Question Paper Code : X 67570

B.E./B.Tech. DEGREE EXAMINATIONS, NOVEMBER/DECEMBER 2020

Sixth Semester

Electronics and Communication Engineering

EC 1351 A – DIGITAL COMMUNICATION TECHNIQUES

(Regulations 2008)

Time : Three Hours   Maximum : 100 Marks

Answer ALL questions

PART – A   **(10×2=20 Marks)**

1. What is Pulse Amplitude Modulation ?

2. What is the main difference between DPCM and DM ?

3. Draw the diagram of adaptive equalizer.

4. What is inter symbol interference ?

5. What is carrier synchronisation ?

6. State two valid differences between pass-band-base-band transmission.

7. What is cyclic code ?

8. What is meant by constraint length in convolutional code ?

9. List the properties of pseudo noise sequences.

10. Define processing gain and jamming margin of DS-SS system.

PART – B   **(5×16=80 Marks)**

11. a) With suitable block diagram, explain the operation of transmitter and receiver of delta modulation. Also state the advantages and disadvantages of this system. **(16)**

(OR)

b) Write short notes on :

   i) Pulse <u>Amplitude</u> Modulation. **(8)**

   ii) Pulse <u>Position</u> Modulation. **(8)**

12. a) i) State and prove any two properties of matched filter. **(5)**

   ii) Draw the block diagram of binary base-band pulse transmission system and explain. **(7)**

   iii) Explain eye pattern with neat diagram. **(4)**

(OR)

b) i) With neat block diagram explain modified duobinary signaling scheme without and with precoder. **(8)**

   ii) Draw the block diagram of adaptive equalization and explain in detail. **(8)**

13. a) i) Draw the block diagram of coherent QPSK modulation technique and explain with signal space diagram. **(10)**

   ii) Compare the performance of binary ASK, PSK and FSK systems. **(6)**

(OR)

b) With the help of block schematic diagram, explain the operation of a coherent binary PSK receiver and derive its bit error probability.

14. a) Elaborate on convolution codes. Give an example and explain the generation with necessary diagrams and maximum likelihood decoding of the codes.

(OR)

b) i) Bring out the differences between coding schemes and coded modulation schemes. **(6)**

   ii) With a suitable illustration, explain the Trellis coded modulation scheme. Comment on its significance. **(10)**

15. a) With the help of the block diagram, explain the operation of direct sequence spread spectrum BPSK transmitter and receiver. **(16)**

(OR)

b) Describe slow frequency hopping spread spectrum technique in detail. Also state the advantages and disadvantages of FH-SS system. **(16)**

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