



VALLIAMMAI ENGINEERING COLLEGE
SRM Nagar, Kattankulathur – 603203.
DEPARTMENT OF INFORMATION TECHNOLOGY
ACADEMIC YEAR 2016-17
QUESTION BANK



| | |
|----------------------------------|--|
| NAME OF THE SUBJECT | Grid and Cloud Computing |
| SUBJECT CODE | CS6703 |
| SEMESTER | VII |
| YEAR | IV |
| DEPARTMENT | INFORMATION TECHNOLOGY |
| HANDLED & PREPARED BY | Mr.S.Ravikumar A.P(Sel.G) & Mr.S.Narayanan A.P(Sel.G) |

UNIT -1

PART A

| S.No | QUESTIONS | COMPETENCE | LEVEL |
|------|---|---------------|---------|
| 1. | Illustrate the evolutionary trend towards parallel distributed and cloud computing? | APPLYING | BTL - 3 |
| 2. | List and explain in brief the three new computing paradigms? | REMEMBERING | BTL – 1 |
| 3. | Describe the applications of high performance and high throughput systems? | REMEMBERING | BTL – 1 |
| 4. | Define cyber physical systems. | REMEMBERING | BTL – 1 |
| 5. | Analyze the working of GPUs. | ANALYZING | BTL – 4 |
| 6. | Classify the primitive operations of virtual machines. | APPLYING | BTL - 3 |
| 7. | List out the cluster design. | REMEMBERING | BTL – 1 |
| 8. | Differentiate computational, data grid with P2P grids. | ANALYZING | BTL – 4 |
| 9. | Examine the reasons to adapt the cloud for upgraded internet applications and web services. | APPLYING | BTL - 3 |
| 10. | Discuss on SOA. | UNDERSTANDING | BTL – 2 |
| 11. | Differentiate grid computing versus cloud computing. | UNDERSTANDING | BTL – 2 |
| 12. | Formulate the features of MPI,Map reduce and Hadoop. | CREATING | BTL- 6 |
| 13. | Summarize the technologies available in grid standards. | EVALUATING | BTL – 5 |
| 14. | Discuss on OGSA. | UNDERSTANDING | BTL -2 |
| 15. | Where OGSI and OGSA-DAI is utilized? | REMEMBERING | BTL – 1 |
| 16. | Analyze the features of grid FTP. | ANALYZING | BTL – 4 |
| 17. | Name the standards in WSRF. | REMEMBERING | BTL – 1 |
| 18. | Describe the standards related to web service. | UNDERSTANDING | BTL – 2 |
| 19. | Summarize the elements of grid. | EVALUATING | BTL – 5 |
| 20. | Generalize the layers in grid architecture. | CREATING | BTL- 6 |

PART –B

| | | | |
|----|---|----------------------|----------------|
| 1 | i) Identify and explain in detail about evolutionary trend of computer technology. (8) ii) Explain the three paradigms in detail.(8) | REMEMBERING | BTL – 1 |
| 2 | i)Summarize in detail about the degrees of parallelism. (8) ii) Discuss the application of high performance and high throughput system. (8) | UNDERSTANDING | BTL – 2 |
| 3 | Demonstrate in detail about internet of things and cyber physical systems.(8) Examine the memory ,storage and wide area networking technology in network based system. (8) | APPLYING | BTL – 3 |
| 4 | Define and examine in detail about the multi core CPUs and multithreading technologies. (16) | REMEMBERING | BTL – 1 |
| 5 | Analyze in detail about the GPU programming model.(16) | ANALYZING | BTL – 4 |
| 6 | i) Evaluate virtual machine and virtualization middleware in network based system? (8) ii) Explain the convergence of technologies in detail? (8) | EVALUATING | BTL – 5 |
| 7 | Generalize the ideas of i) cluster architecture. (8) ii) grid computing infrastructure in cooperative computer.(8) | CREATING | BTL- 6 |
| 8 | (i)Describe in detail the Peer to peer network families. (8) (ii)Express in detail about cloud computing architecture over the internet? (8) | UNDERSTANDING | BTL – 2 |
| 9 | i)Explain the layered architecture of SOA for web services.(8) ii) Compare the features of grid versus cloud. (8) | ANALYZING | BTL – 4 |
| 10 | i) Demonstrate in detail about trends towards distributed systems.(8) ii) Illustrate in detail about parallel and distributed programming models. (8) | REMEMBERING | BTL – 1 |
| 11 | Describe in detail about i) Grid architecture and (8) ii)Grid standards (8) | REMEMBERING | BTL – 1 |
| 12 | Illustrate in detail about the various layers in grid architecture. 16) | APPLYING | BTL – 3 |
| 13 | Explain in detail about the elements of grid. (8) | ANALYZING | BTL – 4 |
| 14 | What do you interpret in the overview of grid architecture?(8) | UNDERSTANDING | BTL – 2 |

UNIT 2

PART A

| | | | |
|----|---|---------------|---------|
| 1 | Define OGSA. | REMEMBERING | BTL – 1 |
| 2 | Illustrate the relationship between resources and service. | APPLYING | BTL – 3 |
| 3 | List the major goals of OGSA. | REMEMBERING | BTL – 1 |
| 4 | Summarize on the goals of GGF. | UNDERSTANDING | BTL – 2 |
| 5 | Classify the software technologies associated with OGSA. | APPLYING | BTL – 3 |
| 6 | Formulate the OGSA grid service interfaces. | CREATING | BTL – 6 |
| 7 | Summarize on grid service migration using GSH and GSR. | EVALUATING | BTL – 5 |
| 8 | Analyze the OGSA security model at various protection levels. | ANALYZING | BTL – 4 |
| 9 | Discuss the strategies of data replication. | UNDERSTANDING | BTL – 2 |
| 10 | List the model for organizing the data grid. | REMEMBERING | BTL – 1 |
| 11 | Differentiate parallel data transfer versus striped data transfer. | UNDERSTANDING | BTL – 2 |
| 12 | Give the basic services of OGSA. | UNDERSTANDING | BTL – 2 |
| 13 | Define WSRF | REMEMBERING | BTL – 1 |
| 14 | Point out the objectives of OGSA | ANALYZING | BTL – 4 |
| 15 | Deduce the fundamental requirements for describing Web services based on the OGSI. | EVALUATING | BTL – 5 |
| 16 | Define grid service instance | REMEMBERING | BTL – 1 |
| 17 | Name the concepts involved in the components of OGSI | REMEMBERING | BTL – 1 |
| 18 | Illustrate the Two approaches to the implementation of argument demarshaling functions in a grid service hosting environment. | APPLYING | BTL – 3 |
| 19 | Analyze the functional requirements of OGSA | ANALYZING | BTL – 4 |
| 20 | Formulate the motivations that drive OGSA standards. | CREATING | BTL – 6 |

PART- B

| | | | |
|---|--|---------------|---------|
| 1 | i) Define OGSA and describe the grid service architecture in detail. (8) ii) Examine the grid service migration using GSH and GSR(8). | REMEMBERING | BTL – 1 |
| 2 | i) Summarize the OGSA security model implemented at various protection models. (8) ii) Discuss how a GSH resolves to different GSR for migrated service instance. (8) | UNDERSTANDING | BTL – 2 |
| 3 | i) Demonstrate the service models of data intensive grid. (8) ii) Illustrate the architectural models for building a data | APPLYING | BTL – 3 |

| | | | |
|----|--|----------------------|----------------|
| | grid(8). | | |
| 4 | i) Analyze the set of services for the building blocks of OGSA based grid. (8) ii) Explain the services provided by OGSA architecture. (8) | ANALYZING | BTL – 4 |
| 5 | Describe in detail about the practical view of OGSA and OGSI(8) | REMEMBERING | BTL – 1 |
| 6 | i) Examine the client side programming patterns for grid services. (8) ii) Demonstrate in detail about the conceptual hosting environment for grid service. (8) | APPLYING | BTL – 3 |
| 7 | i) Discriminate how the Client Uses the Grid Service Handles and References. (8) ii) Evaluate the relationship of grid service to Distributed Object Systems. (8) | EVALUATING | BTL – 5 |
| 8 | Develop the functional requirements on OGSA with a suitable application.(16) | CREATING | BTL – 6 |
| 9 | Describe in detail about the various OGSA services.(16) | REMEMBERING | BTL – 1 |
| 10 | Explain in detail about the motivation in developing the OGSA. (8) | ANALYZING | BTL – 4 |
| 11 | i) Tabulate the web service resource frame work and its related specifications. (8) ii) Examine the reasons involved in adopting OGSA as a grid architecture by number of projects. (8) | REMEMBERING | BTL – 1 |
| 12 | i) Express in detail about the replication strategies in grid environment. (8) ii) Distinguish the data transfer methods involved in grid services. (8) | UNDERSTANDING | BTL – 2 |
| 13 | i) Explain the OGSA grid service interfaces developed by the OGSA working group. (8) ii) Analyze the difference between service oriented architecture and OGSA. (8) | ANALYZING | BTL – 4 |
| 14 | Discuss in detail about the grid service instances and the component model of OGSI. (16) | UNDERSTANDING | BTL – 2 |

UNIT 3

PART A

| | | | |
|---|--|----------------------|----------------|
| 1 | Define public private and hybrid clouds. | REMEMBERING | BTL – 1 |
| 2 | Differentiate centralized and distributed computing. | UNDERSTANDING | BTL – 2 |
| 3 | List the design objective of cloud. | REMEMBERING | BTL – 1 |
| 4 | Define IaaS. | REMEMBERING | BTL – 1 |
| 5 | Generalize on PaaS and SaaS. | CREATING | BTL – 6 |
| 6 | Show the levels of virtualization implementation. | APPLYING | BTL – 3 |

| | | | |
|----|--|---------------|---------|
| 7 | Discuss the design requirements of VMM. | UNDERSTANDING | BTL – 2 |
| 8 | Analyze the advantages and disadvantages of OS extensions. | ANALYZING | BTL -4 |
| 9 | How does the virtualization Support the Linux platform? | EVALUATING | BTL -5 |
| 10 | Compare binary translation with full virtualization. | ANALYZING | BTL -4 |
| 11 | Demonstrate the need of virtualization need of multi-core processor. | APPLYING | BTL – 3 |
| 12 | Discuss the design issues of virtual clusters. | UNDERSTANDING | BTL – 2 |
| 13 | List the properties of Virtual clusters when virtual machines are dynamically allocated. | REMEMBERING | BTL – 1 |
| 14 | Define ISR | REMEMBERING | BTL – 1 |
| 15 | Describe the resource managers of eucalyptus for virtual network. | UNDERSTANDING | BTL – 2 |
| 16 | How the data storage is classified in virtual environment? | APPLYING | BTL – 3 |
| 17 | Formulate the side effects of server virtualization. | CREATING | BTL -6 |
| 18 | Where OS level virtualization is needed? | REMEMBERING | BTL – 1 |
| 19 | Discuss on the support of middleware for virtualization. | EVALUATING | BTL – 5 |
| 20 | Compare host based virtualization and para virtualization. | ANALYZING | BTL – 4 |

PART B

| | | | |
|---|---|---------------|---------|
| 1 | i)Examine in detail about public private and hybrid cloud.(8) ii)Examine in detail about data center networking structure.(8) | REMEMBERING | BTL – 1 |
| 2 | Analyze the uses of i)Infrastructure as a service ii)Platform as a service.(8) iii)Software as a service.(8) | ANALYZING | BTL – 4 |
| 3 | i)Discuss the various levels of virtualization implementation(8) ii) Summarize the design requirements and providers of VMM. (8) | UNDERSTANDING | BTL – 2 |
| 4 | i) List the advantages and disadvantages of OS extension in virtualization. (8) ii) Identify the support of virtualization Linux platform. (8) | REMEMBERING | BTL – 1 |
| 5 | i)Summarize the support of middleware and library for virtualization(8) ii)Describe the vCUDA architecture for virtualization of general purpose GPUs. (8) | UNDERSTANDING | BTL – 2 |
| 6 | i)Compose in detail about the classes of VM | CREATING | BTL – 6 |

| | | | |
|----|---|----------------------|----------------|
| | architecture based on the position of virtualization layer Hypervisor and Xen architecture. (8) ii) Design the implementation technology of hardware virtualization. (8) | | |
| 7 | i) Illustrate in detail about the compiler support for para virtualization architecture. (8) ii) Examine in detail about hardware support for virtualization and CPU virtualization. (8) | APPLYING | BTL – 3 |
| 8 | i)Point out the importance of memory virtualization.(8) ii) Explain in detail about the need of IO virtualization. (8) | ANALYZING | BTL – 4 |
| 9 | Examine the need of virtualization in multi core processor.(16) | REMEMBERING | BTL – 1 |
| 10 | i)Differentiate physical clusters versus virtual clusters. (8) ii) Discuss fast deployment, effective scheduling and high performance virtual storage in detail. (8) | UNDERSTANDING | BTL – 2 |
| 11 | Illustrate the migration steps and performance effects involved in live VM. (8) | APPLYING | BTL – 3 |
| 12 | i)Explain the migration of memory ,files and network resources in detail. (8) ii) Analyze the dynamic deployment of virtual clusters in detail. (8) | ANALYZING | BTL – 4 |
| 13 | i)How server consolidation is supported in data center? (8) ii) How will you explain the need of virtual storage management in data center?. (8) | EVALUATING | BTL – 5 |
| 14 | i)Define the need of need of cloud OS in virtualized data centers. (8) ii) Examine the uses of trust management in virtualized data centers. (8) | REMEMBERING | BTL – 1 |

UNIT-4

PART A

| | | | |
|---|---|--------------------|---------------|
| 1 | Analyze on grid software support and middleware packages. | ANALYZING | BTL-4 |
| 2 | Define condor. | REMEMBERING | BTL-1 |
| 3 | Examine the sequences of events of SGE workflow. | APPLYING | BTL -3 |

| | | | |
|----|--|---------------|---------|
| 4 | Summarize on Globus toolkit architecture. | UNDERSTANDING | BTL-2 |
| 5 | List the functional modules in GT4 library. | REMEMBERING | BTL-1 |
| 6 | Formulate how data's are managed using GT4? | CREATING | BTL -6 |
| 7 | Define Globus container. | REMEMBERING | BTL-1 |
| 8 | Analyze the need of MDS services in distributed system. | ANALYZING | BTL-4 |
| 9 | Illustrate the building blocks in CGSP library | APPLYING | BTL -3 |
| 10 | List the security measures in grid. | REMEMBERING | BTL-1 |
| 11 | Evaluate why is a Block in HDFS So Large? | EVALUATING | BTL-5 |
| 12 | Differentiate name node with data node in hadoop file system. | UNDERSTANDING | BTL-2 |
| 13 | Interpret how file permission is achieved in HDFS? | UNDERSTANDING | BTL-2 |
| 14 | Generalize how a name node is not able to serve a request. | CREATING | BTL - 6 |
| 15 | Analyze how a standby takes over when a active name node is failed. | ANALYZING | BTL-4 |
| 16 | Define failover and fencing. | REMEMBERING | BTL - 1 |
| 17 | Generalize as to how as FUSE interface is done. | CREATING | BTL-6 |
| 18 | Discuss how a data is read from hadoop URL. | UNDERSTANDING | BTL-2 |
| 19 | Name the details of file querying system. | REMEMBERING | BTL-1 |
| 20 | Demonstrate how does the name node choose which data nodes to store replicas on? | APPLYING | BTL - 3 |

PART B

| | | | |
|---|---|---------------|---------|
| 1 | Describe the relative strength and limitation of open source grid middleware packages.(16) | REMEMBERING | BTL - 1 |
| 2 | i)List the features in condor kernel and condor G for grid computing. (8) ii) Describe sun grid engine middleware package in detail. (8) | REMEMBERING | BTL - 1 |
| 3 | i)Summarize the grid standards and APIs. (8) ii) Discuss on grid software support and middleware package. (8) | UNDERSTANDING | BTL - 2 |
| 4 | i) Illustrate Globus tool kit architecture in detail. (8) ii) Classify the functional modules in GT4 library. (8) | APPLYING | BTL - 3 |
| 5 | i) Explain the concepts involved in resource management using GRAM. (8) | ANALYZING | BTL -4 |

| | | | |
|----|--|----------------------|----------------|
| | ii) Classify the GT4 tools used by data management. (8) | | |
| 6 | i) Evaluate the interaction in the functional module client globus job work flow. (8) ii) Summarize the functional components in CGSP library. (8) | EVALUATING | BTL – 5 |
| 7 | i) Generalize the functional components of china grid support platform library. (8) ii) Design the functional building blocks in the CGSP library that represents the job executional flow. (8) | CREATING | BTL – 6 |
| 8 | i) Describe the usage of globus tool kit. (8) ii) Define hadoop and examine the features of it. (8) | REMEMBERING | BTL – 1 |
| 9 | i) Discuss in detail about mapreduce functionalities. (8) ii) Express in detail about the phases of map and reduce. | UNDERSTANDING | BTL – 2 |
| 10 | i) Classify the various ways in input splitting of map reduce.(8) ii)Show how will you prevent input splitting in map reduce.(8) | APPLYING | BTL – 3 |
| 11 | i) Explain the design hadoop file system. (8) ii) Formulate the concepts involved in HDFS.(8) | ANALYZING | BTL – 4 |
| 12 | i) Examine the basic file system operation in hadoop.(8) ii) Tabulate the hadoop file system in detail.(8) | REMEMBERING | BTL -1 |
| 13 | Discuss in detail about the command line interface in java. (8) | UNDERSTANDING | BTL – 2 |
| 14 | Explain in detail about the anatomy of file read and file write.(8) | ANALYZING | BTL – 4 |

UNIT 5

PART A

| | | | |
|---|--|----------------------|----------------|
| 1 | Give the challenges to establish trust among grid sites. | UNDERSTANDING | BTL-2 |
| 2 | Define IDS. | REMEMBERING | BTL-1 |
| 3 | Summarize on reputation trust model. | UNDERSTANDING | BTL – 2 |
| 4 | List the steps to accomplish fuzzy interference. | REMEMBERING | BTL-1 |
| 5 | Relate authentication and authorization methods in grid environment. | APPLYING | BTL-3 |
| 6 | Evaluate the authorization model of grid security | EVALUATING | BTL-5 |
| 7 | Define trust delegation chain | REMEMBERING | BTL-1 |
| 8 | Formulate the categories of authorization for access control. | CREATING | BTL – 6 |
| 9 | Discuss on GSI. | UNDERSTANDING | BTL – 2 |

| | | | |
|----|---|----------------------|----------------|
| 10 | Differentiate transport level security and message level security | ANALYZING | BTL – 4 |
| 11 | Compose the primary pieces of information of a certificate in GSI authentication. | CREATING | BTL-6 |
| 12 | How will you measure the mutual authentication between two parties? | EVALUATING | BTL – 5 |
| 13 | Illustrate the sequence of trust delegation. | APPLYING | BTL – 3 |
| 14 | Discuss the risk factors of network level of cloud infrastructure. | UNDERSTANDING | BTL-2 |
| 15 | Tabulate the security levels at the network level. | REMEMBERING | BTL-1 |
| 16 | Compare SaaS and PaaS host security. | ANALYZING | BTL-4 |
| 17 | Show how you will categorize host security in IaaS. | APPLYING | BTL – 3 |
| 18 | Identify the host security threats in public IaaS. | REMEMBERING | BTL-1 |
| 19 | List out the categories in PaaS application security. | REMEMBERING | BTL-1 |
| 20 | Point out privacy key issues in cloud. | ANALYZING | BTL-4 |

PART B

| | | | |
|---|---|--------------------|----------------|
| 1 | Examine in detail about trust model for grid security enforcement.(16) | APPLYING | BTL-3 |
| 2 | i) Define Authentication and Summarize on three authorization models of GSI.(8) ii)Discuss on the trust delegation operations using proxy credentials in GSI.(8) | REMEMBERING | BTL-1 |
| 3 | i) Define GSI and describe in detail about GSI functional layers.(8) ii) Examine in detail about multiple handshaking in mutual authentication scheme.(8) | REMEMBERING | BTL-1 |
| 4 | i)Demonstrate the infrastructure security: Network level in cloud. ii) Classify the Key privacy issues in the cloud.(8) | APPLYING | BTL-3 |
| 5 | i) Analyze the infrastructure security of cloud at host level.(8) ii)Explain in detail about virtual server security of cloud.(8) | ANALYZING | BTL-4 |
| 6 | Explain in detail about application level security in i)SaaS (5) ii)PaaS (5) iii)IaaS (6) | ANALYZING | BTL-4 |
| 7 | i)Compose in detail about the aspects of data security.(8) ii) Generalize on data security mitigation.(8) | CREATING | BTL – 6 |

| | | | |
|----|---|----------------------|----------------|
| 8 | Evaluate the concepts involved in provider data and its security.(16) | EVALUATING | BTL-5 |
| 9 | i)Express in detail about the need of IAM.(8) ii)Give the challenges in IAM.(8) | UNDERSTANDING | BTL-2 |
| 10 | i)Summarize on the basic concepts and definitions of IAM.(8) ii) Evaluate and explain the practices of IAM Architecture.(8) | UNDERSTANDING | BTL-2 |
| 11 | Describe in detail about the IAM Standards and Protocols for Cloud Services.(8) | REMEMBERING | BTL -1 |
| 12 | (i) Analyze in detail about the IAM Standards, Protocols, and Specifications for Consumers.(8) (ii) Compare the Enterprise and Consumer Authentication Standards and Protocols.(8) | ANALYZING | BTL – 4 |
| 13 | i)Tabulate in detail about the Comparison of SPI maturity models in the context of IAM.(8) ii) Tabulate the Comparison of maturity levels for IAM components in detail.(8) | REMEMBERING | BTL -1 |
| 14 | i)Discuss in detail about cloud identity management.(8) ii)Summarize on the Cloud Service Provider IAM Practice.(8) | UNDERSTANDING | BTL – 2 |

Verified by

1.

[S.RAVIKUMAR]

2.

[S.NARAYANAN]

3.

[]

4.

[]

Forwarded by Year Coordinator :

Approved by HOD :