141865

2E3207

Roll No. _____ [Total No. of Pages : 2

2E3207

B.Tech. II-Sem. (Main/Back) Examination, May/June - 2025

2FY3-06 Programming for Problem Solving

Time : 3 Hours **Maximum Marks : 70**

Instructions to Candidates:

Attempt All Ten questions from Part A, Five questions out of seven questions from Part B and Three questions out of five questions from Part C.

Schematic diagrams must be shown wherever necessary. Any data you feel missing suitably be assumed and stated clearly. Units of quantities used/calculated must be stated clearly.

Use of following supporting material is permitted during examination. (Mentioned in form No. 205).

PART - A

(Answers should be given up to 25 words only)

All questions are compulsory. **(10×2=20)**

1. Give two examples of primary memory devices.
2. Why are high-level languages considered easier to use than low-level languages?
3. What is a flowchart in the context of algorithm representation?
4. Perform binary subtraction using 2's complement: 1010-0101.
5. Find the (r-1)'s complement of the binary number 100110.
6. List any four basic data types used in C.
7. Differentiate between *while* and *do-while* loops in C.
8. What is a function in C and why is it used?
9. How is a pointer different from a regular variable?
10. How do you open and read a file in C?

PART - B

(Analytical / Problem Solving Questions)

Attempt any Five questions. **(5×4=20)**

1. Classify the following devices as Primary and Secondary storage: RAM, Hard Disk, SSD, Cache, ROM. Explain your classification.

2. Explain how the ASCII representation is used to store alphabets in memory. Give binary for the character 'A'.
3. You are given a number in radix 4: 1321_4. Convert it to decimal and then to binary.
4. Write a C program using a for loop to print the first 10 Fibonacci numbers.
5. Write a function that takes an array and its size as arguments and returns the maximum value using pointers.
6. Given a number, check if it is a palindrome using functions and logical operations.
7. Write a C program to count the number of vowels in a given string using a switch statement.

PART - C

(Descriptive / Analytical / Problem Solving / Design Questions)

Attempt any Three questions. **(3×10=30)**

1. Why is RAM considered volatile memory while ROM is non-volatile? What implications does this have for computer performance and functionality?
2. Design a simple algorithm (in pseudo code or flowchart) for an ATM system that allows withdrawal, deposit, and balance inquiry.
3. Compare and contrast the number systems with radix 2, 8, 10, and 16 in terms of ease of use, conversion, and storage efficiency.
4. Write a C program to input 10 integers into an array and count how many are positive, negative, and zero.
5. Develop a C program that reads data from one file and writes only the vowels into another file.