

2025

COMPUTER SCIENCE — MINOR

Paper : MN-2

(Problem Solving using C)

Full Marks : 75

The figures in the margin indicate full marks.

*Candidates are required to give their answers in their own words
as far as practicable.*

1. Answer *any five* questions : 2×5
- (a) Differentiate between while and Do-while loop.
 - (b) Differentiate between ++k and k++.
 - (c) Define a pointer in C.
 - (d) What is the use of 'switch' statement?
 - (e) What is 'break' in C language?
 - (f) What are the header files? Give examples.
 - (g) What is 'sizeof' operator?
 - (h) What are the common modes used while opening a file in C?

Section - A

Answer *any three* questions.

2. What are the differences between a structure and an union? Illustrate with examples. 3+2
3. What is the significance of reserved words? Discuss any three in brief. 2+3
4. Write a C program that uses any entry controlled loop to display all multiples of 7 in the range 100 to 200. Also find the sum of the numbers. 5
5. What do you understand by user defined functions in C? Write a user defined function, `max ()`, that accepts two integers as arguments and returns the largest one. 2+3
6. What is a command-line argument? Illustrate with an example. 2+3

Please Turn Over

(2915)

Section - B

Answer *any five* questions from the following.

7. Discuss recursion in C. Write a program to compute the Fibonacci Sequence recursively. 4+6
8. (a) Write a C program for multiplication of two matrices using 2D arrays.
(b) Write a C program to reverse a string. 5+5
9. (a) State the purpose and cite usage with example of the string library functions, `strlen()`, `strcat()` and `strcmp()`.
(b) Define a C function `isPrime (n)` that returns 1 if `n` is prime and 0 otherwise. 6+4
10. Write a C program for array manipulation. The program should do the following :
- Input an integer array of maximum size 10.
 - Display the array such that each array element is separated by a comma (,).
 - Find the sum and average of the numbers in the array.
 - Display all the positive elements in the array.
 - Interchange the first and the last element of the array. 2+2+2+2
11. (a) Write purpose of logical OR operator in C and explain with the aid of an example.
(b) What type of control statement is switch case? Give an example of switch case having at least two cases and a default case.
(c) Explain with examples the difference between array of pointers and pointers to an array. 3+(1+2)+4
12. (a) What are characteristics of an algorithm?
(b) Write an algorithm that calculates the area and circumference of a circle.
(c) Write a C program to read a number `n` and print factors of `n`. 3+3+4
13. (a) Write a C program to open a file in read mode and then count the number of lines, words and characteres in the file.
(b) Accept an alpha-numeric string from user and count the number of capital letters using C program. 6+4
14. (a) What are bitwise operators in C?
(b) Write a program demonstrating use of bitwise operators.
(c) State two applications of bitwise operators. 3+5+2
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