Hall Ticket Number:

Code No. : 11005 O3

VASAVI COLLEGE OF ENGINEERING *(Autonomous)*, HYDERABAD
B.E. I Year I-Semester Backlog Examinations, June-2017

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. Convert the decimal number 100 into its equivalent 8 bit unsigned binary integer representation. [1]

2. Write a logical expression to represent the following condition *"n is odd and n is not 7"*. [1]

3. If the following is the header for a recursive function to finding power of a number *long power(int num, int pow),* write the base case. [1]

4. What are the differences between Malloc and Calloc functions in C? [1]

5. Assume that you are given a file named data.txt and asked to read the contents of the file and rewrite to the same file. Write the syntax to perform this task. [1]

6. Using the following declarations and initialized values of i, j, x, y, c and d [2]

    int i=8, j=5;
    float x = 0.005, y = - 0.01;
    char c = 'c', d = 'd';

    What will be the value of the following expression $(3 * i - 2 * j) \% (2 * d - c)$.

7. Why is programming using *goto* statement considered unstructured way of programming? [2]

8. Explain how two dimensional arrays are stored in memory using C language. [2]

9. What are command line arguments and how does C language accept them? [2]

10. Declare a structure to store information about a cricket player that stores the name of the player, total matches played by the player, total runs he made in his career, start time and end time in the current match. Note you are supposed to define a nested structure for time and assume appropriate data type for other information you want to store about the player. [2]

Part-B (5 × 7 = 35 Marks)

11. a) Explain how precedence and associativity is used in C language. [3]

    b) Draw a flowchart to find LCM for a given pair of number. [4]

12. a) Explain the sequence of steps involved in executing a for loop. [3]

    b) Write a program to play the following two players game as described below Player 1 will provide a number to the program, make sure that the provided number is between 1 and 10 else quit the program. [4]

    Next Player 2 will keep on guessing the number which player 1 has entered till there is a match with the number provided by Player 1.

    Program will output the number of attempts made by Player 2.

13. a) Explain the working principle of bubble sort. [4]

    b) Write a recursive function to reverse the elements of an array. [3]

14. a) Explain how pointer arithmetic is useful in accessing the array elements in one dimensional and two dimensional arrays. [4]

　　b) Write a C function that accepts a single character and returns 1 if the input character is alphanumeric value and -1 otherwise. [3]

15. a) Explain the concept of Enumeration with appropriate example. [3]

　　b) Write a C program that accepts two file names as command line arguments and copy the contents of the first file to the second. Incase if the number of arguments are not enough print an error. [4]

16. a) Explain how floating point numbers are stored in C language with an example. [3]

　　b) Describe different type of storage classes and their uses in C language. [4]

17. Answer any *two* of the following: [7]

　　a) Write a C program to rearrange an array in maximum minimum form. Given a sorted array of positive integers, rearrange the array alternately i.e. first element should be maximum value, second minimum value, third second max, fourth second min and so on.

　　　　Examples of input and output expected from your program:

　　　　Input　：　arr[] = {1, 2, 3, 4, 5, 6, 7}
　　　　Output：　arr[] = {7, 1, 6, 2, 5, 3, 4}

　　　　Input　：　arr[] = {1, 2, 3, 4, 5, 6}
　　　　Output：　arr[] = {6, 1, 5, 2, 4, 3}

　　b) Write a function *int isPalindrome(char str[ ])* that takes a string and returns a non-zero value if str is a palindrome and zero otherwise.

　　c) Write short notes on self-referential structure with appropriate examples.

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