BT-2/M-20   **32035**

PROGRAMMING FOR PROBLEM SOLVING

Paper : 2 (two) (ES-105A)

Time : Three Hours]   [Maximum Marks : 75

Note : Attempt *five* questions in all by selecting at least *one* question from each unit. All questions carry equal marks.

UNIT–I

1. (a) Define input and output devices. Explain following input devices in brief :

     (i) Keyboard.

     (ii) Mouse.   5

   (b) Differentiate following :

     (i) Impact and non-impact printers.

     (ii) Primary and secondary memory.   (2×5=10)

2. (a) Explain following languages with their advantages and limitations :

     (i) Machine language.

     (ii) Assembly language.   (2×3½=7)

   (b) Perform following conversion :

     (i) $(EF.2C)_{16} = (?)_2$.

     (ii) $(36.05)_8 = (?)_{10}$.   (2×2=4)

(c) Using 2's complement method, perform following operations:

   (i) $(1001)_2 + (0100)_2 = (?)$.

   (ii) $(-23)_{10} + (45)_{10} = (?)$.   (2×2=4)

UNIT–II

3. (a) What are the features of using C-language ? Explain them in detail.

   (b) How many storage classes does the C-language support ? Why do we need different types of such classes ?

   (c) Define unformatted input/output functions which are used in C language. Also give example to explain these functions.   (3×5=15)

4. (a) What is the importance of switch case statement ? In which situations is a switch case statement desirable ? Also write its limitations. Write a program to print the days of a week by using switch statement.   8

   (b) What is difference between a while loop and do-while loop ? Write their general syntax. Also write a program using array declaration to generate first N terms of Fibonacci series.   7

UNIT–III

5. (a) Define an array. What type and range must an array subscript have ? Can an array index be negative ? Write a program in C-language to sort the number stored in an array in descending order.   9

32035//KD/1214   2

(b) Define strings. Write a program in C-language that accept two given string at runtime and append the first 10 characters of first string at the end of second string.

6

6. (a) Differentiate following with example:

   (i) Local and global variables.

   (ii) Formal and actual parameters.

   (iii) Static and register variables. (3×3=9)

(b) Define built-in and user-defined functions. How they differ from each other ? Also write a program in C language using user-defined function to compute the sum of digits of a given integer number. 6

UNIT–IV

7. (a) What is an array of pointers. How is it declared ? Which arithmetic operations are possible with pointers ?

(b) Explain the features of pointers.

(c) What is difference between call by value and call by reference ? Explain the call by reference by giving an example. (3×5=15)

8. (a) Define structure. How it differ from an array ? Write a program that takes book id, author name, publisher name and price for a book as input and print the same information as output. 8

(b) Define data files. Enlist the different file access modes that are available in C programming language. 4

(c) What is the purpose of fopen() and fclose() function ? Is it mandatory to use this in a program that process a data file ? 3

———————