



THE TECHNICAL UNIVERISTY OF MOMBASA

Faculty of Engineering & Technology

DEPARTMENT OF COMPUTER SCIENCE & INFORMATION TECHNOLOGY
DIPLOMA IN INFORMATION COMMUNICATION TECHNOLOGY
(DICT M12/S-EV/S-FT)

EIT 2201: DATA COMMUNICATION

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 **THREE** printed pages

Question One (Compulsory)

- a) Define the following terms:
- (i) Full duplex
 - (ii) Synchronization
 - (iii) DTE & DCE Equipment
 - (iv) Asynchronous Transmission
 - (v) Broadband Transmission
- (10 marks)
- b) List the key elements of protocols. (3 marks)
- c) What is transmission impairment and list the causes. (3 marks)
- d) Differentiate between bound and unbound media. (2 marks)
- e) What is the role of flow control in data communication? (2 marks)

Question Two

- a) Compare client-server and peer-to-peer based networks in relation to the following areas:
- (i) Administration
 - (ii) Number of users
 - (iii) Security
- (6 marks)
- b) Distinguish between the following:
- (i) Packet switching and circuit switching
 - (ii) Switch and router
- (4 marks)
- c) Differentiate between the following terms:
- (i) Modulation vs. Demodulation
 - (ii) Parallel vs. Serial Transmission
 - (iii) Broadband vs. Baseband
- (6 marks)
- d) Explain the importance of the following standardization bodies:
- (i) ISO
 - (ii) IEEE
 - (iii) ANSI
 - (iv) ITU
- (4 marks)

Question Three

- a) Compare the layers found in the OSI Model and those found in the TCP/IP Internet Model. Listing their similarities and differences. (10 marks)
- b) List **FIVE** roles played by the Network Administrator. (5 marks)
- c) State the functions of the following protocols in data communication:
- (i) POP3
 - (ii) IMAP
 - (iii) DHCP
- (3 marks)

d) What is the difference between data communication and networking? **(2 marks)**

Question Four

- a) Explain the **FIVE** main components of a complete data communication system. **(10 marks)**
- b) With the Aid of a diagram show the structure of the following transmission media and explain their pros and cons. **(10 marks)**
- (i) Optical fiber
 - (ii) Twisted pair cable

Question Five

- a) Differentiate between Frequency and Amplitude modulation stating the advantages and disadvantages of each. **(6 marks)**
- b) Write short notes on the following multiplexing techniques:
- (i) Frequency Division Multiplexing (FDM)
 - (ii) Wavelength Division Multiplexing (WDM)
 - (iii) Time Division Multiplexing (TDM)
- c) Compare the star and bus topologies in relation to the following:
- (i) Data communication
 - (ii) Cost
 - (iii) Scalability **(6 marks)**
- d) What is the difference between the following propagation modes in optical fiber modes:
- (i) Single-mode
 - (ii) Multi-mode **(2 marks)**