Reg. No.										

MANIPAL INSTITUTE OF TECHNOLOGY, MANIPAL 576104

(Constituent College of Manipal University)

SEVENTH SEMESTER B-TECH. (IT) DEGREE MAKE UP EXAMINATION, JAN – 2016
SUBJECT: PROGRAM ELECTIVE-II STORAGE DEVICE TECHNOLOGY – ICT-417
(REVISED CREDIT SYSTEM)

TIME: 3 HOURS **07/01/2016** **MAX. MARKS: 50**

Instructions to candidates

Answer any **FIVE FULL** questions.
Missing data, if any, may be suitably assumed.

1A. Explain the key components of a Disk drive with suitable figures.

1B. Which are the methods deployed for backup? State the advantages and disadvantages of each.

1C. Explain the process of data recovery in case of a drive failure in RAID 5.

[5+3+2]

2A. List the backup considerations in selecting and implementing a specific backup strategy. With the help of suitable figures explain the process of backup and restore operation.

2B. What do you mean by single point of failure? How can you overcome it?

2C. What are the classifications of Data? List the factors that have contributed to the growth of digital data.

[5+3+2]

3A. Explain the following :

(i) Difference between hubs and switches

(ii) Zoning and types of Zoning

(iii) FC Topologies

3B. Give any four features of CAS and explain its architecture.

3C. What are the benefits of using multiple HBAs on a host?

[5+3+2]

4A. What are the key challenges in managing Information? Explain the characteristics of Information Lifecycle Management and the implementation of ILM with suitable diagram.

4B. Consider a scenario in which an I/O request from track 1 is followed by an I/O request from track 2 on a sector that is 180 degrees away from the first request. A third request is from a sector on track 3, which is adjacent to the sector on which the first request is made. Discuss the advantages and disadvantages of using the command queuing algorithm in this scenario.

4C. What do you mean by Hot Spares? How can it be used for data recovery?

[5+3+2]

5A. Consider a disk I/O system in which an I/O request arrives at the rate of 80 IOPS. The disk service time is 6 ms.

a) Compute the following: Utilization of I/O controller, Total response time, Average queue size, and Total time spent by a request in a queue.

b) Compute the preceding parameter specified in (Q. 5A, a) if the service time is halved.

5B. Discuss the benefits of NAS.

5C. Which are the types of iSCSI names? Give example for each.

[5+3+2]

6A. Explain the components of Intelligent Storage System with the help of suitable diagrams.

6B. Why are the disk drive interfaces used? Explain any two.

6C. How is the choice of recovery site strategy (cold and hot) determined in relation to RTO and RPO?

[5+3+2]

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