2054
M.E. (Information Technology)
Second Semester
MEIT-2108: Social Network Analysis

Time allowed: 3 Hours

Max. Marks: 50

**NOTE:** *Attempt five questions in all, including Question No. I which is compulsory and selecting two questions from each Unit.*

x-x-x

I.  Explain the following terms:-

    a) Ego networks

    b) Community

    c) Clustering

    d) Modularity

    e) Density                                   (5x2)

## UNIT - I

II.  Explain the K-means clustering algorithm and apply it to the following dataset for two clusters. Tabulate all the assignments.     (10)

| Sample No | X | Y |
|-----------|-----|----|
| 1 | 185 | 72 |
| 2 | 170 | 56 |
| 3 | 168 | 60 |
| 4 | 179 | 68 |
| 5 | 182 | 72 |
| 6 | 188 | 77 |

III.  What is the significance of various centrality measures? Differentiate between closeness, betweenness and eigenvector centrality.     (10)

IV.  Define modularity in context of social networks analysis. Explain with example different methods to measure modularity.     (10)

P.T.O.

## UNIT - II

V.   a) Why is hypothesis testing important in data science?

b) What are the various applications of time series forecasting?           (5, 5)

VI.   What are the objectives of data collection? Explain the various methods used for data collection.                                                                (10)

VII.   Define communities. What are the various linguistics used in online communities? (10)

*x-x-x*