

DEPARTMENT OF COMPUTER SCIENCE AND INFORMATION TECHNOLOGY

CERTIFICATE IN COMPUTER MAINTENANCE & NETWORK TECHNOLOGY-CMNT 2K11M

ECT 1112 **DATA COMMUNICATIONS**

SECTION A COMPULSORY

QUESTION 1

- a) Define the following terms:
- i) Data communications (2 marks)
  - ii) Modem (2 marks)
  - iii) Carrier signals (2 marks)
- b)
- (i) Distinguish between parallel and serial transmission (Tabulate) (4 marks)
  - (ii) Name the three modes of communications (3 marks)
  - (iii) Give one application of each of the communication modes named in (ii) (3 marks)
- c)
- (i) Draw diagrams to distinguish between synchronous and asynchronous serial transmission (4 marks)
  - (ii) Give two features of each of the serial transmission illustrated in (c)(i) (4 marks)
- d)
- (i) Draw a block diagram to illustrate demodulation process (4 marks)
  - (ii) Give two disadvantages of external modem (2 marks)

SECTION B (Answer any two questions)

QUESTION 2 (15 MARKS)

- a) Briefly explain the following modulation processes
- i) Amplitude modulation (AM) (1 marks)
  - ii) Frequency Modulation (FM) (1 marks)
  - iii) Phase Modulation (PM) (1 marks)
- b) Draw diagrams to illustrate the modulation processes listed in (a) (12 marks)

QUESTION THREE (15 MARKS)

- a) Briefly describe the following multiplexing categories (2 marks)
- i) Frequency Division Multiplexing (FDM)
  - ii) Time Division Multiplexing (TDM) (2marks)
- b) Draw diagrams to illustrate the differences between synchronous and Statistical multiplexing methods (11 marks)

#### QUESTION FOUR (15 MARKS)

- a) Explain in details the areas of application of multiplexing in the communication industry. (10 marks)
- b) List down five characteristics of multiplexing (5 marks)

#### QUESTION FIVE

- a) Name two switching methods used in data communications (2 marks)
- b) List six characteristics of each of the following methods named in (a) (6 marks)
- c) With the aid of a diagram explain the operation of a four channel FDM system (7 marks)