

Question No. 1

Following data shows the marks of sample of students from two sections of 10th Class.

Marks Sec. A	50	40	46	70	82	88	62	94	100
Marks Sec. B	70	62	84	72	42	34	68	34	78

Which section is consistent in performance.

Question No. 2

Given the following data

X	0	1	3	4	5
y	36	25	33	15	28

a)

Determine least square line taking x as independent variable.

b) Find trend values and show that

i) $\sum y = \sum \hat{y}$ ii) $\sum (y - \hat{y}) = 0$

c) Verify that $\sum (y - \hat{y})^2 = \sum y^2 - a\sum y - b\sum xy$

Question No. 3

A pair of fair die is rolled. Find the probability that sum of dots on the upper side is:

- i) Less than six ii) Odd number iii) Less than 6 or odd number

Question No. 4

A population consists of five values 2,4,6,8,10. Take all possible sample of size 2 from this population without replacement. Find

- i) Mean and variance of the population
 ii) Mean and unbiased variance of each sample
 iii) Average of the means of all possible samples and average of the variances of all samples.

Section – II

Question No. 5

a) Solve the following equation

$$\frac{5}{9}(7 - 6x) - \frac{3}{4}(3 - 15x) = \frac{1}{12}(3x - 5) - \frac{1}{2}$$

b) Solve $4x^2 + 20 = 18 = 35X$ by using the method of completing square

Question No. 6

Solve the following system of equation by matrices

- i) $x+y+z=4$
- ii) $x-y+2z=3$
- iii) $2x+3y-z=1$

Question No. 7

- a) The 54th and 4th terms of an A.P are -61 and 64 respectively. Show that the common difference in -5/2 and 23rd term is 16.5
- b) The sum of three numbers in G.P is 26 and their product is 216. Find the numbers.

Question No. 8

How long will it take for Rs. 20250 amount to Rs. 30500 at 10.5% interest rate.