| Reg. No. | | | | | | | | | | | | | | | | |
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| Question Paper Code | 14070 |
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**M.E. / M.Tech - DEGREE EXAMINATIONS, NOV / DEC 2025**

Third Semester

**M.E. - Big Data Analytics**

**24PBDEL311 - SOCIAL NETWORK ANALYSIS**

Regulations - 2024

Duration: 3 Hours | Max. Marks: 100

**PART - A (MCQ) (10 × 1 = 10 Marks)**

Answer ALL Questions

| | | Marks | K – Level | CO |
|---|---|---|---|---|
| 1. | Web-based networks represent:<br>(a) Digital social interactions mapped through web platforms<br>(b) Offline social gatherings<br>(c) File storage<br>(d) Local area networks | 1 | K1 | CO1 |
| 2. | Network Analysis studies:<br>(a) Only web traffic (b) Relationships between entities (nodes)<br>(c) Database performance (d) Data compression | 1 | K1 | CO1 |
| 3. | Node-Link diagrams represent:<br>(a) Relationships between entities visually (b) File systems<br>(c) Web servers (d) Software architecture | 1 | K1 | CO2 |
| 4. | Hadoop and MapReduce are used for:<br>(a) Processing large-scale network data (b) Visualizing graphs<br>(c) Network routing (d) Data compression | 1 | K1 | CO2 |
| 5. | Aggregating social network data means:<br>(a) Combining data from multiple sources (b) Deleting unused nodes<br>(c) Compressing files (d) Inserting used files | 1 | K1 | CO3 |
| 6. | Reasoning with social data involves:<br>(a) Inferring hidden relationships and influence patterns (b) Data deletion<br>(c) Visualization only (d) Data Assertion | 1 | K1 | CO3 |
| 7. | Influence analysis measures:<br>(a) How users affect each other's behavior (b) File size<br>(c) Data loss (d) Data Handling | 1 | K1 | CO4 |
| 8. | Link prediction aims to:<br>(a) Forecast future connections between nodes (b) Delete links<br>(c) Reduce bandwidth (d) Increase Badnwidth | 1 | K1 | CO4 |
| 9. | Social network analysis for biometric protection is used to:<br>(a) Enhance template security using social data patterns (b) Replace passwords<br>(c) Encrypt files only (d) Decrypt Files | 1 | K1 | CO5 |
| 10. | Forecasting social trends from networks relies on:<br>(a) Data mining, NLP, and predictive analytics (b) Manual observation<br>(c) Static graphs (d) Manual & Static Graphs | 1 | K1 | CO5 |

**PART - B (12 × 2 = 24 Marks)**

Answer ALL Questions

| | | Marks | K – Level | CO |
|---|---|---|---|---|
| 11. | Define Semantic Web. | 2 | K1 | CO1 |
| 12. | Mention any two examples of social networking sites. | 2 | K1 | CO1 |
| 13. | What is clustering coefficient? | 2 | K1 | CO2 |
| 14. | List any two tools used for social network visualization. | 2 | K2 | CO2 |
| 15. | Compare overlapping and non-overlapping communities. | 2 | K2 | CO3 |
| 16. | State modularity in community detection. | 2 | K1 | CO3 |

| | | | | | |
|---|---|---|---|---|---|
| 17. | List the Bayesian probabilistic models used in SOA. | *2* | *K1* | *CO4* |
| 18. | Define probabilistic relational model. | *2* | *K1* | *CO4* |
| 19. | Give the machine learning models used for tweet emotion detection. | *2* | *K1* | *CO5* |
| 20. | Define linguistic approach in opinion assessment. | *2* | *K1* | *CO5* |
| 21. | Write about emotion classification in social networks. | *2* | *K2* | *CO5* |
| 22. | Define natural language processing (NLP) in social media analysis. | *2* | *K1* | *CO5* |

**PART - C (6 × 11 = 66 Marks)**

Answer ALL Questions

| | | | | | |
|---|---|---|---|---|---|
| 23. | a) | Elaborate on the key concepts and measures used in social network with suitable example. | *11* | *K2* | *CO1* |
| | | **OR** | | | |
| | b) | Illustrate the role of Semantic Web in linking online communities. | *11* | *K2* | *CO1* |
| 24. | a) | Describe the concept of centrality and clustering in social network visualization. | *11* | *K2* | *CO2* |
| | | **OR** | | | |
| | b) | Explain the challenges faced in modeling and visualizing large-scale networks with suitable example. | *11* | *K2* | *CO2* |
| 25. | a) | Discuss the core methods for community detection and mining. | *11* | *K2* | *CO3* |
| | | **OR** | | | |
| | b) | Explain in detail about the concept and process of node classification in social networks. | *11* | *K2* | *CO3* |
| 26. | a) | Analyze how influence analysis and link prediction together help forecast network growth. | *11* | *K4* | *CO4* |
| | | **OR** | | | |
| | b) | Discuss about the probabilistic relational models and how they are applied to network evolution. | *11* | *K4* | *CO4* |
| 27. | a) | Create an algorithmic approach to improve biometric template security using SNA. | *11* | *K4* | *CO5* |
| | | **OR** | | | |
| | b) | Describe how real-time social media analytics help in understanding public sentiment. | *11* | *K4* | *CO5* |
| 28. | a) | Discuss the use of Hadoop and MapReduce for analyzing large social networks. | *11* | *K4* | *CO2* |
| | | **OR** | | | |
| | b) | Illustrate with examples how matrix-based visualization supports network understanding. | *11* | *K4* | *CO2* |