

D 30952

(Pages : 2)

Name.....

Reg. No.....

**FIFTH SEMESTER B.TECH. (ENGINEERING) DEGREE EXAMINATION  
OCTOBER 2012**

EC 09 504—DIGITAL COMMUNICATION

(2009 Scheme)

Time : Three Hours

Maximum : 70 Marks

**Part A**

*Answer all questions.*

1. Define Granular noise.
2. State Sampling theorem.
3. What are base band and pass-band signals ?
4. What is an AWGN Channel ?
5. Draw the PSK and FSK waveforms of 01010.

(5 × 2 = 10 marks)

**Part B**

*Answer any four questions.*

1. Explain DPCM system.
2. Explain A-law and  $\mu$ -law non-uniform quantisation processes.
3. Explain the working of adaptive equaliser.
4. Explain the working of a correlation receiver.
5. Explain a frequency hopped spread spectrum system.
6. Explain MSK.

(4 × 5 = 20 marks)

**Part C**

*Answer all questions.*

1. Derive the signal-to-noise ratio expression for a PCM receiver.  
*Or*
2. Explain the working of DM system. Compare the performance of PCM and DM systems.
3. Explain Nyquist first criterion for zero ISI.

*Or*

4. Write notes on :
  - (a) Eye diagram.
  - (b) Scrambler.

Turn over

5. Explain the carrier synchronisation in a direct sequence spread spectrum system.

*Or*

6. Write notes on :

- (a) Pseudo noise sequence.
- (b) Optimum receiver for signals with coloured noise.
- (c) Vector channel.

7. Derive the expressions for bit error probability of ASK, FSK and PSK receivers.

*Or*

8. Compare the performance of ASK, FSK, PSK and MSK receivers.

(4 × 10 = 40 marks)