

No. of Printed Pages : 2 **MMTE-001(P)(Set-I)**

**M. SC. (MATHEMATICS WITH
APPLICATIONS IN COMPUTER
SCIENCE) [M. Sc. (MACS)]**

Term-End Practical Examination

December, 2024

MMTE-001(P)(Set-I) : GRAPH THEORY

Time : $1\frac{1}{2}$ Hours

Maximum Marks : 40

Note : (i) *There are two questions in this paper, totalling 30 marks. Answer both questions.*

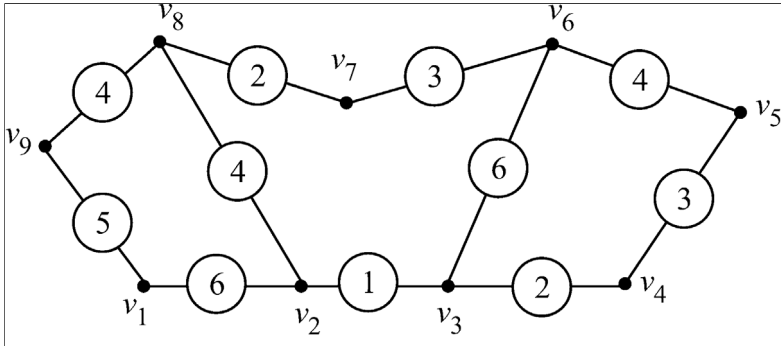
(ii) *Remaining 10 marks are for viva-voce.*

(iii) *All the programs are to be written in C language.*

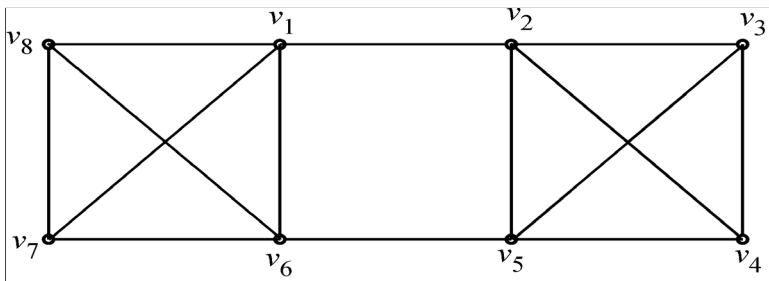
1. Using Dijkstra's algorithm, write a program to find the distances from a root vertex to all the vertices in a connected weighted graph. Run

[2]

your program for the following graph, taking v_1
as the root vertex : 15



2. Write a program that uses BFS algorithm to find a rooted spanning tree in a given connected graph. Run your program on the following graph, taking v_1 as the root vertex : 15



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