

# CBCS SCHEME

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15CS754

## Seventh Semester B.E. Degree Examination, Jan./Feb. 2023 Storage Area Networks

Time: 3 hrs.

Max. Marks: 80

*Note: Answer any FIVE full questions, choosing ONE full question from each module.*

### Module-1

- 1 a. With a neat diagram, explain the key characteristics of data centre. (05 Marks)
- b. Explain with a neat diagram, how Storage Centric IT Architecture can overcome the limitations of Server Centric IT Architecture. (05 Marks)
- c. Describe the RAID levels with reference to RAID0, RAID1, RAID3 and RAID5. (06 Marks)

OR

- 2 a. With a neat diagram, explain the components of intelligent storage system. (07 Marks)
- b. Compare traditional and virtual storage provisioning with an example. (05 Marks)
- c. An application generates 5200 IOPS with 60% being read operation with disk handling capacity of 180 IOPS. Determine the disk load and number of disks required in RAID5 and RAID1 configuration (given write penalty for RAID5 and RAID1 are 4 and 2 respectively). (04 Marks)

### Module-2

- 3 a. Briefly explain the layers of Fibre channel protocol stack. (05 Marks)
- b. Define storage virtualization. List the different network based virtualization techniques. Explain block level storage virtualization. (06 Marks)
- c. List and explain the different topologies of iSCSI connectivity. (05 Marks)

OR

- 4 a. Define NAS. List the benefits of NAS. Explain the different NAS implementations in detail. (08 Marks)
- b. Illustrate the steps for storage and retrieval of data objects in OSD system. (08 Marks)

### Module-3

- 5 a. What is business continuity? Explain the different stages in BC planning life cycle with a neat diagram. (08 Marks)
- b. Describe in detail the different topologies are used in backup environment. (08 Marks)

OR

- 6 a. What is Local Replication? With a neat diagram, explain Host-based and Network-based Local Replication. (07 Marks)
- b. With a neat diagram, explain Three-site replication methods. (05 Marks)
- c. Illustrate two approaches for performing a backup in virtualized environment. (04 Marks)

### Module-4

- 7 a. Define cloud computing. Explain the characteristics of cloud computing. (05 Marks)
- b. List and explain different cloud service models. (06 Marks)
- c. Describe in detail In-Band virtualization appliances. (05 Marks)

Important Note : 1. On completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages.  
2. Any revealing of identification, appeal to evaluator and /or equations written eg, 42+8 = 50, will be treated as malpractice.

OR

- 8 a. Illustrate any two Deployment Models of Cloud Infrastructure. (06 Marks)  
b. Explain the layers in cloud computing infrastructure with a neat diagram. (05 Marks)  
c. Describe in detail policy based storage management. (05 Marks)

**Module-5**

- 9 a. Mention the different SAN security mechanisms. Explain them in detail. (05 Marks)  
b. Explain the basic security implementations for IP-SAN with CHAP authentication. (05 Marks)  
c. Describe in detail storage management activities. (06 Marks)

OR

- 10 a. Explain the different threats and vulnerabilities in storage infrastructure. (04 Marks)  
b. With a neat diagram, explain the steps of Kerberos authorization process. (07 Marks)  
c. Explain Information Life Cycle Management (ILM). (05 Marks)

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