players, the better-ranked player wins, the probability the ranked 2 players are winner and runner up, respectively, is

    a) 16/31   b) 1/2   c) 17/31   d) None of these

11. A class consists of 80 students, 25 of them are girls and 55 are boys. If 10 of them are rich and the remaining are poor and also 20 of them are intelligent, then the probability of selecting an intelligent rich girl is

    a) 5/128   b) 25/128   c) 5/512   d) None of these

12. Three critics review a book. Odds in favour of the book are 5:2, 4:3 and 3:4, respectively, for the three cities. The probability that majority are in favour of the book is

    a) 35/49   b) 125/343   c) 164/343   d) 209/343

13. A bag contains n white and n black balls. Pairs of balls are drawn without replacement until the bag is empty. The probability that each pair consists of one white and one black ball is

    a) $1/\,^{2n}C_n$ b) $2n/\,^{2n}C_n$ c) $2n/n!$ d) $2n/(2n!)$

14. Consider $f(x) = x^3 + ax^2 + bx + c$. Parameters a, b, c are chosen, respectively, by throwing a die throwing a die three times. Then the probability that $f(x)$ is an increasing function is

    a) 5/36   b) 8/36   c) 4/9   d) 1/3

15. Dialing a telephone number an old man forgets the last two digits remembering only that these are different dialed at random. The probability that the number is dialed correctly is

    a) 1/45   b) 1/90   c) 1/100   d) None of these

16. A bag contains some white and some black balls, all combinations of balls being equally likely. The total number of balls in the bag is 10. If three balls are drawn at random without replacement and all of them are found to be black, the probability that the bag contains 1 white and 9 black balls is

    a) 14/55   b) 12/55   c) 2/11   d) 8/55

17. A student can solve 2 out of 4 problem of mathematics, 3 out of 5 problem of physics and 4 out of 5 problems of chemistry. There are equal number of books of math, physics and chemistry in his shelf. He selects one book randomly and attempts 10 problems from it. If he solves the first problem, then the probability that he will be able to solve the second problem is

    a) 2/3   b) 25/38   c) 13/21   d) 14/23

18. There are 20 cards. Ten of these cards have the letter 'l' printed on them and the other 10 have the letter. 'T' printed on them. If three cards are picked up at random and kept in the same order, the probability of making word IIT is

    a) 4/27   b) 5/38   c) 1/8   d) 9/80

19. A natural number is chosen at random from the first 100 natural numbers. The probability that $x + \frac{100}{x} > 50$ is

    a) 1/10   b) 11/50   c) 11/20   d) None of these

20. A bag contains 3 red and 3 green balls and a person draws out 3 at random. He then drops 3 blue balls into the bag and again out 3 at random. The chance that the 3 later balls being all of different colours is

    a) 15%   b) 20%   c) 27%   d) 40%