VASAVI COLLEGE OF ENGINEERING (Autonomous), HYDERABAD
B.E. I Year I-Semester (Supplementary) Examinations, May/June-2016

Programming in C and Problem Solving

Time: 3 hours

Max. Marks: 50

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

Part-A (15 Marks)

1. List the differences between RAM and hard drive.   [1]

2. The use of *go-to* statement is considered unstructured programming. Justify.   [1]

3. Declare and initialize an array of ten integers.   [1]

4. Given the following definitions:
   char a[20]={'z', 'x', 'm', 's', 'e', 'h'};
   char* pa=a;
   int i=2;
   int j=4;
   int* pi=&i;
   Write the value of the expressions given below:
   *(pa+j)
   *(pa+*pi)   [1]

5. Define a C structure for storing a product in a grocery store.   [1]

6. A line of code in C language reads x= 2*4+3/6+2;. What value does x carry after the   [2]
   operation? Assume x to be a *float* variable.

7. What is the role of functions in designing structured programs?   [2]

8. Write a function that takes an array as one argument and returns the average of the values
   in the array.   [2]

9. Give the syntax and explain the working of *calloc* function.   [2]

10. Write a C program to open a file and display the contents of the file in the standard output.   [2]

Part-B (5 X 7 = 35 Marks)

11. a) A quiz was conducted in a class of 60 students and it was decided to give prices for the first
    and the second winners. Draw a flowchart to figure out the first and second winner based on
    the marks they got for the quiz from a list of unsorted marks.   [3]

    b) What are the differences between machine level, symbolic and high level languages?
    Describe the three tools that a programmer may use to develop a program solution.   [4]

12. a) Write a program that takes as input a number n and outputs a number triangle up to n as
    follows. If 3 is the input, the number triangle is   [3]

$$1$$
$$2 \; 2$$
$$3 \; 3 \; 3$$

    b) Compare and contrast the iterative (looping) statements in C with examples.   [4]

13. a) Write recursive solution for finding the nth power of x. (Read x and n values from the user) [3]

    b) Apply and explain any one of the sorting methods on the input 2,4,3,1,5,6.   [4]

14. a) There are 20 students in a class. Write a function to compare the names of students and
    find out if any two names are same without using built-in C string manipulation function.   [3]

    b) Illustrate a method using pointers to store an array of strings.   [4]

15. a) Explain the syntax of the *fprintf* function in C.   [3]

    b) Write a program that takes as command line argument the name of an existing file; creates
    another file and writes the contents of the first file into the second file in reverse order.   [4]

16. a) Write a program that takes as input a number n and outputs the Fibonacci series up to n
    terms.   [3]

    b) Explain the water fall model of software development life cycle.   [4]

17. Write short notes on any *two* of the following.   [7]

    a) Use of Preprocessor Commands to define macros (with examples).

    b) Pointer arithmetic in C.

    c) Self-referential structures.

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