Topic :-PROBABILITY

1. A and B are two independent events such that $P(A \cup B') = 0.8$ and $P(A) = 0.3$. Then, $P(B)$ is

   a) $\frac{2}{7}$ b) $\frac{2}{3}$ c) $\frac{3}{8}$ d) $\frac{1}{8}$

2. Suppose that a die (with faces marked 1 to 6) is loaded in such a manner that for $K = 1,2,3, ...,6$ the probability of the face marked K turning up when die is tossed is proportional to K. The probability of the event that the outcome of a toss of the die will be an even number, is equal to

   a) $\frac{1}{2}$ b) $\frac{4}{7}$ c) $\frac{2}{5}$ d) $\frac{1}{21}$

3. Three are six verities of a regular hexagon are chosen at random, then the possibility that the triangle with three vertices is equilateral, is equal to

   a) $\frac{1}{2}$ b) $\frac{1}{3}$ c) $\frac{1}{10}$ d) $\frac{1}{20}$

4. If a committee of 3 is to be chosen from a group of 38 people of which you are a member. What is the probability that you will be on the committee?

   a) $\binom{38}{3}$ b) $\binom{37}{2}$ c) $\binom{37}{2} / \binom{38}{3}$ d) 666/8436

5. The probability that in a year of the 22nd century chosen at random there will be 53 Sundays, is

   a) $\frac{3}{28}$ b) $\frac{2}{28}$ c) $\frac{7}{28}$ d) $\frac{5}{28}$

6. Two cards are drawn without replacement from a well-shuffled pack. The probability that one of them is an ace of heart, is

   a) $\frac{1}{25}$ b) $\frac{1}{26}$ c) $\frac{1}{52}$ d) None of these

7. A binary operation is chosen at random from the set of all binary operations on a set A containing n elements. The probability that the binary operation is commutative, is

   a) $\frac{n^n}{n^{n^2}}$ b) $\frac{n^{n/2}}{n^{n^2}}$ c) $\frac{n^{n/2}}{n^{n^2/2}}$ d) None of these

8. A lot consists of 102 good pencils, 6 with minor defects and 2 with major defects. A pencil is choosen at random. The probability that this pencil is not defective is

   a) 3/5   b) 3/10   c) 4/5   d) 1/2

9. If A and B are events of the same experiments with $P(A) = 0.2, P(B) = 0.5$,then maximum value of $P(A' \cap B)$ is

   a) 0.2   b) 0.5   c) 0.63   d) 0.25

10. Four tickets marked 00,01,10,11, respectively are placed in a bag. A ticket is drawn at random five times, being replaced each time. The probability that the sum of the numbers on tickets thus drawn is 23, is

a) 25/256　　　　b) 100/256　　　　c) 231/256　　　　d) None of these

11. Two dice are tossed 6 times. Then the probability that 7 will show an exactly four of the tosses is

a) $\dfrac{225}{18442}$　　　　b) $\dfrac{116}{20003}$　　　　c) $\dfrac{125}{15552}$　　　　d) None of these

12. Out of $3n$ consecutive natural numbers, 3 natural numbers are chosen at random without replacement. The probability that the sum of the chosen numbers is divisible by 3, is

a) $\dfrac{n(3n^2-3n+2)}{2}$　　b) $\dfrac{(3n^2-3n+2)}{2(3n-1)(3n-2)}$　　c) $\dfrac{(3n^2-3n+2)}{(3n-1)(3n-2)}$　　d) $\dfrac{n(3n-1)(3n-2)}{3(n-1)}$

13. A and B are two independent witnesses (ie, there is no collusion between them) in a case. The probability that A will speak the truth is x and the probability that B will speak the truth is y, A and B agree in a certain statement. The probability that the statement is true, is

a) $\dfrac{x-y}{x+y}$　　　b) $\dfrac{xy}{1+x+y+xy}$　　　c) $\dfrac{x-y}{1-x-y+2xy}$　　　d) $\dfrac{xy}{1-x-y+2xy}$

14. Five persons A, B, C, D and E are in queue of a shop. The probability that A and E always together, is

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

15. Three dice are thrown. The probability that the same number will appear on each of them, is

a) 1/6　　　　b) 1/18　　　　c) 1/36　　　　d) None of these

16. A bag contains 8 red and 7 black balls. Two balls are drawn at random. The probability that both the balls are of the same colour, is

a) $\dfrac{14}{15}$　　　　b) $\dfrac{11}{15}$　　　　c) $\dfrac{7}{15}$　　　　d) $\dfrac{4}{15}$

17. A bag contains 10 white and 3 black balls. Balls are drawn one-by-one without replacement till all the black balls are drawn. The probability that the procedure of drawing balls will come to an end at the seventh draw is

a) $\dfrac{105}{286}$　　　　b) $\dfrac{15}{286}$　　　　c) $\dfrac{181}{286}$　　　　d) None of these

18. Two events A and B have probability 0.25 and 0.50 respectively. The probability that both A and B occur simultaneously is 0.14. Then, the probability that neither A nor B occur, is

a) 0.39　　　　b) 0.25　　　　c) 0.11　　　　d) None of these

19. There are 9999 tickets bearing numbers 0001, 0002,....,9999. If one ticket is selected from these tickets at random, the probability that the number on the ticket will consists of all different digits, is

a) $\dfrac{5040}{9999}$　　　　b) $\dfrac{5000}{9999}$　　　　c) $\dfrac{5030}{9999}$　　　　d) None of these

20. The probability of choosing randomly a number c from the set {1, 2, 3,.....,9} such that the quadratic equation $x^2 + 4x + c = 0$ has real roots is

a) $\dfrac{1}{9}$　　　　b) $\dfrac{2}{9}$　　　　c) $\dfrac{3}{9}$　　　　d) $\dfrac{4}{9}$