

Question Paper



MANIPAL UNIVERSITY

SCHOOL OF INFORMATION SCIENCES (SOIS)
SECOND SEMESTER MASTER OF ENGINEERING - ME (Computing Technologies & Virtualization)
DEGREE EXAMINATION - APRIL 2017
Thursday, 20, 2017
Time : 10:00 AM - 1:00 PM

Storage Area Networks [VIR 614]

Marks: 100

Duration: 180 mins.

Answer all the questions.

- 1) Describe the core elements in a data center. (10)
- 2) Describe key connectivity options. Discuss factors affecting disk drive performance. (10)
- 3) What is a Redundant Array of Independent Disk (RAID) array? What is a hot spare? What benefits do RAID arrays provide? (10)
(4+3+3)
- 4) Discuss evolution of Small Computer System Interface (SCSI). Describe SCSI - 3 architecture. (10)
(5+5)
- 5) Name three key features of a Storage Area Network (SAN) implementation. (10)
- 6) Describe Network Attached Storage (NAS) file-sharing protocols. Discuss NAS management options. (10)
(5+5)
- 7) Explain Internet Storage Name Service (iSNS) operation. Describe architecture of Fibre Channel over IP (FCIP). (10)
(5+5)
- 8) What are the logical elements of a Content-Addressed Storage (CAS) system? How does data get stored in a CAS environment? (10)
(5+5)
- 9) Explain how to create, monitor, and manage Thin Logical Unit Number (LUNs). What is virtual provisioning? (10)
(5+5)
- 10) Discuss the effects of a bunker failure in a three-site replication for the following implementation: (10)
(4+4+3)
 - i. Multihop synchronous and disk buffered
 - ii. Multihop synchronous and asynchronous
 - iii. Multitarget