$\boxed{\textbf{BIEL-035}}$

DIPLOMA – VIEP – ELECTRONICS AND COMMUNICATION ENGINEERING (DECVI)

Term-End Examination

⊔⊔869   **December, 2017**

BIEL-035 : DIGITAL COMMUNICATION

Time : 2 hours   *Maximum Marks : 70*

Note : *Attempt any five questions. All questions carry equal marks. Missing data, if any, may be suitably assumed. Use of scientific calculator is permitted.*

1. (a) With the help of a neat block diagram, explain the working of a digital communication system.   7

    (b) A discrete source emits five symbols with probabilities 1/2, 1/4, 1/8, 1/16 and 1/16 respectively. Find the source entropy and information rate.   7

2. (a) List the advantages of digital communication over analog communication system. *7*

(b) Explain in detail, the Shannon Fano-Hartley theorem and its relation with channel capacity. *7*

3. Explain with the help of a neat diagram, the working of different elements of Pulse Code Modulation (PCM) scheme. *14*

4. (a) Explain binary PSK and QPSK. *7*

(b) Derive corresponding equations and give the constellation diagrams for PSK and QPSK. *7*

5. (a) List and explain the properties of line codes. *7*

(b) White short notes on the following : *7*
   (i) Hamming Codes
   (ii) ASCII Codes

6. (a) Explain the need of multiplexing. *7*

(b) Why is TDM preferred over FDM for digital communication ? *7*

7. With a neat block diagram, explain the Frequency Hop Spread Spectrum technique. *14*