BACHELOR OF COMPUTER APPLICATIONS (CBCS - 2018 COURSE)
B.C.A. Sem-I :SUMMER- 2022
SUBJECT : ALGORITHM & PROGRAM DESIGN

Day : Wednesday

Date : 8/6/2022

S-18752-2022

Time : 02:00 PM-05:00 PM

Max. Marks : 60

N.B.:
1) Q4 from Section I is COMPULSORY.
2) Answer ANY TWO questions from Q 1, 2, 3 in Section I.
3) Answer ANY TWO questions from Q 5, 6, 7 in Section II.
4) All question CARRY EQUAL marks.
5) Answers to Both the sections should be written in SAME answer book.
6) Draw a labeled diagram WHEREVER necessary.

SECTION - I

Q.1) Answer the following: (6 Marks X 2 = 12)
   a) Write an Algorithm to find the product of 5 numbers and trace it.
   b) What are the basic Principles of Structured Programming?

Q.2) Answer the following: (6 Marks X 2 = 12)
   a) Design an algorithm for given set of n students examination marks (in the range 0 to 100) make a count of the number of students that passed the examination. A pass is awarded for all the marks of 50 and above.
   b) What is Fibonacci series explain and design an algorithm to find nth term of the series?

Q.3) Explain the following: (6 Marks X 2 = 12)
   a) Write an algorithm to find smallest number from the list of 10 numbers.
   b) Write an algorithm to find prime factor of a number.

Q.4) Write short notes on the following: Attempt ANY THREE (4 Marks X 3 = 12)
   a) Algorithm
   b) Sequencing in control structures
   c) Factorial.
   d) Find the smallest between three given numbers
   e) Selection sort.

SECTION - II

Q.5) Answer the following: (6 Marks X 2 = 12)
   a) Draw a flowchart to find greatest between three numbers.
   b) What is loop? Explain different types of loops.

Q.6) Answer the following: (6 Marks X 2 = 12)
   a) Design an algorithm to generate the first n terms of the sequence
      1 -1 1 -1 1 -1 . . . .
   b) Write an algorithm to evaluate the polynomial equation formula is $3x^2+5x+2=0$.

Q.7) Explain the following: (6 Marks X 2 = 12)
   a) Design an algorithm to convert decimal number $(25)_{10}$ to binary number.
   b) Describe an algorithm to sort an array in descending order using insertion sort.

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