

# KIBABII UNIVERSITY COLLEGE

(A Constituent College of Masinde Muliro University of Science and Technology)

## UNIVERSITY EXAMINATIONS 2013/2014 ACADEMIC YEAR

FOR THE CERTIFICATE IN INFORMATION TECHNOLOGY

**COURSE CODE: DIT 069**

**COURSE TITLE: DATA COMMUNICATION AND NETWORKS II**

**DATE: December, 2014**

**TIME: 2 Hrs**

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### INSTRUCTIONS

ANSWER QUESTION ONE and ANY TWO QUESTIONS

Q1

a) Define the following terms as used in data communications

- |                           |                 |
|---------------------------|-----------------|
| i) UDP                    | iv) ATM         |
| ii) Protocol Architecture | v) Multiplexing |
| iii) OSI Model            |                 |

(10Marks)

b) Describe the trends that are consistently driving the architecture and evolution of data communications and networking facilities (6 Marks)

c) Differentiate between a general communication model and a strict data communication model (8 marks)

Q2

a) Briefly describe the responsibilities of a Data Communications Engineer in a Networked environment. (6 Marks)

b) Explain the key issues encountered while transmitting messages from senders to receivers in a networked environment (6 Marks)

- c) Explain any three applications that has been standardized to operate on top of the TCP suite (6 Marks)

Q3.

- a) Using a diagram, illustrate the Protocol Data Units (PDUs) entailed in the TCP/IP Architecture. (4 Marks)
- b) Differentiate between the following as used in the TCP protocol suite
- i) HTTP and FTP
  - ii) UDP and TCP (4 Marks)
- c) Briefly describe the communication process in the TCP/IP suite (10 Marks)

Q4.

- a) Explain the importance of the network protocol architecture (3 Marks)
- b) Describe the key features of a protocol (6 Marks)
- c) Briefly describe any three network topologies, highlighting their architectural design and infrastructure details such as cables, connectors and the respective interlinking devices. (9 Marks)

Q5.

- a) Using a diagram, illustrate how data is packaged before being transmitted across the network. (4 Marks)
- b) The Ugandan and Tanzanian presidents need to come to an agreement by telephone, but neither speaks the other's language. Further, neither has on hand a translator that can translate to the language of the other. However, both presidents have English and Swahili translators in their ministerial staffs. Draw a diagram to depict the communication situation in the TCP/IP Suite, and describe the interaction and each level. (10 Marks)
- c) Explain the advantages of layering in protocol architectures (4 Marks)