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**Question Paper Code : 81084**

B.E./B.Tech. DEGREE EXAMINATIONS, APRIL/MAY 2024.

Seventh Semester

Agriculture Engineering

OCS 752 – INTRODUCTION TO C PROGRAMMING

(Common to : Biomedical Engineering / Civil Engineering / Electrical and Electronics Engineering / Electronics and Communication Engineering / Electronics and Instrumentation Engineering / Electronics and Telecommunication Engineering / Instrumentation and Control Engineering / Medical Electronics / Bio Technology / Fashion Technology / Food Technology / Handloom and Textile Technology / Pharmaceutical Technology / Textile Chemistry / Textile Technology)

(Regulations 2017)

Time : Three hours

Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. What is a Macro? How it differs from function call?
2. Compare and contrast break statement and continue statement.
3. Give the declaration of 1D array with default values.
4. How will you declaring and initializing a two dimensional array?
5. State the role of null character in String.
6. What is the relationship between a pointer and an array?
7. List the advantages of using a function.
8. Describe the actions that will happen during a function call.
9. Compare and contrast structures and arrays.

10. What is the size of the following structure? Justify your answer:

```
Struct Student {
```

```
    int r_no;
```

```
    char name[20];
```

```
    int math[5];
```

```
    int total;
```

```
    float grade;
```

```
}stu 1;
```

PART B — (5 × 13 = 65 marks)

11. (a) (i) Write the basic structure of a C program. (7)  
(ii) Explain the process of compilation of C program. (6)

Or

- (b) Explain the working of different types of looping statements available in C with example.

12. (a) Write a C program to perform the following functionalities:
- (i) Create an integer array of 10 elements. (3)
  - (ii) Find the sum of all the elements of the array. (3)
  - (iii) Count the number of odd and even values in the array. (4)
  - (iv) Print the position of the specified element. (3)

Or

- (b) Write a C program to perform the following functionalities :
- (i) Create an  $n \times n$  matrix. (3)
  - (ii) Find the transpose of the given matrix. (5)
  - (iii) Multiply the given matrix with its transpose. (5)

13. (a) Write a C program to perform the following functionalities in string without using built-in functions:
- (i) Count the number of words that start with a particular character in the given string. (4)
  - (ii) Copy the contents of one string into another string after converting all the lower case letters to upper case letters and vice versa. (4)
  - (iii) Replace all occurrences of a particular character in the string with a given character. (5)

Or

- (b) Define a pointer. List and explain the pointer operators. Using pointer arithmetic, perform the following operations: -
- (i) Create an integer array of 'n' elements.
  - (ii) Find the maximum and minimum element in the array.

14. (a) Define a recursive function. Explain the process of recursive function call and return with an example.

Or

- (b) Illustrate the different parameter passing methods in C with suitable example.

15. (a) Define a Structure. Explain about the following steps using 'Product' structure:

- Defining a structure named product
- Declaring a structure variable
- Accessing the members of a structure

Or

- (b) Illustrate the following process with suitable example :

- (i) Passing an entire structure to a function (6)
- (ii) Passing structure members to a function (7)

PART C — (1 × 15 = 15 marks)

16. (a) Develop an application in C with the following functionalities:
- (i) Create a structure called 'Phone\_Directory' with members such as name, phone\_no, and address (nested structure). (5)
  - (ii) Display the name and address for the given phone\_no. (5)
  - (iii) Display all the entries in the 'Phone Directory' (5)

Or

- (b) Develop a C program to perform the following:
- (i) Create an array of strings to hold the names of 'n' students. (5)
  - (ii) Sort the student names in alphabetical order (use function for sorting). (5)
  - (iii) Print the sorted list of names. (5)