Chapter: - Probability

1 marks question

Q1. Two dice are thrown simultaneously. Find the probability of getting a doublet. **Ans**. 1/6

Q2.What is the chance that a leap year, selected at random, will contain 53 Sundays? **Ans.** 2/7

Q3. The letter of the word 'SOCIETY' are placed at random in a row. What is the probability that the three vowels come together. **Ans**. 1/7

Q4.Four digit numbers are formed by using the digit 1,2,3,4 and 5 without repeating any digit. Find the probability that a number, chosen at random, is an odd number**. Ans**. 3/5

Q5. In a single throw of three dice, determine the probability of getting (i) a total of 5 (ii) a total of at most 5. **Ans**. 1/36, 5/108,

Q6. From a bag containing 20 tickets, numbered from 1 to 20, two tickets are drawn at random. Find the probability that (i) both the tickets have prime number on them (ii) on one there is a prime number and on the other there is a multiple of four. **Ans.** 14/95, 4/19

Q7. An urn contains 6 red and 4 blue balls. Two balls are drawn at random with replacement. Find the probability of getting (i) 2 red balls (ii) 2 blue balls (iii) one red and one blue ball. **Ans.** 9/25, 4/25, 12/25,

Q8. Two dice are tossed together. Find the probability that the sum of the numbers obtained on the two dice is neither a multiple of three nor a multiple of four. **Ans.** 4/9

Q9. A and B are two candidates seeking admission in a college. The probability that A is selected is 0.7 and the probability that exactly one of them is selected is 0.6. Find the probability that B is selected. **Ans**. 0.25

Q10. The probability of simultaneous occurrence of at least one of two events A and B is p. If the probability that exactly one of A, B occurs is q, then prove that P (A') + P (B') =2-2p +q

Q11. 10% of the bulbs produced in a factory are of red colour and 2% are red and defective. If one bulb is picked up at random, determine the probability of its being defective if it is red. **Ans.** 1/5

Q12. Two dice are thrown simultaneously. Let A be the event of 'getting 6 on the first die' and B be the event 'getting 2 on the second die'. Are the events A and B independent? **Ans**. Yes.

Q13. A committee of 4 students is selected at random from a group consisting 8 boys and 4 girls .Given that there is at least one girl on the committee, calculate the probability that there are exactly 2 girls on the committee. **Ans.** 168/425.

Q14. Find the probability that in 10 throws of a fair die a score which is a multiple of 3 will be obtained in at least 8 of the throws. **Ans**. $\frac{201}{3^{10}}$

Q15. Let A and B be two events such that P (A) =0.6, P (B) =0.2, and P (A/B) =0.5. Then find P (A'/B') **Ans.** 3/8

Q16.If A and B are independent events such that P (A) = p, P (B) = 2p, and P (Exactly one of A, B) =5/9, then find value of p. **Ans**. 1/3, 5/12,

Q17. P (A) =0.4, P (B) =0.8, and P (B/A) =0.6. Then find P (AUB). **Ans.** 0.96 **P.T.O.**

4/6 marks question

Q18. A bag A contains 6 white and 7 black balls. Another bag B contains 4 white and 5 black balls. A ball is transferred from the bag A to the bag B. Then a ball is drawn from bag B. Find the probability that it will be white. **Ans.** 29/65

Q19. There are two bags .The first bag contains 5 red and 3 white balls, and the second bag contains 3 red and 5 white balls. Two balls are drawn at random from the first bag and are put into the second bag without noticing their colours. Then two balls are drawn from the second bag. Find the probability that the balls drawn are red and white. **Ans**. 493/2520

Q20. A can hit a target 4 times out of 5 times , B can hit the target 3 times out of 4 times and C can hit the target 2 times out of 3 times . They fire simultaneously. Find the probability (i) any two out of A, B and C will hit the target (ii) none of them will hit the target. **Ans**. 13/30, 1/60

Q21. If E and F are independent event then prove that (i) E and F' are independent (ii) E' and F are independent (iii) E' and F' are independent.

Q22. 12 cards, numbered 1to 12, are placed in a box, mixed up thoroughly and then a card is drawn at random from the box. If it is known that the number on the drawn card is more than three, find the probability that it is an even number. **Ans**. 5/9

Q23.A and B take turns in throwing two dice, the first to throw 9 being awarded the prize. How that their chance of winning are in the ratio 9:8,

Q24.An urn contains 25 balls of which 10 balls bear a mark 'X' and the remaining 15 bear a mark 'Y'. A ball is drawn at random from the urn, its mark is noted down and it is replaced. If 6 balls are drawn in this way, find the probability that (i) all will bear 'X' mark (ii) not more than 2 will bear 'Y' mark (iii) at least one ball will bear 'Y' (iv)the number of balls with 'X' mark and 'Y ' mark will be equal.

Ans. $\left(\frac{2}{5}\right)^6, 7\left(\frac{2}{5}\right)^4, 1-\left(\frac{2}{5}\right)^6$ *and* $\frac{864}{3125}$

Q25.A box contains 13 bulbs, out of which 5 are defective. 3 bulbs are randomly drawn one by one without replacement from the box. Find the probability distribution of the number of defective bulbs.

Ans.

X	0	1	2	3
P(X)	28/143	70/143	40/143	5/143

Q26. In a test, an examinee either guesses or copies or knows the answer to a multiple choice question with four choices. The probability that he makes a guess is 1/3 and the probability that he copies the answer is 1/6. The probability that his answer is correct, given that he copied it, is 1/8 Find the probability that he knew the answer to the question, given that he correctly answered it. **Ans**. 24/29

Q27. A card from pack of 52 cards is lost. From the remaining cards of the pack, two cards are drawn and are found to be hearts. Find the probability of the missing card to be a heart. **Ans**. 11/50

Q28.There are 5 cards numbered 1 to 5, one number on one card. Two cards are drawn at random without replacement. Let X denotes the sum of the numbers on two cards drawn .Find the mean and variance. **Ans**.6, 3

Q29.A is known to speak truth 3 times out of 5 times. He throws a die and reports that it is 1. Find the probability that it is actually 1. **Ans**. 3/13

----------Best of Luck----------