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Code No. 8529 / CBCS/ Non-CBCS

FACULTY OF SCIENCE

M. Sc. I – Semester (CBCS / Non-CBCS) Examination, December 2013

Subject : Physics and Applied Electronics

Paper – IV : C Programming and Numerical Methods

Time : 3 Hours

Max. Marks: 80

Note : Answer all questions from Part–A and Part–B. Each question carries 4 marks in Part–A and 12 marks in Part – B.

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

1. Explain the precedence of operators used in C.
2. Give an example of a enumeration data type.
3. Distinguish between local and global variables.
4. Distinguish a pointer operator and address operator.
5. What is bisection method of solving an equation?
6. State and explain the secant method of solving an equation.
7. Explain Lagrange interpolation formula.
8. Explain the Euler's method of solving differential equations.

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

- 9.(a) Write a C program to find the product of  $A = \begin{bmatrix} 1 & 2 & 3 \\ 4 & 5 & 6 \end{bmatrix}$  and  $B = \begin{bmatrix} 2 & 1 & 2 \\ 2 & 2 & 3 \\ 1 & 4 & 3 \end{bmatrix}$  using while loops.

OR

- (b) Using recursive functions write a C program to find the factorial of a given number.

- 10.(a) What is a function call? Give an example each of call by reference and call by value.

OR

- (b) Write an algorithm for binary search of an array.

- 11.(a) Solve  $2x^2 - 1 = 0$  using Newton Raphson method.

OR

- (b) What is pivoting in Gauss elimination method?

- 12.(a) Find the value of  $f(1.2)$  for the values given below using Lagrange interpolation

X	1	2	3	4	5
f(x)	1	4	9	16	25

OR

- (b) Compare Trapezoidal and Simpson rules. Integrate  $x$  in the interval 1 to 2 using Romberg rule.

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