

Roll No. ....

Total Pages : 4

**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)  $(-23)_{10} + (45)_{10} = (?)$ .  $(2 \times 2 = 4)$

## **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.  $(3 \times 5 = 15)$
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

- (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
-