I B.TECH – EXAMINATIONS, JUNE - 2011
COMPUTER PROGRAMMING AND NUMERICAL METHODS
(COMMON TO ME, CHEM, AE)

Time: 3hours   Max.Marks:80

Answer any FIVE questions
All questions carry equal marks
- - -

1.a) Define type conversion? What is the necessity of type conversion? Write about how the type conversion will be done in C. Quote relevant examples.
  b) Write a C program to add the prime numbers between 1 to 1000.   [8+8]

2.a) Write a C program to do matrix multiplication.
  b) Write in detail about one dimensional and two dimensional arrays? Also write about how initial values can be specified for each type of array? Explain how the above type of arrays can be stored in memory?   [6+10]

3.a) What is command line arguments? In which situation we can go for command line arguments? Explain with the example how the command line arguments can be processed in C program.
  b) Write a C program to sort the given command line arguments in an alphabetical order.   [6+10]

4.a) Explain the different ways of passing structure as an argument to a function. Quote examples for each way.
  b) Write a C program to illustrate the use of pointers in arithmetic expression. [8+8]

5.a) Write a C routines to add and delete an element from circular Queue.
  b) Differentiate between Queue, Dequeue, Circular Queue.   [8+8]

6.a) Obtain the complex roots of the equation $f(2) = 2^3 + 1 = 0$ correct to 8 decimal places. Compare with exact values of the roots $(1 \pm i\sqrt{3})/2$ using Newton Raphson's network.
  b) Solve a positive root of $xe^x = \cos x$ by false position method.   [8+8]

7.a) Using Legrange's interpolation formula find the value of y at $x = 8$ from the following data:

x	5	6	9	11
y	12	13	14	16

  b) From the table given below find the value of y when $x = 23$ by using Newton's forward interpolation method.   [8+8]

8.a) A solid of revolution is formed by rotating about x-axis. The area between the x-axis, the line x = 0 and x = 1 and a curve through the points with the following coordinates.

x	0.2	0.4	0.6	0.8	1.00
y	2.0000	1.9896	1.9589	1.9089	1.8415

  Estimate the volume of the solid formed using Simpson's rule.
  b) Numerically integrate $(\sin x)(x)^{-1/2}$ between 0 and 1 using Simpson's rule with 20 points.   [8+8]

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