RK VISION ACADEMY

NEET | IIT – JEE | FOUNDATIONS

MATRIC PRACTICE PAPER (2024)

(Mathematics)

Grade: X
Chapter: Statistics and Probability

Marks: 50 marks
Time: 90 minutes

SECTION A (6x1=6)

Choose the correct option.

1. If the sum and mean of a data are 407 and 11 respectively, then the number of observations in the data are:
(a) 37　　　　(b) 4477　　　　(c) 396　　　　(d) 418

2. If a letter is chosen at random from the English alphabets {a,b,c,.......,z}, then the probability that the letter chosen precedes x:
(a) $\frac{12}{13}$　　　(b) $\frac{1}{13}$　　　(c) $\frac{23}{26}$　　　(d) $\frac{3}{26}$

3. The probability of getting a job for a person is $\frac{x}{3}$. If the probability of not getting the job is $\frac{2}{3}$, then the value of 'x' is:
(a) 2　　　　(b) 1　　　　(c) 3　　　　(d) 1.5

4. The mean of 100 observations is 40 and their standard deviation is 3. The sum of squares of all deviations is:
(a) 40000　　　(b) 160900　　　(c) 160000　　　(d) 30000

5. A purse contains 10 notes of Rs.2000, 15 notes of Rs.500, and 25 notes of Rs. 200. One note is drawn at random. What is the probability that the note is either a Rs.500 or Rs.200?
(a) $\frac{1}{5}$　　　(b) $\frac{3}{10}$　　　(c) $\frac{2}{3}$　　　(d) $\frac{4}{5}$

6. If the standard deviation of x,y,z is p, the the standard deviation of 3x+5, 3y+5, 3z+5 is
(a) 3p+5　　　(b) 3p　　　(c) p+5　　　(d) 9p+15

SECTION B   (4x2=8)

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

7. Find the range and coefficient of range of the data.
   63, 89, 98, 125, 79, 108, 117, 68.

8. Two coins are tossed together. What is the probability of getting different faces on the coins?

9. A and B are two candidates seeking admission to IIT. The probability that A getting selected is 0.5 and the probability that both A and B getting selected is 0.3. Prove that the probability of B being selected is at the most 0.8.

10. The following table gives the values of mean and variance of heights and weights of the 10th standard students of a school.

	Height	Weight
Mean	155cm	46.5kg
Variance	72.25cm	28.09kg

11. A bag contains 6 green balls, some black and red balls. Number of black balls is as twice as the number of red balls. Probability of getting a green ball is thrice the probability of getting a red ball. Find
    (i)   Number of black balls   (ii) total number of balls

SECTION C   (4x5=20)

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

12. Two unbiased dice are rolled once. Find the probability of getting:
(i)   A doublet (equal numbers on both dice)
(ii)   The product as a prime number
(iii)   The sum as a prime number
(iv)   The sum as 1

13. In a class of 50 students, 28 opted for NCC, 30 opted for NSS and 18 opted both NCC and NSS. One of the student is selected at random. Find the probability that
(i)   The student opted for NCC but not NSS.
(ii)   The student opted for NSS but not NCC.
(iii)   The student opted for exactly one of them.

14. The scores of a cricketer in 7 matches are 70, 80, 60, 50, 40, 90, 95. Find the standard deviation.

15. In a class of 35, students are numbered from 1 to 35. The ratio of boys to girls is 4:3. The roll numbers of students begin with boys and end with girls. Find the probability that a student selected is either a boy with prime roll number of a girl with composite roll number or an even number.

16. From a well shuffled pack of 52 cards, one card is drawn at random. Find the probability of getting
    (i)   Red card (ii) heart card (iii) red king (iv) face card (v) number card

SECTION D   (2x8=16)
    Answer **all** the questions.

17. Draw a triangle ABC of base BC=8cm, $\angle A=60^o$ and the bisector of $\angle A$ meets BC at D such that BD=6cm.

18. Draw a graph of $y=x^2-5x-6$ and hence solve $x^2-5x-14=0$.