

SEAT NO. \_\_\_\_\_

**NED UNIVERSITY OF ENGINEERING & TECHNOLOGY**  
FIRST YEAR(BACHELOR OF SCIENCE IN COMPUTER SCIENCE & INFORMATION TECHNOLOGY)  
FALL SEMESTER EXAMINATIONS 2022  
BATCH 2022

Time: 3 Hours

Dated:14-02-2023

Max.Marks:60

**Fundamentals of Information Technology - CT-174**

**Instructions:** Attempt all Questions  
Use diagrammatic representation and assumptions where necessary  
Use of Calculator is strictly not allowed.

**QUESTION#1:** **[CLO-1, 12 marks]**

- a) **Define** Management Information system (MIS). Describe the different types of MIS. (4)
- b) **Elaborate** any four basic operations of a Computer (4)
- c) **List** any two input and two output devices (2)
- d) **Define** the term Information Technology (2)

**QUESTION#2:** **[CLO-2, 12 marks]**

- a) **Explain** the advantages of the Database approach over the File-based approach with the help of diagram. (3)
- b) **Compare** Simplex, Half-Duplex and Full-Duplex data transmission (3)
- c) **Compare** Data and Information with an example (3)
- d) **Summarize** recent advances in information technology (3)

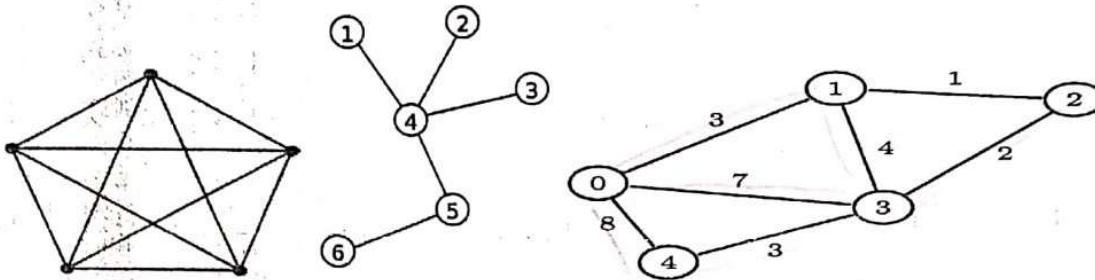
**QUESTION#3:** **[CLO-1, 12 marks]**

- a) **Discuss** the runtime, logical and syntax error along with examples. (3)
- b) **Develop** an algorithm that converts kilometers to miles. The solution would read in a number that represents the kilometers traveled. The output will be the number in miles. (3)  
1 kilometer = 0.621 miles.
- c) **List** the different data types along with example. (2)
- d) **Define** software along with its types. (2)
- e) **Define** Characteristics of Operating systems. (2)

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**QUESTION#4:****[CLO-2, 12 marks]**

- a) Define Graph and list the type of graphs given below and mention the count of nodes and count of edges for each. (3)



- b) Elaborate one example each of linear and non-linear data structure. (4)

- c) Convert the following: (5)

- (i)  $(1101)_2 = ( )_{10}$   
 (ii)  $(137)_8 = ( )_{10}$   
 (iii)  $(95)_{10} = ( )_8$   
 (iv)  $(BAD)_{16} = ( )_{10}$   
 (v)  $(2989)_{10} = ( )_{16}$

**QUESTION#5:****[CLO-2, 12 marks]**

- a) Identify the network topology in the following scenario along with reason: (4)

(Assume Computer A, B, C, D, E, F, G, H are connected in network)

- i. Computer A sends a message across a network but it undergoes security issue.
  - ii. Computer B is the central computer and it failed to send message to other computers.
  - iii. Computer C switches off so entire network is down.
  - iv. Computer D, E, F, G, H undergoes redundancy of message.
- b) Briefly explain use of Information Technology in Education with at least two examples. (3)
- c) Identify the types of Operating System in the following scenario: (3)
- i. Requires the maximum time for critical operations and complete them on time.
  - ii. There is no mechanism to prioritize the processes.
  - iii. The processing is fast and less load on the Host Machine.
- d) List down two criteria for selection of data structure. (2)