SET - II

RK VISION ACADEMY

NEET | IIT – JEE | FOUNDATIONS

MATRIC PRACTICE PAPER (2024)

(Mathematics)

Grade: X **Marks: 50 marks**
Chapter: Statistics and Probability **Time: 90 minutes**

SECTION A (6x1=6)

Choose the correct option.

1. The sum of all deviations of the data from its mean is
(a) Always positive (b) always negative (c) zero (d) non-zero integer

2. Variance of first 20 natural numbers is
(a) 32.25 (b) 44.25 (b) 33.25 (d) 30

3. Kamalam went to play a lucky draw contest. 135 tickets of the lucky draw were sold. If the probability of Kamalam winning is $\frac{1}{9}$, then the number of tickets bought by Kamalam is
(a) 5 (b) 10 (c) 15 (d) 20

4. Which of the following is incorrect?
(a) P(A)>1 (b) $0 \leq P(A) \leq 1$ (c) $P(\phi)=0$ (d) $P(A)+P(\bar{A})=1$

5. The probability a red marble selected at random from a jar containing p red, q blue and r green marbles is
(a) $\frac{q}{p+q+r}$ (b) $\frac{p}{p+q+r}$ (c) $\frac{p+q}{p+q+r}$ (d) $\frac{p+r}{p+q+r}$

6. If the mean and coefficient of variation of a data are 4 and 87.5%, then the standard deviation is
(a) 3.5 (b) 3 (c) 4.5 (d) 2.5

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SECTION B (4x2=8)

Answer **any 4** questions. Question No. **11** is **compulsory**.

7. Find the range and coefficient of range of the data.
43.5, 13.6, 18.9, 38.4, 61.4, 29.8

8. A bag contains 5 blue balls and 4 green balls. A ball is drawn at random from the bag. Find the probability that the ball drawn is (i) blue (ii) not blue

9. A die is rolled and a coin is tossed simultaneously. Find the probability that the die shows an odd number and the coin shows an head.

10. If A is an event of a random experiment such that P(A):P($\bar{A}$)=17:15 and n(S)=640, then find (i) P($\bar{A}$) (ii) n(A).

11. Two dices are rolled together. Find the probability of getting a doublet or sum of faces as 4.

SECTION C (4x5=20)

Answer **any 4** questions. Question No. **16** is **compulsory**.

12. The probability that a student will pass the final examination in both English and Tamil is 0.5 and the probability of passing neither is 0.1. If the probability of passing the English examination is 0.75, what is the probability of passing the Tamil examination.

13. In a game, the entry fee is Rs.150. The game consists of tossing a coin 3 times. Dhana bought a ticket for entry. If one or two heads shows, she gets her entry fee back. If she throws 3 heads, she receives double the entry fees. Otherwise she will lose. Find the probability that she (i) gets double entry fee (ii) just gets her entry fee (iii) loses the entry fee.

14. A bag contains 12 blue balls and x red balls. If one ball is drawn at random (i) what is the probability that it will be a red ball? (ii) If 8 more red balls are put in the bag, and if the probability of drawing a red ball will be twice that of the probability in (i), then find x.

15. At a fete, cards bearing numbers 1 to 1000, one number on one card are put in a box. Each player selects one card at random and that card is not replaced. If the selected card has a perfect square number greater than 500, the player wins a prize. What is the probability that (i) first player wins a prize (ii) the second player wins a prize, if the first has won?

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16. The mean and standard deviation of 15 observations are found to be 10 and 5 respectively. On rechecking it was found that one of the observation with the value of 8 was incorrect. Calculate the correct mean and standard deviation if the correct value was 23.

SECTION D (2x8=16)

Answer **all** the questions.

17. Graph the quadratic equation x^2-9x+20=0 and state their nature of solutions.

18. Construct a triangle similar to a given triangle PQR with its sides equal to $\frac{7}{3}$ of the corresponding sides of the triangle PQR (scale factor $\frac{7}{3} > 1$).

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