

**DR. BABASAHEB AMBEDKAR TECHNOLOGICAL UNIVERSITY, LONERE**

**Regular End Semester Examination – Summer 2022**

**Course: B. Tech.**

**Branch : Computer**

**Semester : VIII**

**Subject Code & Name: BTCOE801B - Social Networks**

**Max Marks: 60**

**Date:04/07/2022**

**Duration: 3.45 Hr.**

**Instructions to the Students:**

1. All the questions are compulsory.
2. The level of question/expected answer as per OBE or the Course Outcome (CO) on which the question is based is mentioned in ( ) in front of the question.
3. Use of non-programmable scientific calculators is allowed.
4. Assume suitable data wherever necessary and mention it clearly.

Marks

**Q.1 Solve Any Two of the following.**

- |  |   |
|--|---|
| A) Explain Collaboration Graph and Who-talks-to-Whom Graphs.   | 6 |
| B) What do you mean by Technological Networks also Explain which Networks are present in the Natural World | 6 |
| C) Define Graphs, Nodes and Edges. Also Explain Graphs as Models of Networks                               | 6 |

**Q.2 Solve Any Two of the following.**

- |  |   |
|--|---|
| A) What is Triadic Closure? What are the Reasons for Triadic Closure?            | 6 |
| B) Explain Structural Balance and how to define Structural Balance for Networks? | 6 |
| C) What do you mean by Bridges and Local Bridges?                                | 6 |

**Q.3 Solve Any Two of the following.**

- |  |   |
|--|---|
| A) Explain Page Rank .What is Equilibrium value of page rank.        | 6 |
| B) Explain Spectral Analysis of Hubs and Authorities                 | 6 |
| C) What are Cascades and Clusters .Explain Relationship between them | 6 |

**Q.4 Solve Any Two of the following.**

- |   |   |
|---|---|
| A) How does the branching process works | 6 |
| B) Explain SIR Epidemic model           | 6 |
| C) Explain Rich-Get -Richer Model       | 6 |

**Q.5 Solve Any Two of the following.**

- |   |   |
|---|---|
| A) Explain The Watts-Strogatz model                                     | 6 |
| B) What is decentralized Search. Explain Model of Decentralized Search. | 6 |
| C) The core-periphery structure of social networks                      | 6 |

**\*\*\* End \*\*\***