

CHUKA



UNIVERSITY

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

ACSC 477: EMERGING TECHNOLOGIES IN APPLIED COMPUTER SCIENCE

STREAMS:

TIME:2 HOURS

DAY/DATE: FRIDAY 6/12/2019

2.30 P.M – 4.30 P.M

INSTRUCTIONS:

SECTION A

QUESTION ONE :20 MARKS

- a) While Big Data offers a ton of benefits, it comes with its own set of issues. This is a new set of complex technologies, while still in the nascent stages of development and evolution. Discuss the top four critical challenges that enterprises are likely to face, if they are planning on implementing Big Data (5 marks)
- b) Discuss two main Data compression techniques in cloud computing (6 marks)
- c) Discuss the Hadoop **Distributed File System** (HDFS) (4 marks)
- d) Kenya is currently on the forefront in embracing e-Governance systems in order to deliver services to its citizens. Discuss with examples the systems the govt have so far impliented. (5 marks)
- e) 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)
- f) Explain the following terms in relation to Big data :
 - i) Velocity (2 marks)
 - ii) Volume (2 marks)
 - iii) Variety (2marks)

SECTION B

QUESTION TWO: 20 MARKS

- a) How Might Cybersecurity affect the Development and Implementation of the Internet of Things (IoT), especially in the Kenya (4 marks)
- b) How has Technological Standardization so far affecting IoT (4 marks)
- c) Discuss the characteristics of cloud computing in detail (4 marks)

- d) Explain the following problems that Bitcoin technology must overcome:
- i) No intrinsic value (2mark)
 - ii) Creation of Huge hardware competition (2marks)
 - iii) No recovery to stolen or lost bitcoins (2marks)
 - iv) Taxation and legal challenges for regulators (2marks)

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) Block chain 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 (10 marks)

QUESTION FOUR:20 MARKS

- a) Explain the Top three steps to ensure security in big data environments (9 marks)
- b) How is Hadoop related to Big Data? Describe its components (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)

QUESTION FIVE: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) Discuss the main components of IoT architecture. Use a diagram to show the relationship and coordination between them (5 marks)
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