

PGDM/ PGDMIB  
DM 543 / IB 519  
Multi Criteria Decision Making

Trimester –V, End-Term Examination: December 2019

Time allowed: 2 Hours  
Max Marks: 50

Roll No: \_\_\_\_\_

**Instruction:** Students are required to write models, process, results and interpretations in answer booklet. They are also advised to submit soft copy to the invigilators.  
**Attempt any two from Section A and each question carries 15 marks. Question number 4 from Section B is compulsory with 20 marks**

**Section A**

Based on Data1.xls, answer question 1 to 4 (CILO 1 and 2)

1. Develop the Pairwise Comparison matrix and find the weight using Eigen Vector method.
2. Write the LP Model for phase 1 to minimize the error for the matrix developed in question 1.
3. Solve the model developed in question 2.

**Section B**

4. Solve the following problem using Goal Programming approach (CILO-3)  
The campaign headquarters of X, a candidate for the Board of Supervisors, has 100 volunteers. With one week to go in the election, there are three major strategies are remaining: media advertising, door-to-door canvassing, and telephone campaigning. It is estimated that each phone call will take approximately four minutes, each door-to-door personal contact will average seven minutes. These times include time between contacts for breaks, transportation, dialing et. Volunteers who work on one will not be able to handle any other duties. Each ad will utilize the talents of three workers for the entire week. Volunteers are expected to work 12 hours per day during the final seven days of the campaign. At a minimum, X feels he needs 30000 phone contacts, 20000 personal contacts and three advertisements during the last week. However, he would like to see 50000 phone contacts, 50000 personal contacts made, and five advertisements developed. It is felt that advertising is 50 times as important as personal contacts which in turn is twice as important as phone contacts.

Formulate this problem as a goal program with a single weighted priority to determine how the work should be distributed during the final week of the campaign?