Total No. of Questions : **11**] [Total No. of Printed Pages : **3**

SP–696

M.Sc. (Final) Examination, 2021

COMPUTER SCIENCE

Paper - MCS-202

(Data Structure)

Time : 1½ Hours] [*Maximum Marks : 50*

Section–A **(Marks : 2 × 10 = 20)**

Note :– Answer all *ten* questions (Answer limit **50** words). Each question carries **2** marks.

(खण्ड–अ) **(अंक : 2 × 10 = 20)**

नोट :– सभी **दस** प्रश्नों के उत्तर दीजिए (उत्तर-सीमा **50** शब्द)। प्रत्येक प्रश्न **2** अंक का है।

Section–B **(Marks : 3 × 5 = 15)**

Note :– Answer all *five* questions. Each question has internal choice (Answer limit **200** words). Each question carries **3** marks.

(खण्ड–ब) **(अंक : 3 × 5 = 15)**

नोट :– सभी **पाँच** प्रश्नों के उत्तर दीजिए। प्रत्येक प्रश्न में विकल्प का चयन कीजिए (उत्तर-सीमा **200** शब्द)। प्रत्येक प्रश्न **3** अंक का है।

Section–C **(Marks : 5 × 3 = 15)**

Note :– Answer any *three* questions out of five (Answer limit **500** words). Each question carries **5** marks.

(खण्ड–स) **(अंक : 5 × 3 = 15)**

नोट :– पाँच में से किन्हीं **तीन** प्रश्नों के उत्तर दीजिए (उत्तर-सीमा **500** शब्द)। प्रत्येक प्रश्न **5** अंक का है।

Section–A

2 eac

1. (i) What is Algorithm ?

   (ii) What is Linear Linked List ?

   (iii) What is the concept of Recursion ?

   (iv) What is D-queue ?

   (v) What is the difference between Linear search and Binary search ?

   (vi) What is Radix sort ?

   (vii) What is the difference between Array and Linked List ?

   (viii) What do you understand by Tree Traversing ?

   (ix) What are the basic terminologies of Graph ?

   (x) Why is Breadth First search faster than Depth First Search ?

Section–B

3 eac

2. Explain Time and Space Complexity of Algorithm.

Or

What are the applications of Linked List ?

3. Explain all primitive operations of queue.

Or

What is the concept of circular queue ? Explain with example.

4. What is the difference between Insertion sort and Selection sort ? Analyze its time complexity.

Or

What is Binary Search Algorithm ? Explain with example.

5. What are the properties of AVL tree ? Explain.

Or

How do you represent a tree using an Array ?

6. Explain the difference between Directed and Undirected Graph.

Or

Explain weighted graph with example.

5 each

Section–C

Note :– Answer any *three* questions.

7. What are the basic operations of linked list ? Explain with example.

8. Explain linked representation of stack with example.

9. Explain shell sort with example.

10. Write an example of Inorder, Preorder and Post order Tree Traversal.

11. How do you Traverse a BFS Graph ? Explain with example.