M.Sc.- II (Electronics) (NEP Pattern) Semester-III

PSCELT302 - Paper-II : Digital Communication

P. Pages : 2 **GUG/S/25/15976**

Time : Three Hours * 3 6 0 4 * Max. Marks : 80

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

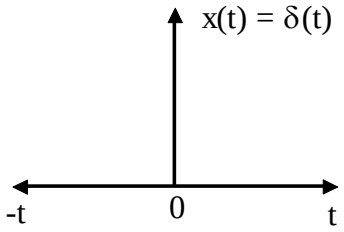
1. a) Explain the following terms: **8**
i) Analog and digital signal
ii) Periodic and Aperiodic signal

b) Discuss the energy and power signal. **8**

OR

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

d) Obtain the Fourier transform of the impulse function shown in the following figure. **8**



2. a) State and prove the sampling theorem. **8**

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

OR

c) What is compounding? Explain the necessity of compounding. **8**

d) Describe the Nyquist criteria of zero ISI. **8**

3. a) Describe the delta modulation techniques. State its advantage. **8**

b) Draw the block diagram of QPSK system and explain the function of each blocks. **8**

OR

c) Describe the pulse code modulation system. **8**

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

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

b) Discuss the various properties of convolution code? **8**

OR

c) Discuss the Huffman code with suitable example. **8**

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

5. Attempt the followings:

a) Discuss energy spectral density. **4**

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

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

d) Write short note on entropy. **4**

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