A – 2740

Reg. No. : ....

Name : ....

Sixth Semester B.Tech. Degree Examination, May 2016
(2013 Scheme)
13.604 : NUMERICAL TECHNIQUES AND
COMPUTER PROGRAMMING (E)

Time: 3 Hours

Max. Marks : 100

PART – A

Answer **all** questions.

1. Explain any four input functions in C.

2. Differentiate between break and continue statements.

3. Differentiate between structure and union.

4. What are the advantageous of using recursive functions ?

5. Illustrate the relation between array and pointers.

6. Explain the use of command line arguments.

7. Write the algorithm for solution of transcendental equations using Bisection method.

8. What is meant by eigen value and eigen vector ?

9. Write a C program to display the sum of elements of a matrix.

10. Compare trapezoidal and Simpson's rule. (10×2=20 Marks)

PART – B

Answer **any one** question from each Module.

Module – I

11. a) Write a menu driven C program to (a) Sort and (b) Search for a key element –
of a set of integer numbers. **12**

b) Write a C program to check whether a character is a Vowel or not by using
switch statement. **8**

OR

12. a) Write a menu driven C program to (with out using string library functions) (1) extract a substring (2) reverse (3) find length (4) copy a given string. **12**

   b) Explain the important string handling functions available in C. **8**

Module – II

13. a) Explain various storage class specifies in C. **8**

   b) Write a program to implement stack using pointers and functions. **12**

OR

14. a) What do you mean by dynamic memory allocation ? Explain the functions in C used for dynamically allocating memory. **10**

   b) Write a C program to merge the contents of two files into one. **10**

Module – III

15. a) Write a C program to multiply two matrices. Use functions. **10**

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

OR

16. Write a C program to find the solution of linear equations using gauss elimination method and also solve **20**

$$x_1 + x_2 + 2x_3 = 8$$
$$-x_1 - 2x_2 + 3x_3 = 1$$
$$3x_1 - 7x_2 + 4x_3 = 10$$

Module – IV

17. a) Write a C program using Euler's method to find an approximate value of 'y'; corresponding to x = 1 given that $\frac{dy}{dx} = x + y$ and y = 1 when x = 0. **10**

   b) Write a C program to implement Simpson's 1/3rd rule. **10**

OR

18. a) Write a C program using Runge-Kutta method to find an approximate value of y when x = 0.2, given $\frac{dy}{dx} = x + y^2$ and y = 1 when x = 0. **10**

   b) Write a C program to find integral using trapezoidal rule. **10**

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