

B.E./B.TECH. Degree Examination, September 2020

Semester - VIII

**IT16009 Grid Computing**

(Regulation 2016)

Time: Three hours

Maximum : 80 Marks

Answer **ALL** questions**PART A - (8 X 2 = 16 marks)**

1. Which of the following are suitable for Parallel Computing?
  - i. Tightly coupled shared memory
  - ii. Higher Scalability
  - iii. Less inter-processor communication
  - iv. Simple processor hardware

(a) i & ii      (b) i      (c) i, iii & iv      (d) i & iii
2. State True or False : OGSA does not support authentication, authorization.
 

(a) TRUE              (b) FALSE
3. \_\_\_\_\_ software supports the ability to make guarantees about storage availability so that wide-area schedulers can move large datasets without fear of resource revocation.
 

(a) NeST      (b) GSI      (c) GTSF      (d) All the above.
4. The virtual hosting environment framework is useful in implementing the solutions for the problems such as \_\_\_\_\_
 

(i) Load balancing    (ii) Service discovery    (iii) Authorization    (iv) User Account sandboxing

(a) i & iv    (b) ii & iii    (c) i & iii    (d) none of the above.
5. What are the services offered by Grid applications?
6. How do you address the problem of services across a distributed, heterogeneous, dynamic, and virtual organization?
7. Illustrate different roles of an ontology in knowledge management lifecycle.
8. Explain the scenario of service creation illustrating the redirection concept in virtual hosting.

**PART B - (4 X16 = 64 marks)**

09. (a) Compare and Contrast parallel, distributed and cluster computing. Also, elaborate in detail the example application in physiology of grid. **(16)**

**(OR)**

(b) What are the Key specifications used by web services? Elaborate each specifications with relevant example. **(16)**
10. (a) Justify how OGSI/WSRF supports (i) communication with service instances about service data (ii) communication with service instances about resources and properties (iii) Extensibility through inheritance (iv) Explicitly differentiates between a stateless web services and stateful resources. **(16)**

**(OR)**

(b) Evaluate how Network Weather Service (NWS) supports scalability, fault tolerance, monitoring, presentation, searching and security. Compare Grid security and WS security of NWS. **(16)**
11. (a) (i) Justify how the data services are combined to deliver the data access integration capabilities in the Earth System Grid (ESG). **(8)**

(ii) What are the factors that drive the data management challenges? **(8)**  
Examine each factor with suitable example.

**(OR)**

- (b) (i) Interpret the architecture of knowledge oriented grid for e-science application. **(8)**
  - (ii) Evaluate how the data integration takes place in neuroscience domain using knowledge representation. **(8)**
12. (a) Illustrate with neat diagram how entities can create, discover and interact with a Grid Service in OGISI Specification of GT3 Core and explain Grid Service Containers. **(16)**
- (OR)**
- (b) Assess the Client-side and Server-side programming model to deploy your own services into the container framework with the sample code. **(16)**