



**UNIVERSITY EXAMINATIONS: 2013/2014**  
**EXAMINATION FOR THE MASTER OF SCIENCE IN DATA**  
**COMMUNICATION / INFORMATION SYSTEMS MANAGEMENT/**  
**ADVANCED DATABASE AND VISUAL ANALYTICS**  
**MDC 6103 MISM 5102 DATA STORAGE AND MANAGEMENT**

**DATE: AUGUST, 2014**

**TIME: 2 HOURS**

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**INSTRUCTIONS: Answer Question One and Any Other Two Questions**

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**QUESTION ONE: [20 Marks]**

- a) Discuss cloud network attach storage (NAS) as applied today (5 Marks)
- b) What is Data deduplication? Describe the two types of Data deduplication. (4 Marks)
- c) Describe five common causes of data loss in small and medium sized enterprises today. (5 Marks)
- d) What is data stripping? (2 Marks)
- e) Distinguish between the following terms
  - (i) Disaster recovery and business continuity (2 Marks)
  - (ii) Backup and archiving (2 Marks)

**QUESTION TWO (15 MARKS)**

- a) Define the term virtualization (1 Mark)
- b) Describe the two main types of virtualization. (2 Marks)
- c) Describe the main Benefits of ILM (information life cycle management) (4 Marks)
- d) Give a comparison between SAN and NAS storage management technologies based on
  - i) Input output protocols used

- ii) Bandwidth (4 Marks)
- e) From the simple scenarios below identify perspectives on what may be effective storage connectivity approaches.
  - i. An organization has only a few servers and low I/O loads but wants to replace installed and aging DAS disk storage (2 Marks)
  - ii. An organization has an existing LAN that has a lot of unused bandwidth. (2 Marks)

### **QUESTION THREE (15 MARKS)**

- a) Discuss the main Challenges in Managing Information today (6 Marks)
- b) Tape-based backup solutions have been the default medium for offsite storage. What four factors have combined to push tape out of the spotlight in favor of industry-standard disks? (4 Marks)
- c) What kind of applications are holographic data storage systems suited for? (3 Marks)
- d) Discuss two ways in which purchasing storage too far in advance of when it is actually needed adversely impacts the organization. (2 Marks)

### **QUESTION FOUR (15 MARKS)**

- a) Describe the Core elements essential for the basic functionality of a data center: (8 Marks)
- b) Explain the critical storage service areas that each application requires. (7 Marks)