



MALAYSIAN INSTITUTE OF INFORMATION TECHNOLOGY

**FINAL EXAMINATION
JANUARY 2016 SEMESTER**

SUBJECT CODE : INB 23103
SUBJECT TITLE : DATA COMMUNICATION
LEVEL : BACHELOR
TIME / DURATION : 9.00 am – 11.00 am
(2 HOURS)
DATE : 28 MAY 2016

INSTRUCTIONS TO CANDIDATES

1. Please read the instructions given in the question paper CAREFULLY.
2. This question paper is printed on both sides of the paper.
3. Answer ALL questions
4. Please write your answers on the answer booklet provided.
5. Answer all questions in English.

THERE ARE 5 PAGES OF QUESTIONS, INCLUDING THIS PAGE.

SECTION A (Total: **100** marks)

INSTRUCTION: Answer ALL questions.

Please use the answer booklet provided.

Question 1

a) Convert all the binary streams bit below into Bipolar AMI, B8ZS and HDB3.

Bit stream : 1 1 0 0 0 0 0 0 0 0 1 1 0 0 0 0 0 1 0

	1	1	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	1	0
Bipolar AMI																			
B8ZS																			
HDB3																			

15 marks

b) Sketch the THREE elements of Data communications system, and briefly explain each elements

5 marks

[20 marks]

Question 2

- a) There are **THREE** (3) main types of twisted-pair cable.
- i. List and explain **TWO** (2) type of Twisted-Pair cable. (4 marks)
 - ii. Draw the cross sections of coaxial cable and label all layers. (3 marks)
- b) Differentiate between Radio (RF) and Microwave signal pattern (2 marks)
- c). State **SIX** (6) formats of signal, Digital to Digital Encoding which can be used to enhance the accuracy of synchronizations. (6 marks)
- d) For each of the following, state where it is may use:
- i. RG 8 (1 marks)
 - ii. RG 58 (1 marks)
- e) List any **THREE** (3) types of Unguided media (3 marks)

[20 marks]

Unikl MIT

Question 3

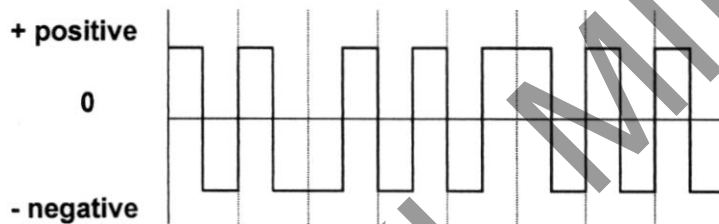
- a) Determine the maximum effect of a 2ms burst of noise on data transmitted at:
 - i) 1500 bps
 - ii) 12000 bps
 - iii) 96,000 bps

(6 Marks)
- b) Given the 6 bit sequence 100100 and the divisor is 1101, find the CRC. (10 Marks)
- c) Given the code 11110101101 was received. Using encoding Hamming Algorithm, determine the original code sent? (4 Marks)

[20 marks]

Question 4

- a) Diagram below shows the Differential Manchester encoding of a data stream. Identify the data stream?



(8 Marks)

- b) Name and briefly explain **THREE** (3) transmission mode. (6 Marks)
- c) State the differences between:
 - i) Frequency and Amplitude
 - ii) Spectrum and Bandwidth

(2 Marks)
- d) States **TWO** types of light used in Optical fiber media (2 Marks)
- e) States **TWO** types of Error Control (2 Marks)

[20 marks]

Question 5

- a) Draw a diagram to explain how various error control techniques works for each of the following situations :
- i. Stop and Wait ARQ for damaged frame
 - ii. Stop and Wait ARQ for lost ACK
 - iii. Go back n for lost data frame
 - iv. Selective reject for damaged data frame

(12 Marks)

- b) Describe **THREE (3)** criteria necessary for an effective and efficient network (6 Marks)

- c) Name **FOUR** basic network topologies (2 Marks)

[20 marks]**END OF EXAMINATION PAPER**

Unikl MIT