## VII SEMESTER BTECH. (INFORMATION TECHNOLOGY/COMPUTER AND COMMUNICATION ENGINEERING) END SEMESTER EXAMINATIONS, DECEMBER 2021 – JANUARY 2022 SUBJECT: PE VI: SOCIAL NETWORK ANALYSIS [ICT 4054] REVISED CREDIT SYSTEM (20/12/2021)

### Part-A

#### TIME: 65+10 Minutes

#### MAX. MARKS: 20

# Instructions to candidates

- Answer **ALL** questions.
- Missing data, if any, may be suitably assumed.

Q. No.	Questions	<b>M</b> *
1A.	Determine the importance of all the edges by considering A, C, and D as the starting node by applying the Girvan Newman algorithm for the network depicted in Fig.Q.1A. Show the detailed steps.	5
1B.	Consider the social network represented in Fig.Q.1B. Suppose that this social network was obtained by observing a group of people at a particular point in time and recording all their friendship relations. Now suppose that we come back at some point in the future and observe it again. According to the theories based on empirical studies of triadic closure in networks, which new edge is most likely to be present? Which pair of nodes, who do not currently have an edge connecting them, are most likely to be linked by an edge when we return to take the second observation? Give a brief explanation for your answer.	3





