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BT-2/M-23 42035

PROGRAMMING FOR PROBLEM SOLVING

ES-105A

Time : Three Hours] [Maximum Marks : 75

Note : Attempt *Five* questions in all, selecting at least *one* question from each Unit. All questions carry equal marks.

Unit I

1. (a) What is an Algorithm ? Write an algorithm to check whether a person is eligible for a vote or note. 5

   (b) Draw a flowchart of the factorial of numbers. 5

   (c) Discuss block diagram of a computer system. 5

2. (a) Convert the following : 10

   (i) $(8FDA.2C)_{16} = (?)_8$

   (ii) $(65327.472)_8 = (?)_{10}$.

   (b) Differentiate between compiler and interpreter. 5

Unit II

3. (a) Explain the different types of operators in C. 7

   (b) What are storage classes ? How many types of storage classes are used in C ? Explain them. 8

4. (a) Write a C program to print area of circle. 5

(b) Write a C program to check number is even or odd. 5

(c) Write a C program to swap two number without third variable. 5

Unit III

5. (a) Define 2-dimensional array. How are these arrays represented in memory ? Write a C program to print the transpose of a given 2-dimensional array. 8

(b) Differentiate between formal and actual parameters with example. 7

6. (a) What is function ? Write short note on built-in function. Write a C program to print factorial of number. 8

(b) What are parameter passing techniques ? Explain with example. 7

Unit IV

7. (a) What do you understand by dynamic memory allocation ? Differentiate between malloc and calloc. 7

(b) Define Pointers. Why are they important ? Write a C program using pointers to read an array of integers. 8

8. (a) Differentiate between union and structure. Write a C program to implement unions. 8

(b) Write a program that counts the number of characters and number of lines in a text file. 7