A000173(022)

B. Tech. (Hon's) (First Semester) Examination

Nov.-Dec. 2023

(New Scheme)

COMPUTER SCIENCE ENGINEERING DATA SCIENCE

(Learning Programming Concept with C)

Time Allowed : Three hours

Maximum Marks : 100

Minimum Pass Marks : 40

Note : *Attempt any* ***five*** *questions. Part (a) of each question is compulsory. Attempt any* ***two*** *parts from (b), (c) and (d) of each question. Part (a) consist of 4 marks and (b), (c) and (d) part contains 8 marks each.*

Unit-I

1. (a) Depict basic flow chart symbols. Also mention their specific use. What do you mean by keywords in C programming languages explain with examples? 4

(b) Explain basic structure of a C program with examples. Also explain data types available in C. 6

(c) List all the operators in C and explan conditional, logical and bitwise precedence operators in brief. 6

(d) Explain what is type conversion in C and different types of type conversion and explain each with an example. Also describe why do programmes use type conversion. 6

Unit-II

2. (a) (i) Explain different types of preprocesor directives in C. 3

(ii) Consider the following program : 2

```
# include<Stdio.h>
int main ( )
{
int var 1, int var 2
printf ("Enter any number :");
scanf ("%d", & var 1);
var 2 = var 1 + 1;
```



```
var 1 = var 2 + 1;
printf ("var 2 : %d" var 2);
printf ("var 1 : %d", var 1);
return 0;
}
```

What would be the output if the user enters 10 as the number 2

(b) Write a program with output to check whether a gvien number is odd or even using "only if "control statement and using" if else" control statemnt. 6

(c) Explain the following : 6

(i) Switch loop

(ii) Syntax of switch loop

(iii) Flowchart of switch loop

(iv) Exmaple of switch loop with output

(v) Goto statement

(d) Write a C program with output ot find the sum of first 10 natural numbers using for loop. Write the pseudocode to compute the sum of first 10 natural numbers. Also draw the flowchart of the same. 6

Unit-III

3. (a) Define C-array. Write format of declaring an array with example and explain how an array is different from other variable? 4

(b) What do you mean by two dimentional array in C explain with an example. Write a program to count even and odd numbers in a 2 dimensional array. 6

(c) Define string in C. Write a program to print a string of array in reverse order. Also explain what is gets () and puts () function in string? 6

(d) Write all the string function available in C and use of each string function with example. Write one single C program comprising of all string functions with output. 6

Unit-IV

4. (a) Define the following with examples : 5

(i) Functions

(ii) Local variables

(iii) Global variables

(iv) Static variables

(b) What do you mean by recursion. What is the need to use recursion in a program? Write a program to calculate factorial of a give number using recursion. 6

(c) Explain the concept of call by value and call by reference explain each with an example. 6

(d) Write a program with output to print Fibonacci series using recursive method and iterative method. 6

Unit-V

5. (a) What do you mean by pointer? Define different types of pointers with examples. 5

(b) Explain what is dynamic memory allocation in C. Also define calloc ( ), malloc ( ), realloc ( ) function with example and C programming code. 6

(c) Explan types of pointer arithmetic in detail. Write a program for each pointer arithmetic. 6

(d) Write a C program to find minimum and maximum number in a given array using pointer. 6

Unit-VI

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6. (a) What do you understand by the word structure in C. Explain with an example and write a C program code. 5

(b) Explain file handling with the help of an example. 6

(c) What is structure padding explain with the help of an example. State a reason that why structure padding is used in programs. How can structure padding be avoided in a C program support your answer with a C programming code. 6

(d) Answer the following questions : 6

(i) What is file?

(ii) Why are files and used in programming?

(iii) Different types of files in C programming.

(iv) Basic operations performed on files in C.