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BIEL-035

00611

DIPLOMA-VIEP ECE (DECVI)

Term-End Examination

December, 2012

BIEL-035 : DIGITAL COMMUNICATION

Time : 2 hours *Maximum Marks : 70*

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

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

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

(a) The Hartley- Shannon theorem sets a limit on the :

(i) maximum capacity of a channel with a given noise level.

(ii) highest frequency may be sets over a given channel.

(iii) max number of coding levels in a channel with a given noise level.

(iv) none of the above

(b) Quantization noise occurs in :

(i) TDM

(ii) PDM

(iii) PCM

(iv) PWM

(c) The most common modulation used for telegraphy :

(i) FSK

(ii) Two tone modulation

(iii) PCM

(iv) Single tone modulation

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

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

(iii) $T_S = \frac{T_b}{2}$ (iv) $r_s = r_b$

(e) FDM stands for :

(i) First Division Multiplexing

(ii) Frequency Division Multiplexing

(iii) Frequency Data Multiplexing

(iv) All the above

(f) The band rate when using binary transmission is :

(i) always equal to the bit rate.

(ii) equal to twice the B.W of an ideal channel.

(iii) not equal to the signalling rate.

(iv) equal to one half of the BW of ideal channel.

(g) In a _____ system, the available channel B.W is subdivided into a number of non - overlapping frequency slots.

(i) frequency - hopped spread spectrum

(ii) slow frequency hopping

(iii) fast frequency hopping

(iv) all the above

2. (a) State the advantages and disadvantages of digital communication. 7

(b) Discuss briefly "Shannon-Hartley theorem". 7

3. Explain delta modulation in detail with suitable diagram. Also explain ADM and compare its performance with DM. 14

4. Draw the block diagram of QPSK system and explain its working. 14

5. What do you mean by multiplexing ? Explain TDM and FDM. 14

6. (a) Distinguish between direct sequence spread spectrum and frequency hop spread spectrum. 7

(b) Define the term "Process gain" for a spread spectrum system and explain its importance. 7

7. (a) Explain about error detection and correction capabilities of Hamming codes. 7

(b) What are block codes ? Explain their use briefly. 7

8. Write short notes on ***any four*** : **4x3.5=14**

(a) Channel Capacity

(b) Sampling theorem

(c) QAM

(d) Line coding

(e) PN sequence

(f) WDM