



TECHNICAL UNIVERISTY OF MOMBASA

# Faculty of Engineering & Technology

DEPARTMENT OF COMPUTER SCIENCE & INFORMATION TECHNOLOGY

UNIVERSITY EXAMINATION FOR:  
BACHELOR OF TECHNOLOGY IN INFORMATION TECHNOLOGY

**EIT 4421: HIGHER PERFORMANCE COMM. NETWORKS**

END OF SEMESTER EXAMINATION

**SERIES: AUGUST 2013**

**TIME: 2 HOURS**

## **Instructions to Candidates:**

You should have the following for this examination

- *Answer Booklet*

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

Maximum marks for each part of a question are as shown

This paper consists of **TWO** printed pages

---

## **Question One (Compulsory)**

- a) Differentiate between formative and summative evaluation approaches. **(6 marks)**
- b) Explain the components that constitute latency in communication networks. **(8 marks)**
- c) Briefly explain how a Mobile Agent (MA) in a Foreign network communicates with a Home Agent (HA) using the Mobile Multicasting Protocol (MOM) **(10 marks)**
- d) Describe **FOUR** characteristics of mobile communication **(4 marks)**

- e) Describe **TWO** advantages of P2P networks. **(2 marks)**

### **Question Two**

- a) Explain the advantages of cell switching over packet switching in:  
(i) Queue handling  
(ii) Switch processing **(6 marks)**
- b) Using an example, compare the handling of fixed-length packets (cell) to variable-length packets. **(8 marks)**
- c) Explain the implementation of virtual source and destination in available bit rate (ABR) to improve communication speed. **(6 marks)**

### **Question Three**

- a) Explain the following multicasting concepts:  
(i) Forwarding group concepts  
(ii) Soft-state approach **(6 marks)**
- b) Using a diagram, explain how a route is established to facilitate a particular node to send its data in the non-demand multicast routing protocol (ODMRP) **(14 marks)**

### **Question Four**

- 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 bandwidth and latency:  
(i) File server  
(ii) Video monitoring of a waiting room **(4 marks)**

### **Question Five**

Briefly explain the following TCP/IP congestion avoidance methods:

- a) DECbit **(6 marks)**  
b) Random Early Detection **(7 marks)**  
c) Source-based congestion avoidance **(7 marks)**