CHUKA   **UNIVERSITY**

UNIVERSITY EXAMINATIONS

EXAMINATION FOR THE AWARD OF DEGREE OF BACHELOR OF SCIENCE IN APPLIED COMPUTER SCIENCE

ACMP 491: CONTEMPORARY TOPICS IN APPLIED COMPUTER SCIENCE

STREAMS: BSC (APPLIED COMPUTER SCIENCE)   **TIME: 2 HOURS**

DAY/DATE: THURSDAY 13/12/2018   **11.30 A.M. – 1.30 P.M.**

INSTRUCTIONS:

- **Answer question one and any other two**

Question one : 30 marks

a) "Many organizations everywhere are trying to leverage on cloud computing". What is your take on this statement?
        (4 marks)
b) Explain the following terms in relation to Big data :
    i)   Velocity   (2 marks)
    ii)   Volume   (2 marks)
    iii)   Variety
            (2marks)
c) Discuss two main Data compression techniques in cloud computing
        (6 marks)
d) Explain the three Cs of IoT   (4 marks)
e) Discuss Big data challenges to information security and privacy by giving appropriate examples.
        (6 marks)
f) Blockchain has drawn attention as the next-generation financial technology due to its Security that suits the informatization era. Justify the statement and also explain its challenges with appropriate examples.
        (4 marks)

Question two: 20 marks

a) Discuss some of the major obstacles blocking the implementation of IoT particularly in the developing countries   (6 marks)

b) How has Technological Standardization so far affecting IoT   (5 marks)
c) Discuss the characteristics of cloud computing in detail   (4 marks)
d) Define the term IoT. Elaborate areas where its being applied   (5 marks)

Question three: 20 marks

a) Many problems with current security authentication systems gave a chance for the implementation and use of the Biometric technology.

   i) Explain the problems that were facing the traditional security systems   (5 marks)

   ii) Discuss advantages of biometric technology over the traditional security systems (5 marks)

b) Discuss Minutiae based fingerprint Matching algorithm as used in biometrics   (10 marks)

Question four: 20 marks

a) There are number of security and privacy risks associated with cloud computing. Discuss at least five of them and explain how each must be adequately addressed.(10 marks)

b) Discuss the role and the contents of Trusted Computer System Evaluation Criteria document in relation to computer security.
                 (5 marks)

c) Why is data compression so vital in big data?   (5 marks)

Question five: 20 marks

a) Explain the Top three steps to ensure security in big data environments   (9 marks)

b) What is data munging? explain its purpose   (3 marks)

c) Discuss the following cloud security controls;

   a) Deterrent controls   (2 marks)

b) Preventive controls   (2 marks)
c) Detective controls   (2 marks)
d) Corrective controls   (2 marks)