



TECHNICAL UNIVERSITY OF MOMBASA

Faculty of Engineering & Technology

DEPARTMENT OF COMPUTER SCIENCE & INFORMATION TECHNOLOGY

DIPLOMA IN INFORMATION TECHNOLOGY (DIT M10/M11)

ECS 2201: DATA COMMUNICATION

SPECIAL/SUPPLEMENTARY EXAMINATION

SERIES: FEBRUARY 2013

TIME: 2 HOURS

Instructions to Candidates:

You should have the following for this examination

- *Answer Booklet*

This paper consist of **FIVE** questions

Answer question **ONE (COMPULSORY)** 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 the following terms:

- (i) Modulation and Demodulation
- (ii) Multiplexing and Demultiplexing
- (iii) Baseband transmission and Broadband Transmission. **(12 marks)**

b) Using wave form diagrams, describe the following modulation processes:

- (i) Frequency Shift Keying (FSK)
- (ii) Amplitude Shift Keying (ASK) **(8 marks)**

Question Two

a) Using appropriate diagrams, explain the features of the following multiplexing techniques:

- (i) Time division multiplexing (TDM)
- (ii) Frequency Division Multiplexing (FDM) **(10 marks)**

b) Describe using examples the following switching technologies:

- (i) Circuit switched network
- (ii) Packet switched network. **(10 marks)**

Question Three

a) (i) Describe the following ISDN services:

- (i) Primary Rate Interface (PRI)
- (ii) Basic Rate Interface (BRI) **(5 marks)**

(ii) State at least **FIVE** applications of ISDN. **(5 marks)**

b) (i) State at least **FIVE** application areas of Frequency Division Multiplexing (FDM) **(5 marks)**

(ii) State the limitations of TDM and explain how they are overcome by STDM. **(5 marks)**

Question Four

a) Describe the following data security enhancement:

- (i) Data Encryption
- (ii) Back-up
- (iii) Fire-wall
- (iv) RAID techniques. **(10 marks)**

b) Explain the advantages and disadvantages of implementing fiber optic cables in a network.

(10 marks)

Question Five

a) (i) Explain at least **FIVE** roles of a Network Administrator. **(5 marks)**

(ii) Explain the following Data Encoding Methods:

- (i) Non-Return-to-Zero (NRZ)
- (ii) Manchester **(5 marks)**

- b) With the aid of at least two examples, differentiate between the following:
- (i) Connection oriented protocols and connection less oriented protocols
 - (ii) Ratable protocols and Non-ratable protocols.

(10 marks)