

2022/2023 SECOND SEMESTER  
COURSE CODE: COMP 226  
COURSE TITLE: DATA COMMUNICATIONS  
DURATION: 3HRS

SECTION A ANSWER ALL QUESTIONS IN THIS SECTION (31 MARKS)

**QUESTION ONE**

- (a) From administrator's point of view, what is a network? (2mks)
- (b) Outline Four advantages of a network (4mks)
- (c) What is the role of physical layer? (2mks)
- (d) What is a virtual LAN? (2mks)
- (e) What is hybrid topology? State its main advantage (3mks)
- (f) What is transmission media? (3mks)

**QUESTION TWO**

- (a) What is secretkey encryption? (4mks)
- (b) State three factors affecting channel capacity (3mks)
- (c) Give the three kinds of digital-to-analog conversion (3mks)
- (d) What is multiplexing? (3mks)
- (e) A switch can be divided into two major categories. Name them (2mks)

SECTION B ANSWER ANY THREE QUESTIONS MARKS (39 MARKS)

**QUESTION THREE**

- (a) With the aid of diagrams, explain the following types of computer network topologies:
  - (i) Bus topology (2mks)
  - (ii) Tree topology (2mks)
- (b) What is the computer system? (2mks)
- (c) State four ways in which networks are classified (3mks)
- (d) State two advantages of star topology (4mks)

**QUESTION FOUR**

- (a) All security threats are intentional. What is the meaning of this statement? (1mk)
- (b) State and explain five security threats (12mks)

**QUESTION FIVE**

- (a) Under analog transmission, explain the following :
  - (i) Bandpass (2mks)
  - (ii) Low-pass (2mks)
- (b) State three characteristics of an analog signal (3mks)

- (c) State and explain the three kinds of digital-to-analog conversions (6mks)

#### QUESTION SIX

- (a) Explain the following switching techniques:
- (i) connectionless (2mks)
  - (ii) connection oriented (2mks)
- (b) Explain the following:
- (i) Circuit switching (3mks)
  - (ii) Message switching (3mks)
  - (iii) Packet switching (3mks)

#### QUESTION SEVEN

- (a) With the aid of diagrams, state and explain THREE types of errors (9mks)
- (b) Explain the following error correction mechanisms:
- (i) Error detection (2mks)
  - (ii) Parity Check (2mks)