M.Sc. (Informatics) - 1st Semester, 2012
Paper: IT-11 - Programming Methodology

Time allowed: **03 Hrs**   Maximum Marks: **75**

Total pages: 02

Write your Roll No. on the top immediately on receipt of the paper.

Note: Do five questions in all.

Q1   (a) Write a program for echo, which echoes its command line arguments on a single   7
line, separated by blanks. For example
        . /echo Hello, world prints
                Hello, world -

       (b) Define enumeration constant. Compare enumeration constants with symbolic   4
       constants.
       (c) Write the output for following code   4
       main()
       {
           int i=0, j=0, k=-1, l=3, t;
           t=i++ && j++ && k++ || l++;
           printf("%d %d %d %d %d", i, j, k, l, t);
       }

Q2   (a)Explain the difference between following two statements   4
            char amessage[]="now is the time";
            char *pmessage= "now is the time";

       (b) Write the function strend (s, t), which returns 1 if the string t occurs at the end of   7
       the string s, and zero otherwise.

       (c) Write the code in which a two-dimensional array is declared, initialized in   4
       different possible ways and calls a function. Write also one function called in previous
       code that takes two-dimensional array and prints it. Write the different possible
       declaration of function with respect to two-dimensional array.

Q3   (a) Write a program,which provides to menu to test whether   9
        (1) the given point is within a rectangle or not,
        (2) canonicalize the coordinates of reactangle ?
       For example given a point (2,3) and rectangle [(0,0), (4,4)], it prints point lies with in
       the rectangle and for second choice if input is [(0,1), (3,4)] it returns [(0,0), (4,4)].

       (b) Write a recursive program for binary search   6

Q4   (a) Write a program which reads a string from file data.txt and prints number of   12
       newlines, blank spaces and tabs in that string.

       (b) Write the prototypes of functions fprintf , fscanf, fread and fwrite. Explain the   3
       difference between their usage.

Q5   (a) Implement a function alloc(p) which returns pointer to n consecutive character   10
       positions and another afree(p) which releases the storage thus acquired so it can be
       used later.

       (b) What is a Union in C. Give one application of it?   2

       (c) Explain how C offers the capability of defining and accessing fields within a word   3
       directly within a word directly rather than by bitwise logical operators. Explain with
       example.

Q6   (a) Write a macro called REM which takes two integer arguments and 'returns' the   5
       remainder when the first is divided by the second. Write main function to use the
       above macro.

       (b) What is C Preprocessor? Explain some C preprocessor commands with examples.   5

       (a) struct   5
         {
             int x,y;
         }s[]={10,20,15,25, 8,75,6,2};
         int *i;
         i=s;

       Using above declaration, write output for each of following statements:
       1) (s+1)->x+5 2) i[s[3].y]   3) i [i [1]-i [2]] 4) ++i[i[6]] 5) *(1 + i) ** (i+4) /*i