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 μ-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)