1E3106

Roll No. _____ Total No. of Pages: 3

1E3106

B. Tech. I - Sem. (Main / Back) Exam., - 2023

1FY3 – 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 from Part C.

Schematic diagrams must be shown wherever necessary. Any data you feel missing may 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)

1. NIL 2. NIL

PART – A

[10×2=20]

(Answer should be given up to 25 words only)

All questions are compulsory

Q.1 Explain single and multiline comments in C.

Q.2 Describe any four preprocessor directives in C.

Q.3 Describe various symbols used in flow chart.

Q.4 Why keywords cannot be used as identifiers in C?

Q.5 Write the importance of using functions in C.

Q.6 Write pseudo code for checking whether the entered number is even or odd.

Q.7 Differentiate break and continue statements with example.

Q.8 Describe various modes of opening a file in C.

Q.9 How does do-while statement differ from while statement?

Q.10 Explain relational operators with example.

[5×4=20]

PART – B

(Analytical/Problem solving questions)

Attempt any five questions

Q.1 Find r's complement of following numbers where r is radix(base) of these numbers –

(i) $(CAFE27)_{16}$

(ii) $(246700)_{10}$

(iii) $(1101100)_2$

(iv) $(320)_8$

Q.2 Write a C program to swap two numbers without using third variable.

Q.3 Give differences between primary and secondary memory in tabular form.

Q.4 Convert the following -

(i) $(1998)_{10} = (?)_2$

(ii) $(11011)_2 = (?)_{10}$

(iii) $(921)_{10} = (?)_8$

(iv) $(654)_8 = (?)_{10}$

Q.5 Explain Von Neumann architecture in detail.

Q.6 Write a C program to find smallest element in an array.

Q.7 Explain the importance of pointers with respect to dynamic memory allocation.

[3×10=30]

PART – C

(Descriptive/Analytical/Problem Solving/Design Questions)

Attempt any three questions

Q.1 Write a C program to count number of characters in a text file using file handling.

Q.2 Write a C program to print patterns -

```
1  2  3  4  5
6  7  8  9
10 11 12
13 14
15
```

Use for / while loop.

Q.3 How does recursion work? Explain with the help of example. Write advantages and disadvantages of using recursion.

Q.4 Explain call by value and call by reference with help of example of each.

Q.5 Write a C program which store information of 10 students in a structure using loop. For each student, structure maintain roll no., name of student, admission year, category.

After storing the information, also display the information for all students.
