AQ – 2921

First Semester M. E. (Electronics and Telecomm. Engg.) Examination

DIGITAL COMMUNICATION TECHNIQUES

Paper – 1 ENTC 3

P. Pages : 2

Time : Three Hours] [Max. Marks : 80

Note : (1) Separate answer book must be used for each section in the subject Geology, Engineering material of civil branch and Separate answer book must be used for Section A and B in Pharmacy and Cosmetic Tech.
(2) Answer **Three** questions from Section A and **Three** questions from Section B.
(3) Due credit will be given to neatness and adequate dimensions.
(4) Assume suitable data wherever necessary.
(5) Illustrate your answer wherever necessary with the help of neat sketches.

SECTION A

1. (a) What is memoryless modulation ? With signal psace diagram, explain digital PAM signal. 7

   (b) Determine the impulse response of matched filter. 7

OR

2. (a) Discuss the power spectra of CPFSK and CPM signals in details. 10

   (b) Derive the probability of error for binary signals. 4

3. (a) Explain the Lampel Ziv algorithm with an example. 8

   (b) Explain the concept of rate distortion functions. 5

OR

4. (a) Compare scalar quantization and vector quantization in source encoding. 8

   (b) State the different types of coding techniques for analog sources. 5

5. (a) Explain temporal waveform coding for PCM and DPCM with block diagram. 10

(b) Discuss Viterbi decoding algorithm. 3

OR

6. (a) Explain BCH code with an example. 8

(b) Discuss Trellis code in detail. 5

SECTION B

7. (a) Explain the Nyquist criterian for band limited signals with zero ISI. 10

(b) Comment on ideal and practical solution for pulse shape selection to achieve distortionless transmission. 4

OR

8. (a) Discuss the probability of error detection of PAM with zero ISI. 8

(b) Explain eye diagram. 6

9. (a) Discuss in detail the mean square error(MSE) criterion performance. 8

(b) Explain adaptive linear equalizers. 5

OR

10. (a) Explain in detail zero forcing algorithm. 7

(b) Discuss LMS algorithm in detail. 6

11. (a) Explain the anti jamming application with the help of DSSS. 9

(b) Explain the effect of pulse interference on DSSS system. 5

OR

12. With the help of block diagram, explain the fast frequency hopping spread spectrum. State its advantages and disadvantages over slow frequency hopping spread spectrum. 14