

LOCATION: SWANSEA

LLEOLIAD: ABERTAWE

LEVEL 6

LEFEL 6

EXAMINATION PERIOD
SEPTEMBER 2017

CYFNOD ARHOLIADAU
2017

MODULE CODE: ACUA6001_LON
DATA CENTRE VIRTUALISATION

TIME: 2 HOURS

ANSWER THREE QUESTIONS OUT OF FOUR

Equipment or materials required – None

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The following case study is provided to the students in advance of the examination:

The UWTSD has a spinoff company called BigDataSys Ltd. This organisation has 2 physical data centres offering a single reliable data centre using virtualised technology to provide a virtualised data centre. The data centre offers cloud storage and virtualised services for fee paying customers. BigDataSys has 2 physical locations that are connected by fibre high-bandwidth broadband connections and they mirror each other's data storage for resiliency. The organisation provides secure, safe storage and services to its customers at a premium price. For this to happen the security, hardware servers and storage systems have been carefully designed. With your understanding of virtualisation technology, prepare 1 page of hand written notes about the following topics:

Storage area networks (SAN)

Security, reliability (including power supplies) and analysis

Virtualisation and Cisco Nexus devices

Bare metal hypervisors and virtual machines

ANSWER THREE QUESTIONS OUT OF FOUR

1.

- a. Why is security so important and how does it influences all the organisational design? (10 marks)
- b. What failover solutions do virtualised data centres use? (9 marks)
- c. Discuss the importance of reliable and secure power supplies for hardware. (6 marks)

2.

- a. What are the advantages of virtualisation? (16 marks)
- b. Explain 2 network virtualisation technologies? (4 marks)
- c. Illustrate the Spine-Leaf topology used by Cisco Nexus switches? (6 marks)

3.

- a. Explain what is a Storage-area network (SAN). (4 marks)
- b. Explain the concepts of infrastructure simplification, information lifecycle management, and business continuity in a Storage-area network (SAN). (15 marks)
- c. Explain the concept of RAID and how RAID 5 protects data from corruption. (6 marks)

4.

- a. Server virtualisation comprises several components working in synergy to deliver a holistic solution. With reference to that explain the following:
 - i. Type-1 and Type-2 Hypervisors (10 marks)
 - ii. Virtual machines (5 marks)
 - iii. Virtual switching (5 marks)
 - iv. Management tools (5 marks)

Diwedd/End