[70]   Seat No._____

Sardar Patel University
B.Sc. (semester-V) CBCS Examination Nov.– 2019
18/11/2019, Monday
10:00 am to 1:00 pm
Electronics & Communication
US05CELC04: Digital communication system

Maximum Marks: 70

Note: Figure to the right indicates full marks.

[10]

Q-1   Choose the correct Answer.

1. The nyquist rate is given as _____.
    a) fs=2fm   b) fs=fm   c) fs=4fm   d) none

2. Flat top sampling uses _____.
    a) Multiplication   b)sample and hold   c)chopper circuit   d) none
                        circuit

3. In a _____ noise interference is very high.
    a) PDM   b) PWM   c) PAM   d)

4. BPSK system modulates the rate of _____.
    a) 1 bit/symbol   b) 2 bit/symbol   c) 3 bit/symbol   d) None

5. The standard data rate of a voice channel is _____ in PCM system.
    a) 32 kbps   b) 64 kbps   c) 16 kbps   d) 8 kbps

6. Which of the following data is correct for TDM (time division multiplexing)?
    a)digital data transmitted   b) analog and digital   c) analog data   d) none
                                 data transmitted   transmitted

7. Frequency shift keying is mostly used in _____.
    a) Radio transmitting   b) telephony   c) telegraphy   d) none

8. Which device is used to demodulated a time division multiplexed analog wave?
    a) high pass filter   b) low pass filter   c) Band stop filter   d) Attenuator

9. Which modulation techniques use two voltage levels.
    a) PPM   b) PAM   c) PWM   d) none

10. TDM stands for _____.
    a)Finite differential   b) Frequency determine   c)Frequency data   d) Time division
    method   multiplexing   manager   multiplexing

[20]

Q-2   Answer in short.(Any ten)

1. Give the types of sampling techniques.
2. Draw the general wave form of flat top sampling.
3. What is aliasing effect? How it can avoid?
4. Draw the circuit diagram of sample and hold circuit.
5. Give the advantages of Pulse Width Modulation(PWM).
6. Define Nyquist interval.

7. Give the classification of Analog pulse modulation techniques.
8. Give the types of Digital modulation techniques.
9. Give the Disadvantages of Pulse Width Modulation (PWM).
10. Give the drawback of BPSK.
11 Give an account of RZ and NRZ coding format.
12. What is the limitation of TDM (Time Division Multiplexing)

Q-3   What do you mean by interpolation? Derive interpolation formula for reconstruction of original signal   [10]
       from sampled signal.

                                            OR
                                                                                                                [10]
Q-3   Explain Natural sampling with necessary diagram and equations.

Q-4   Explain the working principle of pulse amplitude modulation (PAM) and also give its mathematical   [10]
       analysis.
                                            OR
Q-4 (a)   Write a short note on: transmission bandwidth in pulse amplitude modulation (PAM).   [05]
     (b)   Explain the demodulation of pulse amplitude modulation (PAM).   [05]

Q-5 (a)   Write a short note on: Generation of ASK signal..   [05]
     (b)   Explain coherent binary ASK (Amplitude shift keying) in detail.   [05]
                                            OR
Q-5   Explain in detail block diagram of binary frequency shift keying.   [10]

Q-6 (a)   Write a short note on: Time division multiplexing.   [05]
     (b)   Write a short note on: Line encoding.   [05]
                                            OR
Q-6   Explain FDM (frequency division multiplexing) hierarchy in detail.   [10]

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