

**W1-2-60-1-6**

## JOMO KENYATTA UNIVERSITY

**OF**

**AGRICULTURE AND TECHNOLOGY**

# University Examinations 2014/2015

**STAGE IV EXAMINATION FOR THE DIPLOMA IN BUSINESS INFORMATION TECHNOLOGY**

**HCB 0204 : DATA COMMUNICATION**

**DATE: APRIL 2015 TIME: 1½ HOURS**

**INSTRUCTIONS: ANSWER QUESTION ONE (COMPULSORY) AND**

**ANY OTHER TWO QUESTIONS.**

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**QUESTION ONE (30 MARKS)**

(a) Discuss the six types of networks according to the following:

[6 marks]

1. Geographical coverage.
2. Organization.

(b) Describe the error parity bit check as a form of error detection.

[4 marks]

(c) With the aid of a well-labeled diagram the format of an Ethernet packet. [8 marks]

(d) Differentiate between circuit switching and message switching.

[4 marks]

(e) Explain any four characteristics of fault tolerant distributed systems. [4 marks]

(f) With the aid of diagram, describe any two network topologies. \*Hint: give one advantage and one disadvantage. [4 marks]

**QUESTION TWO (15 MARKS)**

(a) Give a detailed description of any four types of failures. [8 marks]

(b) Discuss the three way handshake protocol as a means of connection management. [3 marks]

(c) Differentiate between client server vs. peer to peer network.

[4 marks]

**QUESTION THREE (15 MARKS)**

(a) Explain the two main approaches of packet switching. [4 marks]

(b) Describe any four communication media used in networking.

[4 marks]

(c) Define the following: [5 marks]

1. Bridge.
2. Hub.
3. Gateway.
4. Asynchronous communication.
5. Synchronous communication.

(d) Define the term network topology as used in networking. [2 marks]

**QUESTION FOUR (15 MARKS)**

(a) Differentiate between routable protocols and non-routable protocols. \*Hint: Give an example of each. [4 marks]

(b) Explain any four pieces of information that distinguish bridges and routers. [4 marks]

(c) With the aid of a well-labeled diagram, describe the DSI model layers and their roles. [7 marks]