Reg. No. : ....

Name : ....

Sixth Semester B.Tech. Degree Examination, June 2015
(2008 Scheme)
08.603 : NUMERICAL TECHNIQUES AND COMPUTER PROGRAMMING (E)

Time : 3 Hours   Max. Marks : 100

PART – A

Answer **all** questions.

1. What are the different types of operators available in C ?

2. Differentiate between break and continue statements with the help of examples.

3. What is meant by initialization ? How a structure variable can be initialized ?

4. Distinguish between local and global variables.

5. Write a program to find string length using functions and pointers
   (Note : Use user-defined function)

6. Write a program to insert an item in a stack.

7. What is meant by pointer to a structure ? Illustrate the concept with the help of an example.

8. Write a program to evaluate $\int_{0}^{0.75} x^2 + \sin x \, dx$ using Simpson's $\frac{1}{3}$ rd rule with $h = 0.15$.

9. Give the algorithm for finding the root of a transcendental equation using bisection method.

10. Write a C program to find the transpose of a given matrix.   **(4×10 = 40 Marks)**

PART – B

Answer **any one** question from **each** Module. **Each** question carries **20** marks.

Module – I

11. a) Write a program to find the sum of the squares of first 'n' odd numbers. **10**

   b) Write a program to insert an element in a particular position in an array.
      Display the modified array. **10**

      OR

12. a) Write a C program to find the symmetry of a given matrix. **10**

   b) Using structures, write a 'C' program to accept the details of 'n' students and
      print them sorted by their names alphabetical order. **10**

Module – II

13. a) What is meant by recursion ? What is its advantage ? Write a 'C' program to
      find 'gcd' (greatest common devisor) of a number using recursion. **10**

   b) Using pointers and functions write a program to reverse the elements of an
      integer array. **10**

      OR

14. a) Mention and explain various functions used for file handling. **8**

   b) Write a program to copy the content of one file to another. **12**

Module – III

15. a) Write a C program to find the solution of linear equations using Gauss-Jordan
      method. **10**

   b) Write a program to find the inverse of a matrix. **10**

      OR

16. a) Write a program to solve $f(x) = x^3 - 4x - 9$ using Newton-Raphson method. **10**

   b) Write an algorithm for solving differential equation using Runge-Kutta method.
      Compare it with Euler's method. **10**

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