OLE-3012

B. Tech. 1st Semester (Common for All Branches Except CSE, ECE, IT, CS & IT and EEE) Examination – April, 2021

PROGRAMMING FOR PROBLEM SOLVING

Paper : ESC-CSE-102-G

Time : Three Hours]　　　　　*[Maximum Marks : 75*

Before answering the questions, candidates should ensure that they have been supplied the correct and complete question paper. No complaint in this regard, will be entertained after examination.

Note : Attempt *five* question in all, selecting *one* question from each Section. Question No. **1** is *compulsory*.

1. Answer the following Questions :　　　　$2.5 \times 6 = 15$

　(a) What is number system ? Write example of Hexadecimal conversion in all other number system.

(b) Explain Decision table and pseudocode problem solving techniques.

(c) What are data types in C ?

(d) What are syntax and logical errors give example ?

(e) What is operator precedence in c ? Give example.

(f) Explain symbols used in flowchart.

SECTION – A

2. Perform following operations : $3 \times 5 = 15$

(i) $(89)_{10} = (?)_2 = (?)_8$

(ii) $(0.1101)_2 = (?)_{10}$

(iii) $(1110101)_2 + (1011111)_2$

(iv) $(1110111.11011)_2 = (?)_8 = (?)_{16}$

(v) $(11011)_2 + (10100)_2 = (?)_2$

3. What is computer system ? Explain basic functional units of computer with diagram. Also differentiate between system software and application software. 15

SECTION – B

4. What is algorithm ? How these are helpful to solve numerical problems ? Write an algorithm to find factorial of a number.   15

5. Explain :   15

    (a) Header files

    (b) Keywords & Identifiers

    (c) Input & Output functions & statements

SECTION – C

6. (a) What are conditional statements ? Write a program to read a year and determine if it is a leap year or not using conditional statements.   10

    (b) Explain looping constructs. Differentiate between Do_ While and While_Do loop.   5

7. (a) Write a program to check a no. is perfect or not.   8

    (b) What is unconditional branching ? Explain with example. Also differentiate between Break and Exit statement.   7

SECTION – D

8. (a) Define Array. How it is declared and initialized ? Write a program to transpose a matrix. **8**

(b) What are character array ? Write a program to join two stings and also count the length of the joined string. **7**

9. (a) What are functions ? Write advantages of using functions. Differentiate between call by value and call by reference with example. **8**

(b) What are recursive functions ? Write program to generate Fibonacci series. **7**

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