

11. Explain travelling salesman assignment problem with the help of suitable example.
12. Describe the algorithm to find out the single source shortest path of a given graph in detail with suitable example.
13. Write short notes on the following :
- (a) Priority Queue
 - (b) Threaded binary tree

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**MSCCS-07/MSCCS-201/
MCA-201**

June – Examination 2020

**MSCCS (Final)/MCA (IInd Year)
Examination**

Data Structure and Algorithm

Paper : MSCCS-07/MSCCS-201/MCA-201

Time : 3 Hours]

[Maximum Marks : 80

Note :- The question paper is divided into three Sections A, B and C. Write answers as per the given instructions.

Section–A

8×2=16

(Very Short Answer Type Questions)

Note :- Answer all questions. As per the nature of the question delimit your answer in one word, one sentence or maximum upto **30** words. Each question carries 2 marks.

1. (i) What is Tree ? Give an example.
- (ii) What do you mean by NP-Complete problem ?
- (iii) List any *two* applications of QUEUE.
- (iv) Give an example of B+ tree.
- (v) State Cook Levin theorem.
- (vi) Give an example of three-dimensional array.
- (vii) List any *two* advantages of linked list over array.
- (viii) What is Minimum Spanning Tree ? Give an example.

Section–B

4×8=32

(Short Answer Type Questions)

Note :- Answer any *four* questions. Answer should not exceed **200** words. Each question carries 8 marks.

2. What is an Array ? Write an algorithm to print the even numbers in an array containing 15 elements of integers.

3. Explain Linear search with the help of suitable example.
4. What is planar graph ? How you test the planarity of a given graph ? Explain with suitable example.
5. Write a short note on the Divide and Conquer strategy.
6. Write an algorithm to add two matrices. Also explain with suitable example.
7. What is Asymptotic notation ? Explain in brief.
8. What is the Linked List ? Explain the process of deletion in linked list.
9. What is Stack ? Describe various operations on stack with suitable example.

Section–C

2×16=32

(Long Answer Type Questions)

Note :- Answer any *two* questions. You have to delimit your each answer maximum upto **500** words. Each question carries 16 marks.

10. What is Quick Sort ? Explain the worst case of Quick Sort in detail with suitable example.