School of Computer Science and Engineering

Winter Semester 2022-2023

Continuous Assessment Test – 1

SLOT: A1+TA1

Programme Name &Branch : General (semester)

Course Name & code: Design and Analysis of Algorithms (DAA) **& BCSE204L**

Class Number (s): VL2022230505065, VL2022230505066

Faculty Name (s): RAJESH A, Dr. POORNIMA N

Exam Duration: 90 Min.   **Maximum Marks: 50**

General instruction(s):

Specify if any printed material may be permitted

Any other specific instruction

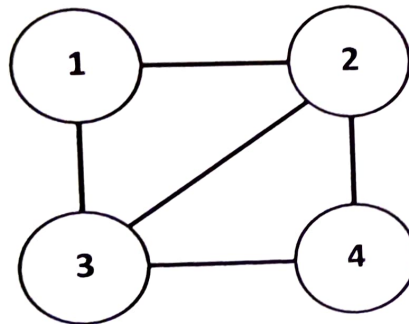| Q.No.	Question	Max Marks
1.	a) Derive the worst case time complexity of Merge Sort (5 Marks) b) Give the proof correctness for Quick sort algorithm (5 Marks)	10
2.	Develop the Huffman codes for data given below when transmitted from transmitter to receiver A B R A C A D A B R A (10 Marks)	10
3.	Explain the efficiency of Karatsuba time complexity over naive multiplication. Perform multiplication of 1234 * 4321 using Karatsuba multiplication algorithm. (10 Marks)	10
4.	A car factory having two assembly lines having costs (entry and exit costs, cost at each station and transfer cost from one line to other) as shown in figure below. Calculate the fastest time to get through the entire factory and trace the path a car should take for fastest production	10
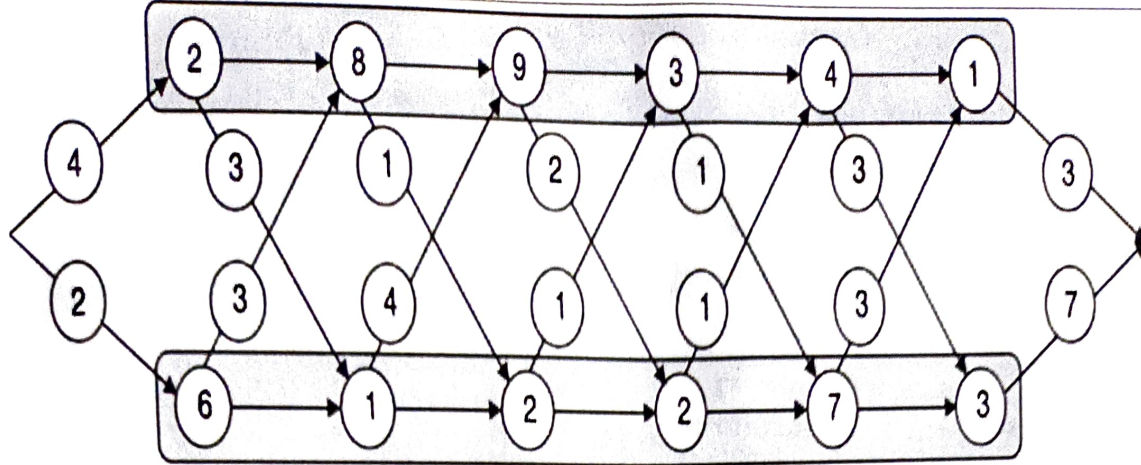
5. Enumerate the possible solutions for colouring the vertices in the below graph using three colours (RGB) using backtracking approach | 10

$M = 2 \{R, G, B\}$

(10 Marks)