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Reg. No.....

Name.....

B.Sc. DEGREE (C.B.C.S.S.) EXAMINATION, MAY 2024

Fourth Semester

Core Course—PROGRAMMING IN 'C'

(For the Programme B.Sc. Electronics)

[2013–2016 Admissions]

Time : Three Hours Maximum Marks : 80

Part A

Answer **all** *questions.*
Each question carries 1 *mark.*

State whether the following statements are True or False :

1. Keywords can also be used as identifiers.
2. A string constant is delinited by using a double quotes.
3. All variables must be declared in the function in which it is used.
4. A printf() statement can contain any number of escape sequences.
5. A "switch" statement involves "true" or "false" decision.
6. Every called function must contain a "return" statement.
7. An array can be initialised by a string constant.
8. Pointers cannot be used as formal parameters in headers to function definitions.
9. The structure tag which follows the keyword "struct" is compulsory.
10. A program must explicity call the fclose () function a file.

(10 × 1 = 10)

Part B

Answer any **eight** *questions.*
Each question carries 2 *marks.*

11. Distinguish between Compiler and Interpreter.
12. What are source and object programs ?
13. Distinguish between printf () and puts () functions.
14. Write a "while" loop to count how many numbers are present which are divisible by 7 from 30 to 300.

Turn over

15. What are the two types of passing variables to a function ?
16. State the rules for using subscript variables.
17. What are the differences between call by value and call by reference ?
18. State any four differences between arrays and structures.
19. What are the parameters used in fopen () function ? Explain with an example.
20. What are the differences between the functions "malloc" and "calloc" ?
21. When does a programmer use # include directive ?
22. What is the role of a C preprocessor ?

(8 × 2 = 16)

Part C

Answer any **six** *questions.*
Each question carries 4 *marks.*

23. Write an algorithm to calculate the slope of a line segment.
24. Draw a flowchart to calculate the roots of a quadratic equation.
25. Bring out the differences between Parameter passing by value and Passing by reference, with the help of examples.
26. Write a Boolean function to check whether a number is positive or not.
27. Write a C program to read a line and find the following in the line :

    (i) no. of capital letters and (ii) no. of punctuation marks.
28. Write a C program to find the GCD (Greatest Common Divisor) of two given numbers.
29. Write a function space (x) that can be used to provide a space of x positions between two given numbers.
30. Using pointers, write a C program to read in an array of integers and print its elements in reverse order.
31. Compare local, static, global and register variables giving examples.

(6 × 4 = 24)

Part D

Answer any **two** *questions.*
Each question carries 15 *marks.*

32. Write a C program to read two arrays, merge them and to print the merged array in ascending order.

33. Write two C program to search an element in an array of N elements (i) program without using pointer ; (ii) program using pointer.

34. Write a C program to open a text file and count the number of characters in it.

35. Define a structure called STUDENT that will describe the following information :

    Student name
    roll number
    class
    subject marks (5 subjects)
    Total marks (to be computed in the program)

    Using STUDENT, declare an array Stu_list with 30 elements. Write a C program to read the information about all the 30 students and to display the information.

$(2 \times 15 = 30)$