PART – A (8 x 4 = 32 Marks)  
(Short Answer Type)

1. Differentiate between break and continue statements in C language.
2. Define local and global variable with example.
3. Distinguish between function declaration and definition.
4. Explain about pointer variables.
5. What is secant method of solving an equation?
7. Explain Lagrange forward interpolation formula.

PART – B (4 x 12 = 48 Marks)  
(Essay Answer Type)

9. a) Write a program to sum the elements of a given matrix using recursion technique. OR 
   b) Write the syntax of conditional statement IF and while with examples.

10. a) Define function and explain about the following categories of functions. 
    i) Functions with arguments and return values 
    ii) Function with argument and no return values 
    iii) Functions with no argument and no return values OR 
    b) Differentiate between linear search and binary search and its complexity with suitable example.

11. a) Find a root of the equation x sin x + cos x = 0. Using Newton Raphson method. OR 
    b) Compare critically Gauss-elimination and Gauss-Jordan methods of solving simultaneous equations.

12. a) The table below gives square roots for integers. 

<table>
<thead>
<tr>
<th>x</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>f(x)</td>
<td>1</td>
<td>1.4142</td>
<td>1.7321</td>
<td>2</td>
<td>2.2361</td>
</tr>
</tbody>
</table>

Find the square root of 2.5 using the second order Lagrange interpolation method. OR

b) Evaluate \( I = \int_{0}^{1} \frac{1}{1 + x} \, dx \) correct to three decimal places. Using trapezoidal and Simpson Rules. 

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