[05 – 3214]

III/IV B.E. DEGREE EXAMINATION.

Second Semester

Electronics and Communication Engineering

DIGITAL COMMUNICATIONS

(Effective from the admitted batch of 2006–2007)

Time : Three hours Maximum : 70 marks

Question No. 1 is compulsory.

Answer any FOUR from Two to Eight.

1. (a) Define sampling theorem for band pass signals.

(b) What is Quantisation error?

(c) Explain differentially encoded PSK.

(d) What is the relation between band width and rise time in digital communication?

(e) What are the important differences between QPSK and MSK?

(f) What is a matched filter?

(g) Explain Delta Pulse Code Modulation (DPCM).

2. (a) Illustrate how the sampling principle may be used to transmit a number of band limited signals over a single communication channel.

   (b) Explain the operation of Pulse Width Modulation (PWM) in detail.

3. (a) Describe the PCM communication system with a neat block diagram.

   (b) Describe the Adaptive Delta Modulation (ADM).

4. (a) Explain the operation of a differential phase shift keying.

   (b) Describe with a neat diagram the QPSK receiver.

5. (a) Describe the generation of a QASK signal.

   (b) Describe the operation of a BFSK receiver with diagram.

6. (a) Describe the duobinary Encoder/Decoder system.

   (b) Discuss the quadrature components of noise.

7. (a) Derive an expression for the probability of error (Pe) of the matched filter.

   (b) Explain the operation of a correlation receiver for QPSK with diagram.

8. (a) Describe the Frequency Hopping (FH) spread spectrum system.

   (b) Discuss the acquisition of a Frequency Hopping (FH) signal.

[2537/1/I/12]