BRAC UNIVERSITY
Department of Computer Science and Engineering

Examination: Quiz 03 **Semester: Summer 2023**
Duration: 30 Minutes **Full Marks: 15**

CSE320: Data Communications

Name:	**ID:**	**Section:**

Answer the following questions on the question paper

Question 01: CO3 [8]

Consider there are five channels, three with a bit rate of 130 kbps and two with a bit rate of 65 kbps, are to be multiplexed using **multi-level TDM** with one synchronization bit.

Write the following answers:

a. How many input channels are there after doing **multi-level** TDM?
b. What is the input bit duration before multiplexing in **seconds**?
c. What is the size of a frame in **bits**?
d. What is the frame rate in **FPS**?
e. What is the duration of a frame in **seconds**?
f. What is the data rate in **bps**?
g. What is the output slot duration in **seconds**?
h. What is the output bit duration in **seconds**?

Question 02: CO3 [5]

Suppose, you are given with the k-bit pattern and Carrier Frequency as follows:

1. **Draw FHSS** cycle 2 times using the above pseudo random generated k-bit pattern and given frequency table. (** Hint: Draw the Carrier frequency graph against hop period)
2. **How** does this spreading strategy help to achieve privacy? Describe very briefly.

k-bit pattern

00 10 01 11

k-bit	Carrier Frequency
00	250kHz
01	150 kHz
10	350 kHz
11	450 kHz

Write your answer in this box

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Question 01: CO3 [8]

Consider there are three channels, one with a bit rate of 130 kbps and two with a bit rate of 65 kbps, are to be multiplexed using **multi-slot TDM** with one synchronization bit.

Write the following answers:

a. How many input channels are there after doing **multi-slot** TDM?
b. What is the input bit duration before multiplexing in **seconds**?
c. What is the size of a frame in **bits**?
d. What is the frame rate in **FPS**?
e. What is the duration of a frame in **seconds**?
f. What is the data rate in **bps**?
g. What is the output slot duration in **seconds**?
h. What is the output bit duration in **seconds**?

Question 02: CO3 [5 + 2]

Suppose, you are given with the k-bit pattern and Carrier Frequency as follows:

1. **Draw FHSS** cycle 2 times using the above pseudo random generated k-bit pattern and given frequency table. (** Hint: Draw the Carrier frequency graph against hop period)
2. **How** does this spreading strategy help to achieve privacy? Describe very briefly.

k-bit pattern

01 10 00 11

k-bit	Carrier Frequency
00	250kHz
01	150 kHz
10	350 kHz
11	450 kHz

Write your answer in this box