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BANGALORE - 560 037

10CS/IS765

**Seventh Semester B.E. Degree Examination, June/July 2018**

**Storage Area Networks**

Time: 3 hrs.

Max. Marks:100

**Note: Answer FIVE full questions, selecting at least TWO questions from each part.**

**PART – A**

- 1 a. Which are the core elements required for the basic functionality of data center? (04 Marks)  
Explain all key characteristics of data center elements. (06 Marks)
- b. What is information life-cycle management? (ILC)? (02 Marks)  
Explain the 3 steps process of developing an ILM strategy using the required diagram. (08 Marks)
- 2 a. What are the major differences between software RAID and hardware RAID? List the limitations of each type. (06 Marks)
- b. Categorize the 'Intelligent Storage System' and explain. (05 Marks)
- c. Explain RAID – 'O' level or block by block striping? With a neat sketch, explain 'RAID array' components. (09 Marks)
- 3 a. Describe the types of 'Direct Attached Storage' (DAS) architectures with figures wherever applicable, which are the benefits and limitations of DAS? (10 Marks)
- b. What is 'Fibre channel protocol stack'? Elaborate each of its layers in a diagram showing the functions and protocols. (10 Marks)
- 4 a. Summarize the components or 'Network attached Storage' (NAS) with a diagram. (06 Marks)
- b. List all important benefits of NAS. Categorize the NAS implementations with a brief note on each of them. (06 Marks)
- c. What is the significance of IP over the SAN? Explain the same using iSCSI and FCIP as two primary protocols that leverage transport mechanisms. (08 Marks)

**PART – B**

- 5 a. Depict server virtualization showing both before and after virtualization diagrams. (06 Marks)
- b. Narrate with a figure the 'Data object Retrieval process' consisting different steps. (06 Marks)
- c. Categorize two types of 'virtualization configurations' show atleast one of the said configuration diagram with a note on all of its features. (08 Marks)
- 6 a. Define 'Information availability (IA) which are the 3 important points that influences the IA. (05 Marks)
- b. Depict 'Business Continuity (BC) planning lifecycle explaining all five stages. (07 Marks)
- c. Explain the main purposes of taking backups. Describe the three basic topologies used in backup environment. (08 Marks)
- 7 a. What are the five main reasons to consider for creating one or more 'Local Replicas'? Explain. (05 Marks)
- b. Define data consistency. Which are the important factors to consider ensuring the data consistency in all replication technologies? (07 Marks)
- c. Describe the two basic modes of 'Remote Replication' with a neat diagram. (08 Marks)
- 8 a. Which are the four primary security attributes or the services to mitigate the threats? Write a brief note on all of them. (05 Marks)
- b. Discuss the following issues related to risk management of the storage infrastructure  
i) Assets ii) Threats iii) Vulnerability (15 Marks)

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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.