2016

STATISTICS

(Major)

Paper : 2.3

(Practical)

Full Marks : 50

Time : 2 hours

The figures in the margin indicate full marks for the questions

PART—A

1. Answer any *two* of the following questions : 5×2=10

(a) The observed values of a function are respectively 168, 120, 72 and 63 at the four positions 3, 7, 9 and 10 of the independent variable. What is the best estimate you can give for the value of the function at the position 6 of the independent variable?

(b) The following values of the function $f(x)$ for values of x are given :

$f(1) = 4,\ f(2) = 5\ f(7) = 5,\ f(8) = 4$

Find the value of x for which $f(x)$ is maximum.

(c) The values of x and $y = f(x)$ are given below :

x	:	5	6	9	11
U_x	:	12	13	14	16

Find the value of x when $U_x = 15$.

2. Answer any *one* of the following questions : 10

(a) Find (correct up to six decimal places) the two positive roots of the equation given below :

$$0 \cdot 054 x^3 + 89 \cdot 973 x^2 - 60 x + 10 = 0$$

(b) Find the value of e^{-x} for $x = 1 \cdot 7489$ from the following table using an appropriate central difference formula :

x	:	1·72	1·73	1·74	1·75
e^{-x}	:	0·179066	0·177284	0·175520	0·173774

x	1·76	1·77	1·78
e^{-x}	0·172045	0·170333	0·168638

3. Answer any *one* of the following questions : 10

(a) Tabulate the values of the function $(2 + x^2)^{-1}$ for 9 equally spaced values of x over the interval (3, 5) correct to three decimal places, and hence compute the value of

$$\int_3^5 \frac{4}{(2 + x^2)} \, dx$$

using an appropriate quadrature formula.

(b) Using Euler-Maclaurin formula, find the value of $\log_e 2$ from the integral

$$\int_0^1 \frac{dx}{1+x}$$

PART—B

4. Practical notebook. 5

5. Viva voce. 5

6. Internal assessment. 10

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