R15

Code No: 126ZN

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
B. Tech III Year II Semester Examinations, April - 2018
DIGITAL COMMUNICATIONS
(Electronics and Communication Engineering)

Time: 3 hours **Max. Marks: 75**

Note: This question paper contains two parts A and B.
Part A is compulsory which carries 25 marks. Answer all questions in Part A. Part B consists of 5 Units. Answer any one full question from each unit. Each question carries 10 marks and may have a, b, c as sub questions.

PART - A

(25 Marks)

1.a)	State Sampling theorem.	[2]
b)	Mention the merits of DPCM.	[3]
c)	Define ASK.	[2]
d)	What is meant by DPSK?	[3]
e)	What is intersymbol interference in baseband binary PAM systems?	[2]
f)	What is the necessity of adaptive equalization?	[3]
g)	What is meant by systematic and non-systematic codes?	[2]
h)	What is meant by linear code?	[3]
i)	Define spread spectrum communication.	[2]
j)	What is frequency hop spread spectrum modulation?	[3]

PART - B

(50 Marks)

2.a) Draw the block diagram of digital communication system and explain each block in detail.
b) Mention the advantages of digital communication over analog communication. [5+5]

OR

3.a) Explain the term quantization.
b) Find the output signal power due to quantization noise in PCM system. [5+5]

4.a) Explain with neat diagram BFSK transmitter and receiver.
b) Give a comparison between FSK and PSK schemes. [6+4]

OR

5.a) Explain coherent ASK and non coherent ASK schemes.
b) Draw a diagram of DPSK transmitter. [6+4]

6.a) Explain how the residual effects of the channel are responsible for ISI.
b) Explain about three tap reset equalizer. [5+5]

OR

7.a) What is nyquist pulse shaping?
b) Explain the role of cosine roll off spectrum in Nyquist pulse shaping with necessary waveforms and spectra. [5+5]

8.a) What is a convolutional code? How is it generated?

b) Explain in detail convolutional coder with a suitable example. [5+5]

OR

9. The parity check bits of an (8, 4) block code are generated by

C5= d1 +d2+d4

C6= d1+d2+d3

C7= d1+d3+d4

C8= d2+d3+d4

Where d1, d2, d3 and d4 are message bits. Find

a) The generator matrix and parity check matrix for this code.

b) The minimum weight of this code. [5+5]

10.a) Draw the block diagram of a spread spectrum system.

b) Explain Frequency hopping spread spectrum. [5+5]

OR

11. Explain PN sequences generation and characteristics. [10]

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