NATIONAL OPEN UNIVERSITY OF NIGERIA
14/16 AHMADU BELLO WAY, VICTORIA ISLAND, LAGOS
SCHOOL OF SCIENCE AND TECHNOLOGY
JUNE/JULY EXAMINATION

COURSE CODE: CIT754
COURSE TITLE: Digital Communications
TIME ALLOWED: 3hrs
INSTRUCTION: Attempt any five (5) questions

Question 1

i) Data can suffer from one or more of certain channel impairments; outline any four channel impairments.

(1 mark each for any 4 = 4 marks)

ii) a) The process of mapping a digital sequence to signals for transmission over a communication channel is called _____or _____.

(2 marks each = 4 marks)

b) Depending on the nature of the communication channel, data can suffer from one or more of certain channel impairments. Write briefly how these channel impairments can be overcome.

(12 marks)

Total = 20 marks

Question 2

i) Data can suffer from one or more of certain channel impairments; outline any four channel impairments.

(1 mark each for any 4 = 4 marks)

ii) a) The process of mapping a digital sequence to signals for transmission over a communication channel is called _____or _____.

(2 marks each = 4 marks)

b) Depending on the nature of the communication channel, data can suffer from one or more of certain channel impairments. Write briefly how these channel impairments can be overcome.

(12 marks)

Total = 20 marks

Question 3

i) If jumps are smoothed, the spectrum will be more _____
(5 marks)

ii) The type of signaling in which the messages are transmitted by signals that differ in frequency is called?
(5 marks)

iii) The superposition principle does not apply to signals transmitted in successive time intervals in _____
(5 marks)

iv) In Continuous- phase modulated signals equation, q(t) is_____
(5 marks)

Total = 20 marks

Question 4

i) What is the process of mapping a digital sequence to signals for transmission over a communication channel
(5 marks)

ii) The average energy for transmission of 1 bit of information when the signals are equiprobable is?

(5 marks)

iii) The type of signaling in which the messages are transmitted by signals that differ in frequency is called?
(5 marks)

iv) Digital data are usually in the form of a stream of binary_____
(5 marks)

Total = 20 marks

Question 5

How do you construct signal waveforms corresponding to higher-dimensional vectors?

i) Using the time domain (10 marks)

ii) Using the frequency domain (10 marks)

Total = 20 marks

Question 6

i) The type of signaling in which the messages are transmitted by signals that differ in frequency is called?
(5 marks)

ii) The superposition principle does not apply to signals transmitted in successive time intervals in _____
(5 marks)

iii) A set of M waveforms can be generated from a set of M binary code words of the form_____
(5 marks)

iv) What does the acronym PAM represent?
(5 marks)

Question 7

i) Se = f (Sf-i, Ie) represents the internal dynamics of a? (5 marks)

ii) Hadamard matrices are symmetric matrices whose rows are? (5 marks)

iii) In a memoryless modulation scheme, the binary sequence is parsed into subsequences each of _____? (5 marks)

iv) A set of M waveforms can be generated from a set of M binary code words of the form_____ (5 marks)

(20 marks)