Department of Business Administration
Faculty of Business & Entrepreneurship
Daffodil International University
Program: BBA

Semester: Spring, 2025
Time: 90 minutes
Course Code: MIS-403
Section: 60 A

Exam: Mid Term
Full Marks: 25
Title: Data Communication & Networking for Business
Course Teacher: MR

Instructions:
1. Answer all the questions.
2. Any kind of unfair means is strictly prohibited.
3. Read the question attentively, then answer to the point, relevant examples will carry greater marks.

Question no.1: **[CLO1, Level 2]** **[Marks : 5]**

Data communication plays an important role in today's interconnected world and enables the exchange of information between devices and networks. Whether you're sending an email, making a video call, or browsing the web, data communication ensures that information flows smoothly. Now, **explain** the components of a data communication system and **illustrate** data flow (simplex, half-duplex, and full-duplex).

Question no.2: **[CLO2, Level 4]** **[Marks : 5]**

The Open Systems Interconnection (OSI) model describes seven layers that computer systems use to communicate over a network. The OSI model is divided into seven distinct layers, each with specific responsibilities, ranging from physical hardware connections to high-level application interactions. **Develop** and **organize** the interaction between layers in the OSI model.

Question no.3: **[CLO3, Level 5]** **[Marks : 5+5]**

Assume we need to transfer images at the rate of 10 images per second. What is the required bit rate of the channel (each image is 1024x768 pixels with 8-bit grayscale)? **Analyze** it in gigabits per second (Gbps).

HDTV uses digital signals to broadcast high-quality video signals. The HDTV screen is a ratio of 21:9. There are 2560 x 1080 (Ultra-Wide Full HD or UW-FHD) pixels per screen, and the screen is renewed 90 times per second. 48 bits represent one color pixel. What is the bit rate for Ultra-Wide Full HD or UW-FHD TV? **Examine** it in gigabits per second (Gbps).

Question no.4: **[CLO3 & 4, Level 5]** **[Marks : 5]**

Look at the case of link3 Bangladesh Ltd. Their Bandwidth is 3 bit per second (bps), and the propagation delay is 5 seconds so the Bandwidth × Delay (3 bps × 5s) = 15 bits (this represents the "pipeline" capacity of the link). Now, **examine** this case of Link3 Bangladesh Ltd. and **interpret** a diagram of how bits are transmitted across a network link with a specific bandwidth and propagation delay.