

DIPLOMA - VIEP ECE  
(DECVI)

Term-End Examination

December, 2013

BIEL-035 : DIGITAL COMMUNICATION

Time : 2 hours

Maximum Marks : 70

Note : Attempt any five questions in all. Question No.1 is compulsory. All question carry equal marks.

1. State whether the following are true or false.  $2 \times 7 = 14$
- (a) Pulse Width Modulation (PWM) is also known Pulse Duration Modulation (PDM).
  - (b) Shannon's channel capacity limit is given as  $C = B \log_{10} (1 + S/N)$
  - (c) The other name for aliasing is fold over distortion.  
(Give the best option as choice for answer).
  - (d) The reconstruction filter used in the ideal sampling process is :
    - (i) an ideal low pass filter
    - (ii) an ideal high pass filter
    - (iii) an ideal bandpass filter
    - (iv) none of these
  - (e) In pulse code modulation (PCM), the information is transmitted in the form of :
    - (i) variation in the amplitude of pulses
    - (ii) variation in the width of pulses
    - (iii) variation in the position of pulses
    - (iv) code words each of N bit length

- (f) The synchronization at the receiver is better for :
- (i) Bipolar RZ
  - (ii) Bipolar NRZ
  - (iii) Manchester
  - (iv) All of the above
- (g) The bit rate is \_\_\_\_\_ than band rate in QPSK :
- (i) Half
  - (ii) Double
  - (iii) Not affected or same
  - (iv) None of these

2. Draw a neat and clean block diagram for a Digital Communication System (DCS). Also explain various parts of this block diagram. **14**
- 3 (a) State sampling theorem. Describe various types of sampling techniques. **7**
- (b) Explain with the help of suitable block diagram, the working of Differential Pulse Code Modulation (DPCM). **7**
4. (a) Describe the block diagram of Delta Modulation. **7**
- (b) Differentiate between Pulse Width Modulation (PWM) and Pulse Position Modulation (PPM). **7**
5. (a) Draw the block diagram of transmitter and receiver of Amplitude Shift Keying (ASK). **7**
- (b) What do you mean by QAM ? How it can be performed ? **7**
6. (a) Compare unipolar and bipolar type of line coding schemes. **7**
- (b) Discuss the need of multiplexing. **7**

7. (a) Compare the performance of TDM and FDM. 7  
(b) Differentiate between Direct sequence spread spectrum and frequency Hopping spread spectrum. 7
8. Write short notes on **any four** of the following :  $3\frac{1}{2} \times 4 = 14$
- (a) Entropy
  - (b) Channel Capacity
  - (c) Quantization Error
  - (d) Bit Rate
  - (e) Hamming Code
  - (f) WDM
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