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Roll No. :

322354(22)

B. E. (Third Semester) Examination, April-May 2020

(New Scheme)

(CSE Engg. Branch)

PROBLEM SOLVING & LOGIC BUILDING using C

Time Allowed : Three hours

Maximum Marks : 80

Minimum Pass Marks : 28

Note : Attempt all questions. Part (a) is of 2-marks. Attempt any two from parts (b), (c) and (d) of 7-marks each. Assume any missing data and specify the assumptions. Explain every program code written in the answer.

Unit-I

1. (a) Develop a flowchart to print Fibonacci series upto 10 iterations.

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- (b) Explain with a code example the basic structure of a C program.
- (c) Explain with code examples the use of conditional and logical operators.
- (d) Evaluate the following C program code and suggest the output. Also justify your answer with respect to operator precedence.

```
#include <stdio.h>
int main( )
{
    int i = -3, j=2, k=0, m;
    m = ++i && ++j && ++k;
    printf("%d, %d, %d, %d\n", i, j, k, m);
    return 0;
}
```

Unit-II

2. (a) Evaluate the following C program code and suggest the output with proper justification :

```
#include <stdio.h>
```

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[3]

```
int main( )
{
    printf("%x\n", -1>>1);
    return 0;
}
```

- (b) Write a program in C to reverse any four digit integer stored in variable 'n1' and store the reversed number in another variable 'n2'. Print "PALINDROME" if values of 'n1' and 'n2' are equal otherwise print "NOT PALINDROME".
- (c) Write a program in C to take 5 integer inputs from the user and print the largest and smallest out of them. Do not use arrays, only use integer variable to complete the task.
- (d) Write a program in C to print the ASCII equivalent value of any character key typed by the user without the need to press the enter key. The program should end only when 'ESC' key in the top left corner of the keyboard is pressed.

Unit-III

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3. (a) Explain with program code how to create and use arrays.
- (b) Write a C program to fill the elements in a '4×4' matrix of integers from user during runtime. Convert all the diagonal elements to zero and then display the matrix.
- (c) Write a C program to print the number of capital letters, small letters, numeric values and special symbols (including spaces) present in a line of text input from the user during runtime.
- (d) Explain with a program code the difference between call by value and call by address. Justify your answer with proper diagrams related to the allocation of memory to variable used in the example.

Unit-IV

4. (a) Explain with program code void pointer and its use.
- (b) Write a C program to fill the elements in a 'n×m' matrix of integers from user during runtime and display its contents. The values of 'n' and 'm' should be

- taken as input from user during runtime.
- (c) Explain recursive functions. Write a program to print fibonacci series using recursive function. The number of iterations should be given by the user during runtime.
- (d) Explain with program code pointer to function.

Unit-V

5. (a) With proper program code compare struct and union.
- (b) Write a program in C to create a struct with name student. The student should have student name and branch name. Create an array 'S' of student structure having 5 elements. Fill each element of 'S' from user. Display the elements of 'S' branch wise.
- (c) Write a program in C to merge the contents of text files T1.txt and T2.txt into T3.txt. The contents of T1.txt should appear first and then T2.txt in the destination file T3.txt.
- (d) Write a program in C to search a name present in

a text file named Names.txt. Print "FOUND" if name is found other wise print "NOT FOUND" if name not found.