

**CDOE**  
**BACHELOR OF COMPUTER APPLICATIONS (CBCS-2019 COURSE)**  
**B.C.A. SEM-I : WINTER :- 2021**  
**SUBJECT: ALGORITHM & PROGRAM DESIGN**

**Day : Tuesday**  
**Date 8/2/2022**

**W-21510-2021**

**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) What is an Algorithm? Explain different types of algorithms.
- b) What do you mean by Structured programming? Explain.

Q.2) Answer the following: (6 Marks X 2 = 12)

- a) Design an algorithm that reads a list of numbers and makes a count of the number of negatives and the number of non-negatives members of set.
- b) What do you mean by a polynomial, evaluate and design an algorithm for any polynomial?

Q.3) Explain the following: (6 Marks X 2 = 12)

- a) Write an algorithm to convert a number from binary to decimal.
- b) Design an algorithm to find the maximum in a set and the position  
Where it first occurs.  
Where it last occurs.

Q.4) Write short notes on the following: Attempt ANY THREE (4 Marks X 3 = 12)

- a) Flowchart.
- b) Selection statements.
- c) Differentiate between two algorithms used for swapping of two numbers.
- d) Base conversion.
- e) Array.

**SECTION - II**

Q.5) Answer the following: (6 Marks X 2 = 12)

- a) Write an algorithm to find the area of a Circle of radius r.
- b) What are the benefits of Structured programming?

Q.6) Answer the following: (6 Marks X 2 = 12)

- a) Analyze and design an algorithm to compute the average of n numbers in such a way that it only needs to perform n-1 additions to sum n numbers.
- b) Write an algorithm to check 45 is prime number or not and explain.

Q.7) Explain the following: (6 Marks X 2 = 12)

- a) Write an algorithm to find second largest number from the list of 34,24,56,89,12,45,76.
- b) Develop an algorithm for merging two arrays of integer s, both with their elements in ascending order, into a single ordered array.

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