NEW

2015

BCA

3rd Semester Examination

MICROPROCESSOR LAB

PAPER—2197 (SET-1)

(PRACTICAL)

Full Marks : 100

Time : 3 Hours

The figures in the margin indicate full marks.

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

Illustrate the answers wherever necessary.

Group—A

(Microprocessor Lab)

Answer any *one* question *(Lottery Basis)* : 1×25

1. Write a program for 8085 to subtact two 8-bit data. If subtaction is between small from large data then indicate '00H' as '+' sign otherwise '01H' for '–'. 25

2. Write a program for 8085 to find 2's Compliment of 16-bit data. 25

3. Write a program for 8085 to find smallest number from a given no. of 8-bit data array. 25

4. Write a program for 8085 upto separate 8-bit number into two nibbles. 25

5. Write a program to find one's complement of a 16-bit number. 25

6. Write a program to add two BCD numbers (using 8086). 25

7. Write a program to transfer a block of data from the memory location 4200H to the memory location 4500H. 25

8. Write an ALP for 8085 to convert binary to gray code. 25

9. Write a 8085 program to count the number of odd numbers from a set to 8 bit numbers. 25

10. Write a 8085 program to find square of a number (OOH to OFH) using look-up table. 25

Viva — 05

Practical Note Book — 05

[Internal Assessment — 15]

Group—B

(Numerical Lab)

Answer any *one* question *(Lottery Basis)* : 1×25

1. Compute y_1 (0·1), from the equation $\frac{dy}{dx} = \frac{y-x}{y+x}$, $y(0) = 1$, taking $h = 0{\cdot}02$, by Euler's method. 25

2. Compte y (0·8) by Runga-Kutta method from the equation.

$$\frac{dy}{dx} = xy, \quad y(0) = z, \quad \text{taking } h = 0{\cdot}2$$ 25

3. Compute f (2) using the following table using Lagrange interpolation : 25

x	0	1	5	7
f(x)	1	2	146	386

4. Evaluation $\int_0^2 \frac{dx}{x+x^2}$ by using Simpson's $\frac{1}{3}$ rule taking $x = 0{\cdot}1$ correct upto three decimal places.

5. Evaluate $\int_1^2 e^x d^x$ by taking $x = 1$ using Trapezoidal rule. 25

6. Find the largest eigen value and the corresponding eigen vector of the matrix: 25

$$\begin{bmatrix} 6 & 0 & 3 \\ 1 & -2 & 0 \\ 4 & 6 & 5 \end{bmatrix}$$

7. Find the real root of $x^3 - x - 2 = 0$ using Regula-Falsi method. 25

8. Find the root of the equation $x^3 - 4x - 9 = 0$ using Bisection method. 25

9. Solve by Gauss-Jacobi method : 25

$$3x - y + z = 4$$
$$x - 5y + 2z = -2$$
$$x + y + 5z = 18$$

10. Find the real root by using Newton's Raphson method of $3x - \cos x - 1 = 0$ (*correct upto 3 decimal places*). 25

Viva — ***05***

Practical Note Book — ***05***

[Internal Assessment — ***15]***