



# TECHNICAL UNIVERSITY OF MOMBASA

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## INSTITUTE OF COMPUTING AND INFORMATICS

### UNIVERSITY EXAMINATION FOR:

Bachelor of Technology in Information Communication Technology

EIT 4421: High Performance Communication Networks

END OF SEMESTER EXAMINATION

**SERIES: APRIL 2016**

**TIME: 2 HOURS**

#### **Instructions to Candidates**

You should have the following for this examination

*-Answer Booklet, examination pass and student ID*

This paper consists of **FIVE** questions. Attempt question ONE (Compulsory) and any other TWO questions.

**Do not write on the question paper.**

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#### **Question one**

- a) Differentiate between formative and summative evaluation approaches (6 Marks)
- b) Explain the components that constitute latency (8 Marks).
- c) Briefly describe how a Mobile Agent in a Foreign network communicates with a Home agent using the Mobile Multicasting Protocol (MOM) (10 Marks)
- d) Describe four mobile communication characteristics (4 Marks)
- e) Describe two advantages of P2P networks (2 Marks)

#### **Question Two**

- 2 a) Explain the advantages of cell switching over packet switching (6 marks)
- b) Using a diagram describe user-network interface (UNI) ATM cell format (14 marks).

### Question Three

- a) Describe the following techniques and their applications
  - i) XON/XOFF control
  - ii) RTS/CTS Control (8 Marks)
- b) Explain 'head-of-line blocking' and how it can be managed (8 Marks)
- c) Discuss the relative performance needs of the following applications, in terms of average bandwidth and latency:
  - i) File server
  - ii) Video monitoring of a waiting room (4 Marks)

### Question Four

- 4. Briefly explain the following TCP/IP congestion avoidance methods
  - a) DECbit (6 Marks)
  - b) Random Early Detection (RED) (7 marks)
  - c) Source-based congestion avoidance (7 marks)

### Question Five

- a) Explain the working of Multiple Access with Collision Avoidance in an 802.11 wireless LAN (6 Marks)
- b) Differentiate between active scanning and passive scanning (4 marks)
- c) With the aid of diagram explain the transmission of data between two nodes via a distributed system. (10 Marks)