PENINSULA COLLEGE GEORGETOWN DK266-03(P)

FINAL EXAMINATION

Semester	:	**JANUARY 2024 SEMESTER**
Programme Name	:	**DIPLOMA IN COMPUTER SCIENCE** **DIPLOMA IN E-BUSINESS TECHNOLOGY**
Course Code & Name	:	**DCS1133 DEB2143 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) Explain **TWO (2)** benefits of Data Communication and Networking. (4 marks)

   b) Elaborate **THREE (3)** Data Communication Usage Modes with appropriate examples. (6 marks)

   c) Transmission Media Cable consist of Twisted Pair Cable, Coaxial Cable and Fiber Optic Cable.
      i) Summarize **TWO (2)** differences between those three cables. (6 marks)

      ii) Determine **TWO (2)** characteristics of Twisted Pair Cable. (4 marks)

   d) Illustrate the difference between serial and parallel transmission. (5 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) Classify **TWO (2)** characteristics of Router as Networking Device. (4 marks)

   b) Summarize **THREE (3)** functions of Protocol Converter as Networking Management Device. (6 marks)

   c) Elaborate **FIVE (5)** processes on how Ethernet as network protocol controls data transmission over a Local Area Network (LAN). (10 marks)

d) Distinguish **TWO (2)** Carrier Sensing Multiple Access (CSMA) solutions that commonly used in LANs. (5 marks)

Total: [25 marks]

4. a) For this question, please refer to the figure below.

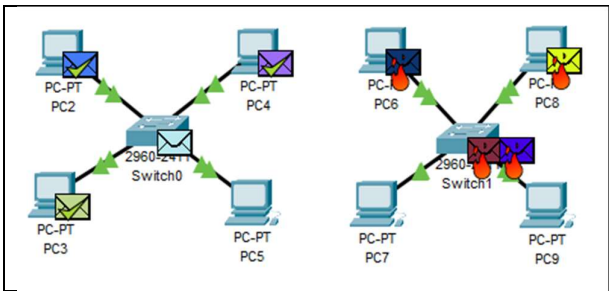

Figure 1: Packet Travel

Identify **TWO (2)** situations on Figure 1 and state the reason on why it is happened. (4 Marks)

b) Differentiate **THREE (3)** differences between Hubs and Switches. (6 marks)

c) Wireless Network consists of two main medium, which are Wireless Local Area Network (WLAN) and Bluetooth Wireless Technology.

i) Compare **THREE (3)** differences between 2.4GHz and 5.0GHz Wireless Local Area Network (WLAN) frequencies. (6 marks)

ii) List **THREE (3)** limitations of Bluetooth. (3 marks)

d) Write **THREE (3)** functions of firewall for Network Security. (6 marks)

Total: [25 marks]

- END OF QUESTIONS -