M.Sc.- II (Electronics) New CBCS Pattern Semester-IV

PSELT402 - Core-XII - Paper-II : Digital Communication

P. Pages : 1 **GUG/W/23/11368**

Time : Three Hours * 6 3 7 7 * Max. Marks : 80

Notes : 1. All questions are compulsory and carry equal marks.
2. Draw neat and labelled diagram wherever necessary.

Either:

1. a) Explain the classification of the signal. **8**

b) Explain the signal power and power spectral density. **8**

OR

c) Explain the properties of the Fourier transform. **8**

d) State and prove Parseval's theorem. **8**

Either:

2. a) Draw the block diagram of the digital communication system and explain the function of each block. **8**

b) Explain the generation and detection of PAM with a suitable diagram. **8**

OR

c) Explain the pulse code modulation with a suitable diagram. State its disadvantages. **8**

d) Explain the uniform and non-uniform quantization. **8**

Either:

3. a) Explain coherent binary modulation techniques. **8**

b) Explain the FSK modulation technique with waveforms. **8**

OR

c) Explain the adaptive delta modulation. State its advantages. **8**

d) Explain: **8**
i) Slope overload noise
ii) Granular noise

Either:

4. a) State Shannon's coding theorem. Explain its significance. **8**

b) What is channel capacity? Discuss the error free communication over a noisy channel. **8**

OR

c) Explain the convolution code. How does it differ from block code? **8**

d) Describe the frequency hopping spread spectrum system. **8**

5. Attempt the followings:

a) Differentiate between energy and power signal. **4**

b) State the advantages of digital communication systems. **4**

c) Discuss the M-ary signaling. **4**

d) Explain the Huffman code. **4**

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