No. of Printed Pages : 3

BIEL-035

DIPLOMA - VIEP ECE (DECVI)

Term-End Examination

June, 2013

BIEL-035 : DIGITAL COMMUNICATION

Time : 3 hours *Maximum Marks : 70*

*Note : (1) Attempt **five** questions in all.*

*(2) Question **No. 1** is **compulsory.***

1. Choose correct answer : **7x2=14**

(a) In order to reduce quantization noise one must :

(i) increase number of standard amplitudes.

(ii) send pulses whose sides are more nearly vertical.

(iii) increase the number of samples per second.

(iv) None of the above.

(b) Which of the following is analog ?

(i) PPM

(ii) PCM

(iii) DPCM

(iv) Delta modulation

(c) Which of the following is used in digital radio ?

(i) ASK (ii) PSK

(iii) QPSK (iv) None of the above

(d) In Manchester code, the symbol rate and data rate are related as :

(i) $r_b = 2r$ (ii) $T_s = 2T_b$

(iii) $T_s = T_b/2$ (iv) $r_s = r_b$

(e) TDM stands for :

(i) Time Division multiplexing

(ii) Time Domain multiplexing

(iii) Time Data Multiplexing

(iv) Telegraphic Data Multiplexing

(f) Spread spectrum modulation utilises :

(i) wideband modulation

(ii) double modulation

(iii) direct sequence modulation

(iv) pseudo random sequence modulation

(g) A scheme in which '1' is represented by a +ve pulse for one half of symbol duration, a −ve pulse for remaining half of the symbol, and for 'O' the order is reversed is known as :

(i) NRZ unipolar

(ii) Manchester code

(iii) NRZ bipolar format

(iv) NRZ polar format

2. Discuss briefly the basic digital communication system with the help of Block diagram. **14**

3. (a) Compare PCM, DM, ADM and DPCM. 7
(b) With the help of neat diagrams, explain the transmitter and receiver of PCM. 7

4. Draw the block diagram of DPSK modulator and explain how synchronization problem is avoided for its detection. 14

5. (a) State the advantages of TDMA over FDMA. 7
(b) Six message signals each of band width 5 kHz are time division multiplexed and transmitted. Determine the signalling rate and the minimum channel Bandwidth of the PAM/TDM channel. 7

6. With the help of suitable diagram explain working principle of spread spectrum modulation system. 14

7. Discuss briefly the following codes : 14
(a) Bipolar NRZ
(b) Bipolar RZ
(c) Manchester

8. Write short notes on **any four** : 4x3.5=14
(a) Properties of line coding
(b) M - ary encoding
(c) WDM
(d) Natural and flattop sampling
(e) Frequency hop spread spectrum
(f) Hartley's law