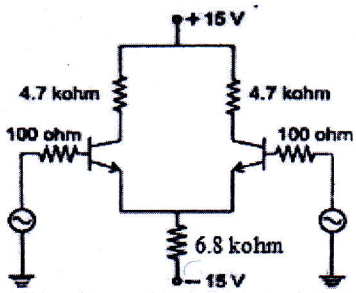
Shri Shankaracharya Institute of Professional Management & Technology
Department of Electronics and Telecommunication Engineering
Class Test – I Session- July– Dec, 2023 Month- November
Sem- ET&T 5th Subject- Design of Electronics Circuit – C028512(28)
Time Allowed: 2 hrs Max Marks: 40

Note: - ***Attempt any 5 question. All questions carry equal marks.***

Q. NO.	Questions	Marks	Levels of Bloom's taxonomy	COs
1.	The configuration of dual input, balanced output differential amplifier is given. Assume Si transistor with h_{ie}= 2.8 kΩ and h_{fe}=β=100. Calculate (i) Operating point values. (ii) Differential gain. (iii) Common mode gain (iv) CMRR. (v) Output if V_{s1}= 70 mV peak to peak at 1 kHz and V_{s2}= 40 mV peak to peak. 	[8]	Applying	CO1
2.	For a practical op-amp, define the following terms: (i) Input offset voltage (ii) Input bias current (iii) Input offset current (iv) Output offset voltage (v) Slew Rate (vi) CMRR	[8]	Remembering	CO1
3.	Draw the circuit of Dual Input Balanced Output differential amplifier and derive the expression of differential mode gain (A_d) using h-parameter model.	[8]	Applying	CO1
4.	State and explain the characteristics of ideal op-amp.	[8]	Understanding	CO1
5.	Explain the block diagram of Op-amp in detail.	[8]	Understanding	CO1
6.	Describe the Single mode and Common mode of operation for differential amplifier.	[8]	Understanding	CO1
7.	Draw and explain the schmitt trigger circuit with output waveform and hysteresis curve.	[8]	Understanding	CO2
8.	Explain Comprator with neat and clean diagram.	[8]	Understanding	CO2

Shri Shankaracharya Institute of Professional Management & Technology
Department of Electronics and Telecommunication Engineering
Class Test – I , Month- November-2023
Sem- ET&T 5th Subject- Digital Communication- C028511(028)

Time Allowed: 2 hrs **Max Marks: 40**

Note: - **Attempt any 5 question. All questions carry equal marks.**

Q. NO.	Questions	Marks	Levels of Bloom's taxonomy	COs
1.	State and prove sampling theorem for low pass signal	[8]	Understanding	CO1
2.	i. What do you mean by Quantization? ii. Derive an expression for Mean square value of quantization error for PCM	[8]	Applying	CO1
3.	Compare: PAM, PDM, PPM	[8]	Understanding	CO1
4.	Explain with the help of a block diagram the transmitter and Receiver of a PCM	[8]	Understanding	CO2
5.	Explain Delta Modulation along with the waveform and Block diagram. Also explain types of noises in DM.	[8]	Understanding	CO2
6.	Explain Adaptive Delta Modulation along with Generation and Demodulation Block diagram	[8]	Understanding	CO2

Shri Shankaracharya Institute of Professional Management & Technology
Department of Electronics and Telecommunication Engineering
Class Test – I , Month- November
Sem- ET&T 5th Subject- Digital Communication- C028511(028)

Time Allowed: 2 hrs **Max Marks: 40**

Note: - **Attempt any 5 question. All questions carry equal marks.**

Q. NO.	Questions	Marks	Levels of Bloom's taxonomy	COs
1.	State and prove sampling theorem for low pass signal	[8]	Understanding	CO1
2.	i. What do you mean by Quantization? ii. Derive an expression for Mean square value of quantization error for PCM	[8]	Applying	CO1
3.	Compare: PAM, PDM, PPM	[8]	Understanding	CO1
4.	Explain with the help of a block diagram the transmitter and Receiver of a PCM	[8]	Understanding	CO2
5.	Explain Delta Modulation along with the waveform and Block diagram. Also explain types of noises in DM.	[8]	Understanding	CO2
6.	Explain Adaptive Delta Modulation along with Generation and Demodulation Block diagram	[8]	Understanding	CO2

Shri Shankaracharya Institute of Professional Management & Technology, Raipur

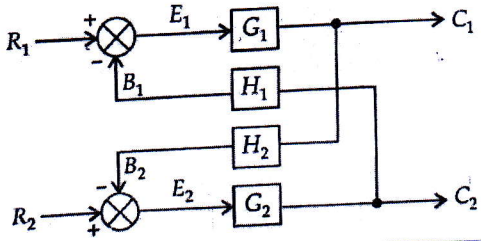
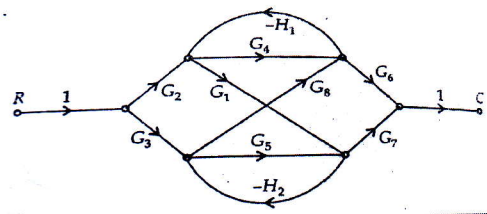
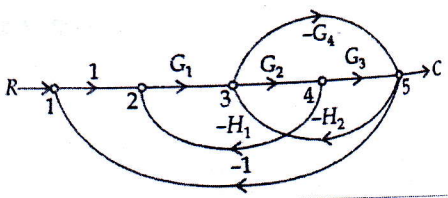
Department of Electronics & Telecommunication Engineering

Class Test – I Session- July– Dec, 2023

B.Tech Sem- 5th Subject Control Systems C028514(028)

Time Allowed: 2 hrs Max Marks: 40

Note: - ***Qusetion 1 is compulsory and attempt any two from Q2, Q3 and Q4 from each Unit.***

Q. NO.	Questions	Marks	Levels of Bloom's taxonomy	COs
	Unit 1			
Q1.	Explain differences between open loop system and closed loop system.	[4]	Understanding	CO1
Q2.	Determine the transfer function C1/R1, C2/R2,C1/R2 and C2/R1 for the give block diagram. 	[8]	Applying	CO1
Q3.	Determine the C/R using the Mason's Gain Formula. 	[8]	Applying	CO1
Q4.	Determine the C/R using the Mason's Gain Formula. 	[8]	Applying	CO1
	Unit 2			
Q1.	Define transient state and steady state of control system	[4]	Understanding	CO2
Q2.	Discuss parameter variation effect on output of control system.	[8]	Analyzing	CO2
Q3.	Explain time response of second order control system subjected to unit step input.	[8]	Analyzing	CO2
Q4.	When a second order control system is subjected to unit step input the values of ζ =0.5 and W_n=6 rad/sec. Determine rise time ,peak time ,settling time and peak overshoot	[8]	Applying	CO2

Shri Shankaracharya Institute of Professional Management & Technology
Department of Electronics and Telecommunication Engineering
Class Test – I Session- July-Dec, 2023 Month- October
Sem- ET&T 5th Subject- Microcontroller & Embedded System C028513(028)
Time Allowed: 2 hrs Max Marks: 40

Note: - Q.1 is compulsory and attend any 4 from 2,3,4,5,6.

Q. NO.	Questions	Marks	Levels of Bloom's taxonomy	COs
1.	(a) Define microcontroller (b) Analyse result of given code stepwise MOV A, #4C H SUBB A, #6E H	[8]	Understanding & Apply	CO1
2.	Explain the addressing modes of 8051 microcontroller	[8]	Understanding	CO1
3.	Describe the architecture of 8051 microcontroller with dig.	[8]	Understanding	CO1
4.	(a) Describe TMOD register of 8051 (b) How timer 0 and 1 start & stop by instruction	[8]	Uderstanding & Apply	CO2
5.	Explain interrupt of 8051	[8]	Understanding	CO2
6.	Explain internal structure of RAM of 8051	[8]	Understanding	CO1

Shri Shankaracharya Institute of Professional Management & Technology
Department of Electronics and Telecommunication Engineering
Class Test – I Session- July-Dec, 2023 Month- October
Sem- ET&T 5th Subject- Microcontroller & Embedded System C028513(028)
Time Allowed: 2 hrs Max Marks: 40

Note: - Q.1 is compulsory and attend any 4 from 2,3,4,5,6.

Q. NO.	Questions	Marks	Levels of Bloom's taxonomy	COs
1.	(a) Define microcontroller (b) Analyse result of given code stepwise MOV A, #4C H SUBB A, #6E H	[8]	Understanding & Apply	CO1
2.	Explain the addressing modes of 8051 microcontroller	[8]	Understanding	CO1
3.	Describe the architecture of 8051 microcontroller with dig.	[8]	Understanding	CO1
4.	(a) Describe TMOD register of 8051 (b) How timer 0 and 1 start & stop by instruction	[8]	Uderstanding & Apply	CO2
5.	Explain interrupt of 8051	[8]	Understanding	CO2
6.	Explain internal structure of RAM of 8051	[8]	Understanding	CO1

Shri Shankaracharya Institute of Professional Management & Technology

Department of Electronics and Telecommuication Engineering

Class Test – I Session- July. – Dec, 2022 Month- November

Sem- ET&T 5th sem Subject - Advance Data Structure - C022535(022)

Time Allowed: 2 hrs Max Marks: 40

Note: - ***All questions are compulsory.***

Q. NO.	Questions	Marks	Levels of Bloom's taxonomy	COs
1.	Define Abstract Data Types (ADT) and explain their importance in data structure design.	[2]	Remembering	CO1
2.	Differentiate between a stack and a queue data structure. Provide real-life examples of applications for each.	[2]	Remembering	CO1
3.	What is hash set?	[2]	Remembering	CO2
4.	Define a binary tree and explain its basic characteristics. Provide an example of an expression tree.	[2]	Understanding	CO1
5.	List and explain the three common binary tree traversals. Provide examples to illustrate each traversal.	[2]	Understanding	CO1
6.	Explain how stacks can be used to evaluate arithmetic expressions. Provide a step-by-step example of the evaluation process.	[4]	Understanding	CO1
7.	Discuss the applications of linked lists. Compare and contrast singly linked lists, circularly linked lists, and doubly linked lists. Provide real-world examples of their usage.	[6]	Understanding	CO2
8.	Describe the Huffman Algorithm and its role in data compression. How does it work, and what are the benefits of using Huffman coding?	[4]	Remembering	CO2
9.	Discuss the concept of a binary search tree (BST). Explain the operations that can be performed on a BST, and provide examples to demonstrate these operations.	[6]	Remembering	CO2
10	Describe the concept of circular queues. Provide an example scenario where a circular queue is more efficient than a regular queue.	[4]	Remembering	CO1
11.	Explain the concept of balanced trees, focusing on AVL trees and B-trees. Discuss their importance in maintaining efficient data structures. Provide examples to show how these trees remain balanced.	[6]	Understanding	CO2