# VASAVI COLLEGE OF ENGINEERING (*Autonomous*) HYDERABAD

### B.E. I/IV (All Branches) I-Semester(Main) Examinations, Feb.2015

### Programming in C and Problem Solving

Time: **3** hours                                                                Max. Marks: **70**

*Note: Answer ALL questions in Part-A and any FIVE questions from Part-B*

*Part-A (Marks: 20)*

1. Which all among the following three numbers have the same value:                     [2]
   octal number 377654, hexadecimal 377654 and binary 11111111110101100.

2. Write the output of the expression $(9 / 4.5 - 4 * 6) - (9 / ((4.5 - 4) * 6))$          [2]

3. Write the syntax of **while** loop with an example.                                    [2]

4. What is the output of the following code segment?                                      [2]
   main( ) { int j=3, j = 1 + j++; printf("%d", j); }

5. Write a C function to test whether all elements of an 8 by 8 two dimensional array     [2]
   are zeros.

6. Write a C function to test whether all elements of an integer array of size 100 are in
   decreasing order.                                                                      [2]

7. Write the syntax of the library function for string concatenation.                     [2]

8. Write output of the following code segment.                                            [2]
   char str[ ] = "mango"; char * p = str + 3; *p = 'b'; printf("%s", str);
9. How to define a structure within a structure in C. Give an example                     [2]

10. Write a C function that takes name of a file as parameter and test whether            [2]
    the file already exists.

*Part-B (Marks: 50)*

11. a. Explain the various phases involved in software development lifecycle.             [5]
    b. Draw a flowchart for developing a program that takes as input an integer **n** between
       0 and 15 and return the $n^{th}$ power of 3.                                       [5]

12. a. Define function. What are the advantages of using functions?                      [5]
    b. Write a C program that takes as input 10 integers and print the second smallest number. [5]

13. a. Explain binary search procedure.                                                  [5]

    b. Write a C program to read 20 integers as input and rearrange them such that all   [5]
       numbers that are multiple of 3 are placed before all the remaining numbers.
14. a. Explain how memory allocation is done in C.                                       [5]
    b. Write a C function that reads a string of lower case letters with maximum length   [5]
       20 by reading one character at a time and then print the string in upper case.

15. a. Define stream and list down the types of streams. Write the syntax of any 3 file        [5]
       handling functions.
    b. Write a C program that represents a collection of three dimensional points as            [5]
       an array of structures where the structure contains three floating point fields x, y
       and z indicating the X, Y and Z coordinates of a point. Read the point values from input.
       You can assume the array size to be 100.

16. a. What do you mean by preprocessor commands? Explain about various types of preprocessor
       commands with example for each.                                                          [5]
    b. Write a C function to read an integer array as input and return the number of times the number
       '10' is repeated in the array.                                                           [5]

17. a. Write short notes on any 5 string handling functions.                                    [4]

    b. Write a C program that takes as input, a source file name and a destination file name and
       copy the contents of source file to destination file.                                    [6]

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