UNIVERSITY OF GHANA

BSc. FIRST SEMESTER UNIVERSITY EXAMINATIONS: 2017/2018

DEPARTMENT OF COMPUTER SCIENCE
CSIT409: CLOUD COMPUTING (3 CREDITS)

INSTRUCTIONS:

ANSWER ALL QUESTIONS IN SECTION A AND TWO ANY OTHER QUESTIONS IN SECTION B

TIME ALLOWED： TWO (2) HOURS

SECTION A (30 marks)

ANSWER ALL QUESTIONS IN THIS SECTION

1. Some issues arise as a result of the use of large data centers. Mention four of these

issues and briefly explain how these are issues.(12 marks)
2. Explain the following: (6 marks)

   a. Grid computing
   b. Service Oriented Architecture
   c. Client-server

1. What are the two main characteristics of web-scale problems? Explain (4 marks)
2. Which would you prefer or go in for; a data center or a cloud? Explain your answer
using security, and cost-benefit analysis as references. (8 marks)

SECTION B (70 marks)

ANSWER ANY TWO QUESTIONS FROM THIS SECTION (all questions carry equal marks).

Q1.

    a. Briefly describe what cloud computing is. (3 marks)
    b. List and explain three essential characteristics of cloud computing.(9 marks)
    c. List the five service models of cloud computing. (5 marks)
    d. Explain three of these models listed above.(6)
    e. Cloud computing can be deployed in a number of ways. List and explain two of the deployment models of cloud computing.(6 marks)
    f. Give three advantages of cloud computing(3 marks)
    g. Give two disadvantages of cloud computing (2 marks)
    h. Mention two of the resources that cloud computing enables companies to consume(1 mark)

Q2.

    a. List four web-scale problems(4 marks)
    b. Explain what virtualized stack and traditional stack are respectively.(4 marks)
    c. Using diagrams, show the various components of a virtualized stack and a traditional stack respectively.(6marks)
    d. What is virtualization? Give five advantages of virtualization.(7 marks)
    e. What is the main principle of security in relation to the functional threats of cloud components?(2 marks)
    f. Mention and explain three (3) possible attacks on a client machine.(6 marks)
    g. What is a hypervisor.(2 marks)
    h. Mention two effects an attack on the hypervisor can have on the cloud.(4 marks)

Q3.

a. Explain these three essential characteristics of cloud computing: (6 marks)

I. On-demand self-service
II. Resource pooling
III. Measured service

a. Compare the public cloud to the private cloud for SaaS in terms of privacy, single sign-on and scaling up. Tabulate your answers.(6 marks)

a. A large number of virtual machines that are used in the "clouds", especially in public clouds require a management system. Mention two effects of attacks on the management system   (4 marks).

b. Cloud components can be threatened in several ways; nonetheless these components or elements can be secured. Mention five (5) cloud elements, stating clearly their means of security. Answers should be tabulated.(10 marks)

c. State and explain two disadvantages of cloud computing. (4 marks)

d. What does an attack on virtualization lead to (1 mark)?

e. What is a hybrid cloud (2 marks)?

f. Differentiate between a public cloud and a private cloud (2 marks).