Exam. Code : 103202
Subject Code : 1009

B.A./B.Sc. 2nd Semester

COMPUTER APPLICATIONS

(Programming Using C)

Time Allowed—3 Hours]   [Maximum Marks—75

Note :— Attempt any **FIVE** questions, taking at least **ONE** from each Section. All questions carry equal marks.

SECTION—A

1. (a) What is the significance of a flow chart in Programming ? What are the basic flowcharting symbols ? What function does each represent ? Draw a flowchart to read a natural number N and print all its divisors.

   (b) What is an algorithm ? Develop an algorithm to compute the sum of the digits of any given natural number.   7,8

2. (a) State and explain three types of errors that could be found in a 'C' program.

   (b) Explain, in brief, the structure of a 'C' program. Name and discuss different categories of variables and constants in 'C' language.   7,8

SECTION—B

3. (a) What is an Operator ? Explain the arithmetic, relational, logical, and assignment operators in 'C' language.

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    (b) Name and explain various console I/O functions in 'C' with examples.   7,8

4.   Explain 'switch' statement in 'C' with its syntax, purpose and example. Also, state one similarity and one difference between *while* and *do-while* loop in 'C'. Explain the utility of *break* and *continue* statements in these two loops.   15

SECTION—C

5.   What is an array ? Explain the declaration and initialization of one and two dimensional arrays with example. Write a 'C' program using an array to compute the sum and average of 'N' numbers entered by the user.   15

6.   What is a user-defined function in 'C' ? What is its importance in 'C' language ? Write a function in 'C' to check whether a given number is a prime number or not.   15

SECTION—D

7.   (a) What is a pointer variable in 'C' ? How can you access the elements of one-dimensional and two-dimensional array using a pointer variable ? Explain with an example.

    (b) Compare and contrast the struct and the union as it is defined in C. Explain the difference between the "->" and "." symbols as used to access members of structures.   7,8

8.   What is meant by a storage class in 'C' ? Explain the utility of auto, register, static and extern storage class specifiers with suitable examples.   15