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<b>Question Paper Code : 41001</b>
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B.E./B.Tech. DEGREE EXAMINATIONS, NOVEMBER/DECEMBER 2021.

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. Differentiate '&' and '&&' operators in C.
2. State the differences between 'for' loop and 'while' loop.
3. Give the syntax of declaring a multidimensional array. List the different ways to initialize a multidimensional character array.
4. What is the difference between the number '4' in the following statements?
  - (a) `int num[4];`
  - (b) `num[4] = 5;`
5. Distinguish a string and a character array.
6. What the syntax of declaring and initializing a character pointer.
7. List the advantages of using functions.
8. Define a recursive function.

9. What will be the size of the following structure variable AAA?

```
Struct Student{  
    int r_no;  
    char name[15];  
    int mark[5];  
    int total;  
}AAA;
```

10. Write the syntax of accessing a structure member through its pointer.

PART B — (5 × 13 = 65 marks)

11. (a) Evaluate the following expressions and show their order of evaluation: (13)

(i)  $x = b/2 + b^4/b - b + a/3$

where,  $a = 3.5$ ,  $b = 4$  and assume 'x' to be a float variable.

(ii)  $Y = b*a/4 - 6/2 + 2/3 * 6/c$

Where  $b = 8$ ,  $a = 4$ ,  $c = 4$  and assume 'Y' to be an integer variable.

Or

- (b) Illustrate with example the working of all the three looping statements in C. (13)
12. (a) Write a program to count the occurrences of similar elements in an array. (13)

Or

- (b) Write a program to determine whether a given matrix is Upper triangular or Lower triangular. (13)

13. (a) (i) List the possible ways to declare and initialize a string. (4)
- (ii) Write a program to replace two or more consecutive spaces in a string by a single space. (9)

Or

- (b) (i) What is the relationship between an array and a pointer? Give the syntax of accessing an array element without using array index. (5)
- (ii) Write a program to get the First Name and Last Name separately from the user, and then concatenate to get the full name without using built-in functions. (8)
14. (a) Describe the steps in creating and using a user-defined function with syntax. (13)

Or

- (b) Illustrate the different parameter passing methods in C with sample code. (13)
15. (a) Explain the steps for declaring and using nested structure with syntax. (13)

Or

- (b) Illustrate with example the method of declaring and accessing the members of an array of structure variables. (13)

PART C — (1 × 15 = 15 marks)

16. (a) Develop an application in C to perform the following functionalities: (15)
- (i) Store the details of 'n' cricket players using a suitable data structure. The details include: Name of the player, Age, Country, Specialization (Batsman / Bowler/ Wicket-keeper / All Rounder), No of matches played, No of wickets taken and Batting average.
- (ii) Display the Player details in descending order of average runs taken.

Or

- (b) Write a program to get the sales amount for 12 months of a departmental store. Using function perform the following functionalities: (15)
- (i) Find the month in which highest sales is made and print the sales amount.
- (ii) Find the month in which lowest sales is made and print the sales amount.
- (iii) Calculate the average sales in a given year.
- (iv) Calculate the total sales amount in a given year.