CHAPTER-13

PROBABILITY

01 MARK TYPE QUESTIONS

Q. NO	QUESTION	MARK
1.	Three friends A, B and C are playing a dice game. The numbers rolled up by them in their first three chances were noted and given by A = {1,5}, B= {2,4,5} and C= {1, 2, 5} as A reaches the cell 'SKIP YOUR NEXT TURN' in second throw. Based on the above information, answer the following question: Find P(A|B)	1
2.	In a play zone, Aastha is playing crane game. It has 12 blue balls, 8 red balls, 10 yellow balls and 5 green balls. If Aastha draws two balls one after the other without replacement, then answer the following question: What is the probability that the first ball is blue and the second ball is green?	1
3.	Ajay enrolled himself in an online practice test portal provided by his school for better practice. Out of 5 questions in a set-I, he was able to solve 4 of them and got stuck in the one which is as shown below. If A and B are independent events, P(A)=0.6 and P(B)=0.8, then find P(A∪B)	1
4.	On a holiday, a father gave a puzzle from a newspaper to his son Ravi and his daughter Priya. The probability of solving this specific puzzle independently by Ravi and Priya are $\frac{1}{4}$ and $\frac{1}{5}$respectively. Based on the above information, answer the following question: Find the probability that puzzle is solved by Ravi but not by Priya.	1
5.	To teach the application of probability a maths teacher arranged a surprise game for 5 of his students namely Archit, Aadya, Mivaan, Deepak and Vrinda. He took a bowl containing tickets numbered 1 to 50 and told the students go one by one and draw two tickets simultaneously from the bowl and replace it after noting the numbers. Based on the above information, answer the following question. Teacher ask Vrinda, what is the probability that both tickets drawn by Archit shows even number? (a) 1/50 (b) 12/49 (c) 13/49 (d) 15/49	1
6.	Probability that Raman speaks truth is $\frac{3}{5}$. A die is rolled. Raman reports that an even number appears. The probability that there is an even number.  (a) $\frac{3}{5}$ (b) $\frac{2}{5}$ (c) $\frac{1}{5}$ (d) None of these	1
7.	Ramesh is playing with a dice, and he supposed that event A is getting a number greater than 6 and event B is getting a odd prime number. Further he finds that $P(A) = 0$ and $P(B) = \frac{1}{3}$, then $P\left(\frac{B}{A}\right)$ *is*  (a) 0 (b) $\frac{1}{3}$ (c) 1 (d) not defined	1

8.	A rocket has 8 engines out of which 3 are not working. If the two engines are selected without replacement and tested, the probability that both are not working.  (a) 33/56 (b) 9/64 (c) 1/14 (d) 3/28	1
9.	In a boy's college, 30% students play Cricket, 25% play Football and 10% students play both Cricket and Football. One student is selected at random. The probability that he likes Cricket if he also like Football is  (a) 1/10 (b) 2/5 (c) 9/20 (d) 1/3	1
10.	Archaeological Survey of India has found coins at one of the sites of Indus Valley civilization. While studying these coins for historical evidence faces of the one of coin is labelled as head and tail. These coins are flipped in the air and result is noted. If events A and B are defined as A= two heads come, B= last should be head. Then, A and B are  (a) Independent (b) Not independent (c) mutually exclusive (d) none of these	1
11.	A box contains 6 pens and 10 pencils. Half of the pens and half of the pencils are of blue colour. If one of the items is chosen at random, the probability that it is of blue colour or is a pen is  (a) 3/16 (b) 5/16 (c) 11/16 (d) 14/16	1
12.	Suppose that two cards are drawn at random from a deck of cards. Let X be the number of kings obtained. Then the expected value of E is  (a) 37/221 (b) 5/13 (c) 1/13 (d) 2/13	1
13.	A bag contains 10 good and 6 bad mangoes. One of the mangoes is selected. The probability that it is either good or bad  (a) $\frac{64}{64}$ (b) $\frac{49}{64}$ (c) $\frac{40}{64}$	1

	(d) $\frac{24}{64}$	
14.	A: f A and B two events, then $P(A \cap B) = P(A)P\left(\frac{B}{A}\right)$. R: Two events are said to be exhaustive if probability of the one of the events is zero. (a) A is true, R is true and R is correct explanation for A. (b) A is true, R is true and R is not correct explanation for A. (c) A is true and R is false (d) A is false and R is true.	1
15.	A: The probability of getting either a king or an ace from a pack of 52 playing cards is $\frac{2}{13}$. R: For any two events A and $B, P(A \cup B) = P(A) + P(B) - P(A \cap B)$. (a) A is true, R is true and R is correct explanation for A. (b) A is true, R is true and R is not correct explanation for A. (c) A is true and R is false (d) A is false and R is true.	1
16.	Two dice are thrown once. If it is known that the sum of the numbers on the dice was less than 6 the probability of getting a sum 3 is (a) 1/18 (b) 5/18 (c) 1/5 (d) 2/5	1
17.	In a box, there are 8 orange, 7 white, and 6 blue balls. If a ball is picked up randomly, what is the probability that it is neither orange nor blue? (a) 1/3 (b) 2/3 (c) 1/21 (d) 5/21	1
18.	An urn contains 9 balls, two of which are red, three blue and four black. Three balls are drawn at random. The probability that they are of same colour is (a) 5/84 (b) 3/9 (c) 3/7 (d) 7/17	1
19.	A box contains 15 oranges out of which 12 are good. It is inspected by examining three randomly selected oranges drawn without replacement. If all the three oranges are good, the box is approved for sale. Then the probability that the box will be approved for sale is ---- (a) $\frac{3}{455}$ (b) $\frac{12}{455}$ (c) $\frac{44}{91}$ (d) $\frac{22}{91}$	1
20.	One card is drawn from a well shuffled pack of 52 cards. If E is the event "the card drawn is a king or a queen" and F is the event "the card drawn is an ace or a queen," then P(E/F) is---- (a) $\frac{3}{4}$ (b) $\frac{1}{2}$ (c) $\frac{1}{13}$ (d) $\frac{4}{13}$	1
21.	A black and a red die are rolled. Find the conditional probability of obtaining a sum greater than 9, given that the black die resulted in 5. (a) $\frac{4}{7}$ (b) $\frac{1}{5}$ (c) $\frac{1}{3}$ (d) none of these	1
22.	A husband and his wife appear for an interview for two posts. The probability of husband's selection is 1/7 and that of wife's selection is 1/5. What is the probability that only one of them is selected? (a) $\frac{2}{7}$ (b) 0 (c) $\frac{2}{3}$ (d) $\frac{1}{4}$	1
23.	A and B throw a die alternately till one of them gets 6 and wins the game. If A starts the game. Find their respective probability of winning if A starts the game. (a) $\frac{1}{2}, \frac{1}{5}$ (b) $\frac{6}{11}, \frac{5}{11}$ (c) $\frac{11}{30}, \frac{19}{30}$ (d) $\frac{11}{26}, \frac{15}{26}$	1

24.	A die is tossed thrice .find the probability of getting an odd number at least once. (a) $\frac{1}{10}$ (b) $\frac{1}{5}$ (c) $\frac{1}{30}$ (d) none of these	1
25.	Three coins are tossed once. Find the probability of getting at most two heads (a) $\frac{3}{8}$ (b) $\frac{1}{8}$ (c) $\frac{7}{8}$ (d) $\frac{5}{8}$	1

ANSWERS:

Q. NO	ANSWER	MARKS
1.	P(A)=$\frac{2}{6}$ P(B)=$\frac{3}{6}$ P(C)=$\frac{3}{6}$ $P(A \cap B)=\frac{1}{6}$ P(A|B)= $\frac{P(A\cap B)}{P(B)}$=$\frac{1}{3}$	1
2.	$P(G \cap B)=P(B).P(G\|B)=\frac{12}{35}\times\frac{5}{34}=\frac{6}{119}$	1
3.	$P(A \cap B)=P(A)P(B)=0.48$ $P(A \cup B)=P(A)+P(B)-P(A \cap B)=0.92$	1
4.	Let E_1 be the event that Ravi solved the puzzle and E_2 be the event that Priya solved the puzzle. Then, P(E_1)=1/4 and P(E_2)=1/5 P(puzzle is solved by Ravi but not by Priya)=P(E_1)P(E_2^c)=$(\frac{1}{4})\left(1-\frac{1}{5}\right)=\frac{1}{5}$	1
5.	(b) 12/49	1
6.	(a)	
7.	(d)	
8.	(d)	
9.	(b)	
10.	(b)	
11.	(c)	
12.	(d)	
13.	(a)	
14.	(c)	
15.	(a)	
16.	(c)	1
17.	(a)	1
18.	(a)	1
19.	(c)	1
20.	(b)	1
21.	(c)	1
22.	(a)	1
23.	(b)	1
24.	(c)	1
25.	(c)	1