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MMTE-001(P)

M. Sc. (Mathematics with Applications in Computer Science) M. Sc. (MACS)

Term-End Examination

December, 2018

GRAPH THEORY (PRACTICAL)

Time : $1\frac{1}{2}$ Hours *Maximum Marks : 40*

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

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

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1. (a) Write a program that prints the adjacency list of a graph, given a sequence of edges as input.

   (b) Use the program to find the adjacency matrix for a graph with the following edge set :

   {(1, 2), (2, 3), (4, 5), (5, 6), (6, 1), (2, 4), (3, 4), (1, 5)}

   Assume that the vertices are labelled as 1, 2, 3, 4, 5, 6. 15

2. (a) Write a program that uses Kruskal's algorithm to find the minimum spanning tree for a weighted connected graph.

   (b) Use the program to find a minimum spanning tree for the connected graph given below : 15