24/1153

B.C.A. (First Semester)

Examination, 2024

Second Paper

(Programming Principles & Algorithm)

Time : Two Hours] *[Maximum Marks : 75*

Note : Attempt **all** sections as per directed.

Section-A

(Very Short Answer Type Questions)

Note: Attempt all the 05 (five) questions. Each question carries 02 (two) marks and the answer of each question should not exceed 50 words. 5×2=10

1. (a) Name the different primitive data types permitted by the C language. Give an example of each.

   (b) What are the different types of statements permitted in the C programming language? Name each with an example.

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(c) What is meant by the 'Divide and Conquer' Technique?

(d) What is recursion? Give an example.

(e) Explain the use of the # define statement.

Section-B

(Short Answer Type Questions)

Note : Attempt any **05 (five)** out of total 08 (Eight) questions. Each question carries 05 (five) marks and answer of each question should not exceed 100 words. 5×5=25

2. (a) Write a short note on the history of development of the C language.

   (b) Explain briefly how a programmer can create a C program and then compile it.

   (c) Explain the structure of a C program with the help of an example.

   (d) Define the following in C language with examples. Token, Comments, Identifies, Keywords.

   (e) What are header files in C language? Name a few header files.

(f) Write a program in C to compute the following:

S=1+2+3+4+5+ --------- +N

where N is an integer value which is input to the program at run time.

(g) Write a C program to generate all the prime number between 1 to 500.

(h) Write a recursive program to generate the GCD of two intergers M, N.

Section-C

(Long Answer Type Questions)

Note : Attempt any **two (02)** questions out of total 04 (four) quesions. Each question carries 20 (twenty) marks and the answer of each question should not exceed 400 words. 2×20=40

3. (a) (i) How many types of Bitwise operators does the C language support? Name each operator type with its symbol and an illustrative example.

(ii) Discuss the Assignment operators with symbol, description and an example to illustrate its working.

(b) (i) How can we define a function in C lanaguge? Write the general definition format and explain the symbols used.

(ii) Write a function in C to obtain the factorial value of an integer. Explain the local and global variables used by you and the passing of parameters.

(c) (i) What are the steps in the problem solving proces?

(ii) What is an Algorithm? What are its essential properties. Give an example of an algorithm.

(d) Write a short note on any **two** of the following:

(i) Time Complexity and Big-Oh Notation

(ii) Switch statement

(iii) Operator Precedence in C

(iv) Storage Classes