2019

STATISTICS

(Major Practical)

Paper : 2.3

Full Marks – 50

Pass Marks – 20

Time – Three hours

The figures in the margin indicate full marks for the questions.

FIRST HALF

Answer any *three* questions.

1. (a) Find the missing term in the following table :

x :	0	1	2	3	4
y :	1	3	9	x	81

5

(b) The function $y = f(x)$ is given at the points (7, 3), (8, 1) (9, 1) and (10, 9). Find the value of y for x = 9.5, using Lagrange's interpolation formula. 5

2. From the following table, find f(0.5437), using a suitable central difference formula : 10

x :	0.51	0.52	0.53
f(x) :	0.5292437	0.52378987	0.5464641

x :	0.54	0.55	0.56	0.57
f(x) :	0.5549392	0.5633233	0.5716157	0.5798158

Or

Given the following pairs of values of x and y = f(x)

x :	1	2	4	8	10
y :	0	1	5	21	25

Determine numerically the first and second derivatives of f(x) at x = 4. 10

3. Use Euler-Maclaurin Summation formula to find the value of π from $\frac{\pi}{4} = \int_0^1 \frac{dx}{1+x^2}$. 10

4. Find the root of the equation $x^4 - x - 10 = 0$ by using

(i) Newton-Raphson method

(ii) Bisection method. 5+5=10

SECOND HALF

5.	Viva voce.	5
6.	Practical Notebook.	5
7.	Internal assessment.	10