UNIVERSITY EXAMINATIONS: 2025/2026

EXAMINATION FOR THE DEGREE OF BACHELOR OF SCIENCE IN INFORMATION TECHNOLOGY

BSIT207/BIT 405

INTRODUCTION TO CLOUD COMPUTING

END TERM EXAMINATION

PHYSICAL

EXAM DATE: **THURSDAY**

TIME: **5:00PM – 19:00PM**

DATE: APRIL, 2026 **TIME: 2 HOURS**

INSTRUCTIONS: Question One is Compulsory, Choose Three Other Questions

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Section ONE Compulsory [15 marks]

Question One:

a) Using valid examples Compare and contrast between Public Cloud and Community cloud. **[3 marks].**
b) Discuss TWO most common challenges faced by Small and Medium Sized Enterprises investing in cloud computing and virtualization. **[2 marks].**
c) Differentiate between a Threat and a Risk in cloud security. **[3 marks].**
d) Discuss the concept of fault tolerance in Cloud & virtualization. **[3 marks]**

e) For Accessibility and Collaboration Your Class of 2026 at needs a platform for sharing assignments, lecture notes, and event planning files.

i. Discuss preferable TWO types of cloud service suitable for the class. **[2 marks]**
ii. Debate FOUR challenges the class might face in the stated cloud operations. **[2 marks]**

SECTION B. TOTAL MARKS FOR THIS SECTION IS 45.
ANSWER ANY THREE QUESTIONS FROM THIS SECTION.

Question Two:

The ICT department of your university plans to adopt virtualization to improve the utilization of its servers. The system administrator has an existing server operating system in place.

a) Select the type of the Hypervisor suitable and document a lab experiment showing system configurations and subsequent installation process. **[6 marks]**
b) Analyse which level of hypervisor and process the same department may use if they were to run the virtualization on a bare metal. **[6 marks]**
c) Discuss the concept of RAID in attaining your experiment above.**[3 marks]**

Question Three:

a) Your university handles **sensitive student records, financial data**, and research information. Propose with valid reasons which Cloud infrastructure could enhance data security and compliance solutions. **[10 marks]**
b) Discuss FIVE additional measures for university to apply to safeguard their data. **[5 marks]**

Question Four:

a) A company is migrating its IT infrastructure to a cloud service provider. The company's business operations require high availability and data security. Identify FOUR requirements provided by the cloud service provider to meet the specified demands. **[8 marks]**
b) Discuss THREE consequences for the cloud provider if these terms are not met. **[6 marks]**
c) Illustrate TWO advantages of network-attached storage (NAS) **[3 marks**

Question Five:

a) Relate THREE key major objectives of cloud management & monitoring. **[3 marks]**

b) There are quite a few automated network documentation & Cloud monitoring systems. Each tends to achieve diverse functions. Develop a detailed functionality for the following cloud security and monitoring software tools.

i. Nagios. **[4marks]**

ii. Cacti. **[4 marks]**

iii. Net master **From-** www.nutecapps.com **[4 marks]**

Question Six:

Your University Data centres team located in the University Library service block is under plan to review its continuity strategies in reinforcing its cloud architecture and design frameworks. As part of the experts involved, **evaluate** how the following listed **Options** will apply.

a) Exclusive-use options: **[9 marks]**

i. Hot sites

ii. Warm sites

iii. Cold sites

b) Debate the following levels of fault tolerance in HPC cluster and virtualization.

i. Full fault tolerance. **[2 marks]**

ii. Fail soft. **[2 marks]**

iii. Fail safe. **[2 marks]**

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