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**BRAINWARE UNIVERSITY**

Library
Brainware University
398, Ramkrishnapur Road, Barasat
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Term End Examination 2025-2026
Programme – M.Tech.(CSE)-2025
Course Name – Cluster, Grid and Cloud Computing
Course Code - MTS27502 (T)
(Semester II)

Full Marks : 40**Time : 2:0 Hours**

[The figure in the margin indicates full marks. Candidates are required to give their answers in their own words as far as practicable.]

Group-A

(Multiple Choice Type Question)

1 x 10=10

1. Choose the correct alternative from the following :

- (i) Select the characteristic that defines Cloud computing.
 - a) Local access only
 - b) On-demand service
 - c) No virtualization
 - d) Manual scaling
- (ii) Choose which model has high fault tolerance.
 - a) Single system
 - b) Distributed system
 - c) Sequential
 - d) None
- (iii) Identify the coupling type in Cluster computing.
 - a) Loose
 - b) Tight
 - c) None
 - d) Sequential
- (iv) Choose the abstraction layer for distributed resources.
 - a) CPU
 - b) Middleware
 - c) Hard disk
 - d) None
- (v) Choose the architecture that clusters commonly follow.
 - a) Client-Server
 - b) Master-Slave
 - c) Token Ring
 - d) Star Topology
- (vi) Select the component responsible for job distribution in a cluster.
 - a) Compute node
 - b) Head node
 - c) Storage disk
 - d) Local cache
- (vii) Identify the method used for workload sharing.
 - a) Compilation
 - b) Load balancing
 - c) Debugging
 - d) Editing
- (viii) Choose the load balancing approach used in clusters.
 - a) Round Robin
 - b) FIFO
 - c) LIFO
 - d) DFS traversal
- (ix) Identify the Grid toolkit that supports job submission API.

- a) GCC
 - b) GRAM
 - c) BIOS
 - d) None
- (x) Identify the Globus service that monitors system status.
- a) GSI
 - b) MDS
 - c) MPI
 - d) None

Group-B

(Short Answer Type Questions)

3 x 5=15

2. Define a distributed system with two key features. (3)
3. List two challenges of cluster computing. (3)
4. Identify the role of GridFTP in Globus Toolkit. (3)
5. Illustrate one major cause of cold-start delay in serverless platforms. (3)
6. Explain the key benefits of virtualization in cloud architecture. (3)

OR

Analyse SLA management issues in cloud computing. (3)

Group-C

(Long Answer Type Questions)

5 x 3=15

7. Explain CAP theorem and its impact on real distributed design. (5)
8. Analyse cloud computing service models and their impact on application deployment. (5)
9. Analyse cloud deployment models and justify their suitability for different organizations. (5)

OR

Explain the Globus-style security principles (GSI) that influenced modern cloud identity and privacy designs. (5)

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