322354(22)

B. E. (Third Semester) Examination, Nov.-Dec. 2021

(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) of each question is compulsory and carries 2 marks. Any **two** may be attempted out of parts (b), (c) and (d). Each part is of 7 marks include suitable header file in all your program.*

Unit-I

1. (a) How type conversion can be carried out in C?

(b) Explain the processes of building compiling and executing a C program with diagram.

(c) What is flow chart? Also draw the flow chart to calculate area and circumsference of circle for given formula.

(d) Write a C program to find the area of a triangle if its three sides are given

(Formula : area = $\sqrt{S(S-a)(S-b)(S-c)}$. Also

draw its flow chart.

Unit-II

2. (a) Consider the following code

```
# include <stdio.h>
main ()
{
    int var1, var2;
    Printf("Enter any number");
    Scanf("%d", & var1);
    var2 = var1 + 1;
    var1 = var2 + 1;
```

```
    Printf("var2 = %d ln", var2);
    Printf("var1 = %d ln", var1);
}
```

What would be the output if the user enters 10 as the number?

(b) Write a program to generate the following Pattern :

```
A   B   C   D   D   C   B   A
A   B   C           C   B   A
A   B                   B   A
A                           A
```

(c) Write a program to generate Fibonacci series using for loop.

(d) Explain various jump statements in "C" with the help of examples.

Unit-III

3. (a) What is an array? How it differ from the ordinary variable.

(b) What is recursion? Write a program which calculate

factorial for a given number using recrusive function.

(c) What are the advantages of using function? Explain function declaration call and definition with the help of an example.

(d) Write a program to input 4×4 matrix by the using test and print whether the matrix is symmetric or not.

Unit-IV

4. (a) Array is a sequential data access. Justify the statement.

(b) How will you represent a one-dimensional integer array using pointer? Write a C program to input an integer array and then display it using the concept of pointer.

(c) Discuss call by value and call by reference using examples. Why it is recommended to pass structures and arrays using pass by address?

(d) What are dynamic memory allocation? Explain each one of them with an example.

Unit-V

5. (a) What is the difference between a text file and a binary file?

(b) Write a program that concatenates two file which appends the content of one file to the end of another file write the result in the third file.

(c) Can a structure be within a structure? Give appropriate example to support your answer.

(d) What are user define data types? What is their use in programming?