

**UNIVERSITY OF KERALA**  
**SCHOOL OF DISTANCE EDUCATION**  
**III<sup>rd</sup> SEMESTER ASSIGNMENT TOPICS (BCA)**

**I. COMPUTER ORIENTED NUMERICAL METHODS (CP1331)**

1. Illustrate Gauss Siedel iterative method using an example.
2. Use Gauss Siedel iteration method to find approximate solution to the following system in 2 interactions.

$$10w-2x-y-z=3.$$

$$-2w+10x-y-z=15$$

$$-w-x+10y-2z=27$$

$$-w-x-2y+10z=-9$$

3. Elaborate on LU decomposition of matrices.
4. Use trapezoidal rule to evaluate the approximate values of the definite integrals  $\int \sin x dx$  given that,

<b>X</b>	<b>0</b>	<b>0.2</b>	<b>0.4</b>	<b>0.6</b>	<b>0.8</b>	<b>0.10</b>
<b>F(x)</b>	<b>0</b>	<b>.1987</b>	<b>.3894</b>	<b>.5646</b>	<b>.7174</b>	<b>.8415</b>

5. Find cubic polynomial which takes  $y(0)=1, y(1)=0, y(2)=1, y(3)=10$ , and hence find  $y$  by Newton's Forward Difference for Interpolation.
  6. Find roots of the equation  $f(x)=x^3-2x-5=0$ , using Regula Falsi Method correct to 2 decimal places.
  7. Using Newton's Forward Difference Formula find the Sum  $S_n=1^2+2^2+3^2+\dots+n^2$ .
  8. Find an approximation value of  $\int_0^1 x^2 dx$  Simpsons  $\frac{1}{3}$  rule with  $n=10$ .
  9. Compute  $f'(0.2)$  and  $f''(0)$  from the following tabular data
- |             |             |             |             |              |              |               |
|-------------|-------------|-------------|-------------|--------------|--------------|---------------|
| <b>X</b>    | <b>0.0</b>  | <b>0.2</b>  | <b>0.4</b>  | <b>0.6</b>   | <b>0.8</b>   | <b>1</b>      |
| <b>F(x)</b> | <b>1.00</b> | <b>1.16</b> | <b>3.56</b> | <b>13.96</b> | <b>41.96</b> | <b>101.00</b> |
10. Find the largest root of  $f(x)=x^3-x-1=0$  for  $x=1$  and  $x=2$  using Bisection method.

**II. COMPUTER NETWORKS(CP 1341)**

1. Explain about various transmission media
2. Explain the terms: Piggybacking, pipelining
3. Interfacing devices – bridge, hub, switch, router, gateway
4. Explain Remote login

5. File transfer protocol.

### **III. OPERATING SYSTEMS (CP 1342)**

- 1.Explain the features of a distributed system. What are the advantages?
- 2.Explain the paging techniques in memory management.
- 3.Explain classical synchronization problems in inter process communication.
- 4.Explain the file system structure and its implementation.
- 5.Discuss swapping technique with diagram.

### **IV. COMPUTER ORGANIZATION & ARCHITECTURE (CP 1343)**

1. Write a note on:

- a) Programmed I/O
- b) Interrupt driven I/O
- c) DMA controlled I/O.

2. Explain various addressing modes and instruction formats of 8085 microprocessor?

3.Multiply 101101 and 011110 using Booth's algorithm.

4.What is micro instruction? How is it differs from program sequence.

5. Explain the following

- a) Multiple Module Memories.
- b) Memory Inter leaving
- c) Multilevel Organization of Cache memory

### **V. PROGRAMMING IN JAVA (CP 1344)**

1.Explain the features of JAVA

2.Write a program to print multiplication table after accepting the number as command line argument.

3.Write a Java program to demonstrate the use of constructors

4.Explain pass by value and pass by reference with examples

5.Explain multilevel inheritance with an example

6.Explain Interface.How multiple inheritance can be implemented using interface

7.How packages are useful.Write the steps for creating and using a package

8.Write the steps for Exception Handling Technique

9.Write a program to create your own Exception

10.Explain the use of finally block.