

NEW

2018

Part II 3-Tier

STATISTICS

(General)

PAPER—III

(PRACTICAL)

Full Marks : 100

Time : 4 Hours

The figures in the margin indicate full Marks.

Answer all questions.

Group — A

1. Calculate the value of the definite integral

$$\int_2^3 \frac{dx}{(x+2)(x+1)}$$

Correct to five places of decimals, using Trapezoidal with $h = 0.1$ and also obtain the error of approximation.

6+2

(Turn Over)

2. Ramkrishnan considered annual data on the yield-rate of cotton⁽¹⁾, September rainfall⁽²⁾, November rainfall⁽³⁾ and November maximum temperature⁽⁴⁾ across the districts of Maharashtra and their total Correlation Coefficients were found to be

$$r_{12} = 0.410 \quad r_{23} = 0.287$$

$$r_{13} = 0.307 \quad r_{24} = -0.239$$

$$r_{14} = -0.617 \quad r_{34} = -0.577$$

Calculate (i) $r_{12.4}$ (ii) $r_{13.4}$ (iii) $r_{23.4}$ (iv) $r_{13.24}$
8

3. For 20 doctors the regression of weight of kidneys (y) on weight of heart (x) is given by

$$y = 0.56x + 5.6$$

and the regression of weight of heart on weight of kidneys is given by

$$x = 1.212y - 1.896$$

Find the correlation coefficient between the two variables and also their means. 4+4

4. The number of runs scored by two batsmans in 10 innings :

Batsman A : 15, 26, 97, 56, 112, 89, 17, 108, 24, 21

Batsman B : 17, 47, 76, 60, 70, 39, 51, 42, 71, 60

Make a comparative study of their batting performances.

8

5. Draw the ogives (both more-than and less-than) of the following frequency distribution and locate graphically the median.

Percentage of					
Marks obtained :	60-62	63-65	66-68	69-71	72-74
No. of Persons :	7	25	30	32	8

6+2

Group — B

6. From the following data on shoe prices and quantities compute :
- (i) Fisher's ideal index,
 - (ii) Laspeyers' price index,
 - (iii) Paasche's price index, and
 - (iv) Edward-Marshall price index.

Type of Shoe	Price (in Rs.)		Quantity	
	2012	2016	2012	2016
Male	175	250	25	30
Female	110	150	45	35
Children	105	125	25	40

7. The weight at birth (in kg) for 15 babies born in Delhi are given below :

2.79	2.56	3.64
3.01	2.16	2.25
3.10	3.06	2.61

3.38	3.42	3.55
3.19	3.51	3.82

Calculate two limits which is likely to contain the mean weight at birth for all such babies. 10

8. The numbers of defective items in 15 lots, each of 2500 items are shown below :

124, 424, 430, 216, 340, 224, 216, 402, 356, 305, 337, 306, 280, 332, 250

Draw a control chart for fraction defective and comment on the state of control. 10

9. Data on age, fertility rate and survival factor are given below :

Age	Fertility rate Female birth	Survival factor
15 - 19	0.0108	0.969
20 - 24	0.0662	0.967
25 - 29	0.0675	0.963
30 - 34	0.0413	0.958
35 - 39	0.0216	0.952
40 - 44	0.0063	0.942
45 - 49	0.0004	0.928

Compute the GRR and NRR for the data. 10

10. Practical Note Book 10
11. Viva-Voce. 10