

MIS Number

COLLEGE OF ENGINEERING, PUNE
(An autonomous Institute of Government of Maharashtra)

End-Semester Examination

CT 416: Storage and Virtualization

B. Tech (Computer Engineering/Information Technology)

Year: 2012-13
Duration: 3 hrs

Semester: VII
Max. Marks: - 50

Instructions:

1. *Figures on right indicate full marks.*
2. *Draw neat figures wherever required.*

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- Q.1**
- A.** Explain what is SCSI and briefly describe the terms mentioned below in context of SCSI architecture. **5**
- a> SCSI Initiator
 - b> SCSI Target
 - c> LUN
 - d> CDB
- B.** Explain the performance improvement techniques typically used in storage systems. Explain each technique in detail. **5**
- Q.2.**
- A.** Explain following terms in context to Linux Kernel :- **5**
- a> Process Scheduler
 - b> Memory manager
 - c> VFS
 - d> Network Interface
 - e> IPC
- B.** What are the three phases of Digital Explosion? Explain in detail each of these phases. **3**
- C.** What is HA cluster? Explain five components of any cluster. **2**

- Q.3.**
- A. With help if diagram explain FC naming. Also explain what is WWNN & WWPNN, along with their usage. 5**
 - B. Explain SAS Architecture and concept of Wide port, narrow port as applied in SAS world. 3**
 - C. With appropriate diagram explain difference between monolithic and microkernel implementations. 2**
- Q.4**
- A. What is iSCSI? Explain iSCSI Architectural layers in detail using a block diagram. 3**
 - B. What are the various Data types in Digital world? Explain them in detail. 2**
- Q.5**
- A. Compare and contrast following terminologies in detail. Which of the below will give highest reliability? Why? 8**
 - (i) Raid 5
 - (ii) Raid 6
 - (iii) Raid 0
 - B. Explain each layer in FC protocol and describe various flow control mechanisms used in FC. 5**
 - C. Explain the login process in FC world. 2**

OR

- Q.5** **With help of diagrams explain DAS, NAS and SAN in detail. Compare and explain the differences between them with suitable diagrams. 15**