Seat No.

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MAR_APR 2026 SUMMER EXAMINATION

1154 B.Tech. CBCS

Sub. Name: Computer Algorithms

Sub. Code: 66296/80797/81036

Day and Date: Monday ,18-05-2026 **Total Marks: 70**

Time: 02:30 PM To 05:00 PM

Instructions:
1. **All questions are compulsory**
2. **Assume suitable data wherever necessary and mention it boldly**
3. **Draw neat labelled diagrams wherever necessary**

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Q1) Solve Any two (Each question Carry 7 Marks) **[14]**

a. What is an algorithm, Explain different criteria's needed for the algorithm to satisfy. **[7]**

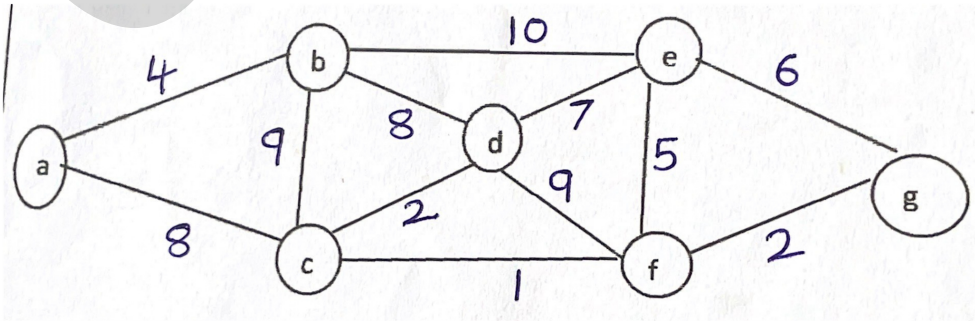
b. Explain Quick Sort Algorithm. Show that its complexity is O (n2) for worst case. **[7]**

c. What is time & space complexity? Explain with example. **[7]**

Q2) Solve Any two (Each question Carry 7 Marks)

a. Solve the knapsack problem n=4, m = 30 (capacity of knapsack) **[7]**
Profits (p1, p2, p3, p4) = (27, 20, 24, 15)
Weights (w1, w2, w3, w4) = (15, 10, 18, 10)

b. Apply Prim's and Kruskal's algorithm to find minimum spanning tree for following graph. (Show step wise all the formations) **[7]**

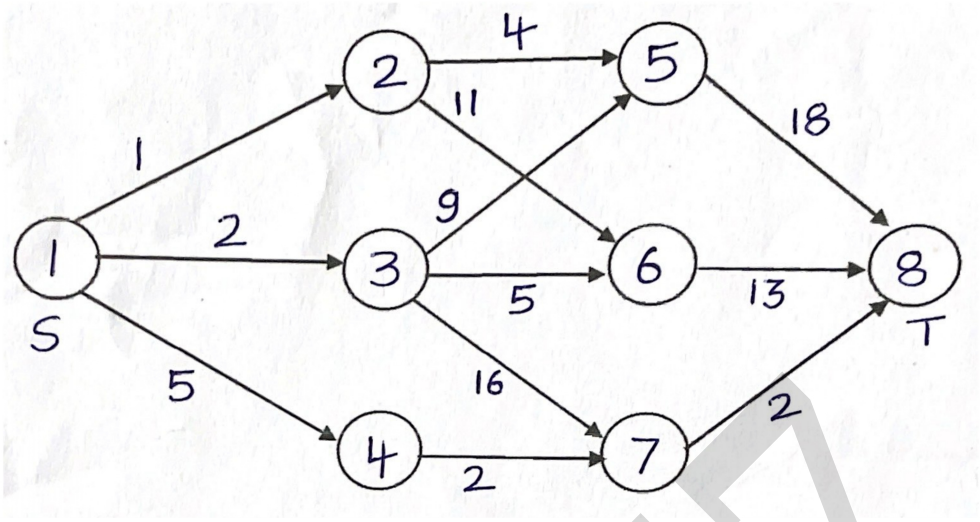


c. Find an optimal placement of 13 programs on three tapes T0, T1, T2 where the programs are of length (12,5,8,32,7,5,18,26,4,3,11,10,6) **[7]**

Q3) Solve Any two (Each question Carry 7 Marks)

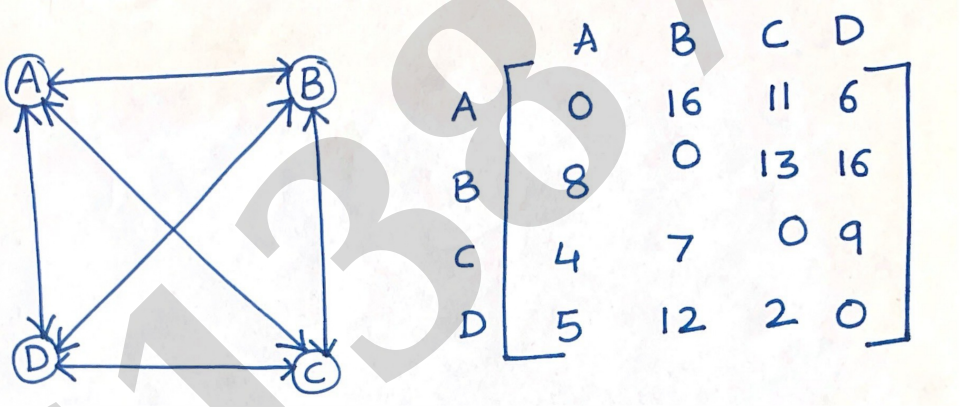
a. Solve the following instance of multistage graph problem using forward **[7]**

approach.



b. Explain dynamic programming solution to 0/1 knapsack problem. **[7]**

c. Solve the instance of "Travelling sales person problem " to find tour of min cost. **[7]**



Q4) Solve Any two (Each question Carry 7 Marks) **[14]**

a. Write a note on any two: **[7]**
a. AND / OR graph
b. Game tree
c. techniques for binary tree traversal
d. Rearrangement

b. Discuss Algorithm and conditions of 8 Queens problem. **[7]**

c. List and explain NP-Hard graph problems. **[7]**

Q5) Solve Any two (Each question Carry 7 Marks) **[14]**

a. Define and Explain Non-Deterministic algorithms. **[7]**

b. List and explain Variants of PRAM. **[7]**

c. Explain how MESH computational model works. **[7]**

End Of Question Paper

Important Note for Chief Exam Officer / SRPD Coordinator / Sr Supervisor/ Student -
This Question Paper may be distributed for following Subjects as common code.
सदरची प्रश्नपत्रिका खालील विषयांकरिता वितरित करता येईल.

1] (101) Bachelor of Engineering (81036) Computer Algorithms Part 3 SEM 5
2] (101) Bachelor of Engineering (66296) Computer Algorithms Part 3 SEM 5
3] (1154) B.Tech. CBCS (80797) Computer Algorithms Part 3 SEM 5

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