PENINSULA COLLEGE GEORGETOWN DK266-03(P)

FINAL EXAMINATION

Semester	:	**JANUARY 2025 SEMESTER**
Programme Name	:	**DIPLOMA IN COMPUTER SCIENCE**
Course Code & Name	:	**DCS1133 INTRODUCTION TO NETWORKING**
Duration	:	**3 HOURS**

INSTRUCTIONS TO CANDIDATES:

1. Please read the instructions given in the question paper **CAREFULLY.**
2. The question paper consists of **FOUR (4)** questions.
3. Answer **ALL** questions in the question paper.
4. Answers to the questions are to be written into the examination booklet.
5. Electronic dictionaries, lecture notes, files or any unauthorised materials except writing equipment are strictly prohibited.

This question paper must be submitted along with all used and/or unused rough papers and/ or graph papers (if any). Candidates are **NOT ALLOWED** to take any examination paper(s) used or unused out of the examination hall.

WARNING:

The Examination Board of Peninsula College Georgetown regards cheating as a very serious offence and will not hesitate to mete out the appropriate punitive actions according to the severity of the offence committed, and in accordance with the clauses stipulated in the Students' Handbook, up to and including expulsion from Peninsula College Georgetown.

(*This booklet contains 3 printed pages including this page*)

DO NOT OPEN THIS BOOKLET UNTIL YOU ARE ALLOWED TO DO SO

Answer **ALL** questions on the separate sheet provided. **[100 marks]**

1. a) Describe **THREE (3)** network components. (6 marks)

   b) Identify and explain **FOUR (4)** differences between asynchronous and synchronous transmissions. (8 marks)

   c) Draw a diagram to illustrate the data transmission mode from a computer to a printer, including all necessary labels. (3 marks)

   d) Explain **TWO (2)** types of time-division multiplexing, with the aid of diagrams for each type. (8 marks)

   Total: [25 marks]

2. a) Multiplexing is a method used in telecommunication and computer networking.
      i) Discuss the function of Multiplexing with appropriate example. (3 marks)

      ii) Identify **TWO (2)** advantages of Frequency Division of Multiplexing (FDM). (4 marks)

   b) Describe **THREE (3)** differences between OSI layer and TCP/IP layer. (6 marks)

   c) OSI Reference Model consist of seven layers.

      i) Explain **TWO (2)** functions of data link layer. (4 marks)

      ii) Elaborate **TWO (2)** roles of transport layer. (4 marks)

   d) List **FOUR (4)** layers of TCP/IP Reference Model. (4 marks)

   Total: [25 marks]

3. a) Explain the **FIVE (5)** differences between connection-oriented and connectionless packet switching. (10 marks)

   b) Examine **FIVE (5)** key differences between circuit switching and packet switching. (10 marks)

   c) Routing plays a crucial and fundamental role in any packet-switched network, as it determines the optimal path for data packets to travel from the source to the destination.

      i) List **THREE (3)** criteria to choose the routes in routing. (3 marks)

ii) Name **TWO (2)** categories of routing method. (2 marks)

Total: [25 marks]

4 a) Explain the role and operation of the Token Ring network. (4 marks)

b) Identify and explain **FIVE (5)** characteristics of Bluetooth. (10 marks)

c) Discuss **THREE (3)** disadvantages of Packet Switching. (6 marks)

d) Provide **TWO (2)** scenarios that can be safeguarded by a firewall. (5 marks)

Total: [25 marks]

- END OF QUESTIONS -