



THE TECHNICAL UNIVERISTY OF MOMBASA

# Faculty of Engineering & Technology

DEPARTMENT OF COMPUTER SCIENCE & INFORMATION TECHNOLOGY  
DIPLOMA IN INFORMATION COMMUNICATION TECHNOLOGY  
(DICT 12M S-EV/S-FT)

**EIT 2206: NETWORKING ESSENTIALS**

END OF SEMESTER EXAMINATION  
SERIES: APRIL 2013  
TIME: 2 HOURS

**Instructions to Candidates:**

You should have the following for this examination

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) Define the following terms:
- (i) Protocols. (2 marks)
  - (ii) Interconnecting devices (2 marks)
  - (iii) Standards (2 marks)
- b) Describe the network topologies listed below:
- (i) Mesh topology (2 marks)
  - (ii) Tree topology (2 marks)
  - (iii) Ring topology (2 marks)
- c) Differentiate between per-to-per and client/server Network model. (4 marks)
- d) Give **TWO** advantages of network standardization (2 marks)
- e) Explain the difference between a server and a workstation (2 marks)

### Question Two

- a) Mr. Salala's LAN network consists of 3 personal computers, one switch and a radio unit for the internet from (internet service provider – ISP)
- (i) How many nodes are in this LAN network? (2 marks)
  - (ii) Explain how these nodes can be uniquely identified. (4 marks)
  - (iii) What is the model of this network setup? Explain. (4 marks)
- b) Describe the components of a server computer. (10 marks)

### Question Three

Explain the functions of any **FIVE** layers of the open system intercommunication (OSI) reference model. (20 marks)

### Question Four

- a) Explain the purpose of each of the following network building blocks:
- (i) Network interface card (NIC) (2 marks)
  - (ii) Network operating system (NOS) (2 marks)
  - (iii) Switches (2 marks)
  - (iv) Cables (2 marks)
  - (v) Wireless network (2 marks)
- b) Explain **FIVE** benefits of networking (10 marks)

### Question Five

- a) Highlight the differences between the following network cables
- (i) Coaxial (2 marks)
  - (ii) Unshielded twisted pair (UTP) (2 marks)
  - (iii) Fibre optic (2 marks)
- b) Give **THREE** examples of software that can be installed on a server computer (6 marks)
- c) Explain how data packets are transmitted in the following topologies:

- (i) Ring topology
- (ii) Star topology with a switch

(4 marks)  
(4 marks)