NEW

2017

BCA 3rd Semester Examination

COMPUTER ORIENTED NUMERICAL

PAPER—2103

Full Marks : 70

Time : 3 Hours

The figures in the right-hand margin indicate full marks.

Candidates are required to give their answers in their own words as far as practicable.

Illustrate the answers wherever necessary.

Answer Q. No. *1* and any *four* from the rest.

1. Answer any *five* questions : 5×2

(a) What do you mean by Significance Error.

(b) Round off the following numbers correct upto five significant figures

3.679951, 39.27314.

(b) Write the advantage and disadvantage of Lagrangian Interpolation formula. 9+6

4. (a) Calculate by Simpson's one third rule the value of the integral $\int_0^1 \frac{x dx}{1+x}$ correct upto three significant figures, by taking six intervals.

(b) Write the geometrical interpretation of trapezoidal formula. 9+6

5. (a) Establish the sufficient condition for the convergence of Newton Raphson method.

(b) Find a real root of the equation $f(x) = x^3 + x^2 + x + 7 = 0$ by the method of bisection. 7+8

6. (a) Compute y(0.02) by Euler Method for the problem

$$\frac{dy}{dx} = y, \; y(0) = 1.$$

(b) Two dice are thrown. Find the probability that the sum of the faces equal to 10. 9+6

7. (a) Write the advantages and disadvantages of Regula-falsi method.

(b) Find the value of the constant **k such that**

$$f(x) = kx(x-1), \quad 0 < x < 1$$
$$= 0 \quad \text{elsewhere}$$

is a probability density function. Construct the distribution function and compute $P\left(x > \frac{1}{2}\right)$. 6+9