

**FACULTY OF INFORMATICS**

B.E. 4/4 (IT) I - Semester (Main) Examination, December 2011

Subject : **Grid Computing**  
(Elective – II)

Time : 3 Hours

Max. Marks: 75

**Note:** Answer all questions of Part – A. Answer any five questions from Part-B.**PART – A (25 Marks)**

1. What is the need for schedulers in Grid Computing Applications? (2)
2. What are the core high level services included with the existing Globus toolkit? (3)
3. What are the capabilities that a Business-on-Demand operating environment must possess? (2)
4. How are Grid Services related to Web services ? (3)
5. What are the major goals of OGSA? Enlist them. (2)
6. What are the four service data concepts introduced by the OGSi specification? (3)
7. What are the major architecture components of the server-side framework of Globus GT3 Toolkit. (3)
8. What are the major information services available with the GT3 base, and the components utilized by those services? (2)
9. How are the opaque objects useful in MPI? (2)
10. What is the use of communicators in MPI? What are the characteristics of Intercommunication? (3)

**PART – B (50 Marks)**

11. What are the basic requirements of a Grid computing system? (10)  
What are the potential areas where solutions must be provided by the Grid middleware ? Explain.
- 12.(a) Explain the basic layered Grid architecture model. (6)  
(b) What is the advantage of maintaining application aware state information and interaction aware state information? (4)
- 13.(a) What do the OGSi specifications define? How does OGSi use WSDL? (6)  
(b) Briefly explain the functionalities provided by Service Domain components. (4)
14. Discuss the Globus GT3 architecture with suitable diagram. (10)
- 15.(a) What are the different communication modes used by MPI? (5)  
(b) What are the different methods of collective communication defined in MPI?(5)
- 16.(a) What are Grid portals ? What capabilities do they provide? (5)  
(b) Explain the concepts of "Business on Demand and Infrastructure Virtualization". (5)
17. Write short notes on the following :  
(a) Transforming GWSL to WSDL definition. (3)  
(b) Life cycle of a Grid service Instance. (3)  
(c) Database Management in OGSA (4)