Reg.No. \_\_\_\_\_\_\_\_\_\_\_\_

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**End Semester Examination – Nov/Dec – 2018**

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| **Code :** | **17CS3044** | **Duration :** | **3hrs** |
| **Sub. Name :** | **GRID COMPUTING** | **Max. marks :** | **100** |

**ANSWER ALL QUESTIONS (5 x 20 = 100 Marks)**

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| **Q. No.** | **Sub Div.** | **Questions** | **Course**  **Outcome** | **Marks** |
| 1. | a. | Draw the grid computing architecture and why are grid computing popular in an academic application while cloud computing dominates the commercial use? Use case studies to compare their strength and weakness. | CO1 | 10 |
| b. | List out the open standards may use to implement a grid. Also, explain any three standard’s in detail. | CO1 | 10 |
| (OR) | | | | |
| 2. | a. | Compare and contrast the semantic web and semantic grid | CO1 | 8 |
| b. | Design a virtual organization to solve weather prediction problem and Financial modeling problem and summarize the function of the virtual organization in grid computing. | CO1 | 12 |
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| 3. | a. | Following services are not required in a grid computing environment. Defend your answer for the above statement.  i. Information Discovery service  ii. Monitoring service | CO2 | 10 |
| b. | Data produced by a Large Hadron Collider may exceed several petabytes". What type of grid service model(s) will you suggest for such an application? Illustrate with diagrams. | CO2 | 10 |
| (OR) | | | | |
| 4. | a. | Investigate the differences among Static versus dynamic replication, Centralized versus decentralized replication, and Push versus pull-based replication in data grid environment. Discuss their relative strengths and limitations. | C02 | 12 |
| b. | Justify the need of Replica catalog for Data Grid. | CO2 | 8 |
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| 5. | a. | Write the steps associated with grid scheduling and explain. | CO5 | 8 |
| b. | Use examples to explain the following terms on grid job scheduling systems.   1. Opportunistic Load Balancing (OLB) 2. Minimum Execution Time (MET) 3. Minimum Completion Time (MCT) 4. Min-Min 5. Max-Min 6. Genetic Algorithms (GA) | CO5 | 12 |
| (OR) | | | | |
| 6. | a. | State bank of India is wanted to adopt grid application for day to day banking transactions. Individual user transactions should not be visible to other users. Region wise branch details must be collected in the online application. Discuss various security policies in the grid environment. Also, defend your choice of security policies for this banking application | CO4 | 10 |
| b. | Briefly describe the following technical terms, functional modules, and grid services associated with the Fault Tolerance mechanism.   1. Hardware Faults 2. Application and Operating System Faults 3. Network Faults 4. Software Faults | CO3 | 10 |
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| 7. | a. | Evaluate and summarize the Key privacy issues in the grid computing application design | CO4 | 10 |
| b. | Illustrate the use of single sign-on, X.509 Proxy Certificates, and Delegation of privileges in Grid computing. How it contributes to security management in grid application. | CO4 | 10 |
| (OR) | | | | |
| 8. | a. | Describe the components of OGSA Security Model. | CO4 | 12 |
| b. | Compare and contrast various middleware services provided by Grid environment. | CO6 | 8 |
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|  | | **Compulsory**: |  |  |
| 9. | a. | Point out the steps involved in High-Level Introduction to OGSI. | CO6 | 10 |
| b. | Compile a table to compare data management in DataGrid, EGEE, D-Grid, and BioGrid.Also identify their differences, advantages, and shortcomings in terms of Data access, Data transfer, Datamangemnt, and Security. | CO3 | 10 |