

**NEW**

**2017**

**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

$$\int_1^2 \frac{dx}{x}$$

Correct to five places of decimals, using Simpson's one-third rule and also obtain the error of approximation.

6+2

*(Turn Over)*

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

Weight (Kg)	:	60-62	63-65	66-68	69-71	72-74
No. of Persons	:	5	20	25	40	10
						6+2

3. The number of runs scored by cricketers A and B during a test series consisting of 5 test matches is shown below for each of the 10 innings :

Cricketer A : 5, 26, 97, 76, 112, 89, 6, 108, 24, 16

Cricketer B : 51, 47, 36, 60, 58, 39, 44, 42, 71, 50

Make a comparative study of their batting performances.

8

4. Ramkrishnan considered annual data on the yield-rate of cotton, September rainfall, November rainfall and November maximum temperature for an Indian district 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

5. For 20 army personnel the regression of weight of kidneys ( $y$ ) on weight of heart ( $x$ ) both measured in 07 is given by

$$y = 0.39x + 6.934,$$

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

$$x = 1.212 y - 2.461$$

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

### Group — B

6. The numbers of defective items in 16 lots, each of 2000 items are shown below :

264, 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

7. A six faced die was thrown 300 times, and the number of points obtained at each throw was recorded. Then the following frequency distribution was formed. Use these data to test whether the die was unbiased.

Number of point :    1      2      3      4      5      6

Per throw

Frequency :            31    52    46    40    54    71

10

8. The weight at birth (in kg) for 15 babies born in Calcutta 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

9. Data on age (*l. b. d.*), 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