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Shri Shankaracharya Institute of Professional Management & Technology
Department of Electronics and Telecommunication Engineering

Class Test – II , Month- June2022

Sem- ET&T 6th Subject- VLSI Design

Time Allowed: 2 hrs Max Marks: 40

NOTE : (1) Attempt any Five Questions.
(2) Attempt question in serial order.

Q. NO.	Questions	Marks	Levels of Bloom's taxonomy	COs
1.	Explain Photolithography. Include detailed diagram and description.	[8]	Understanding	1
2.	Write a program for FSM detecting consecutive three 1's and three 0's	[8]	Apply	1
3.	Write a program for universal register.	[8]	Apply	1
4.	Write a program for up/down counter	[8]	Apply	1
5.	Draw Layout diagram of NOT gate NAND gate	[8]	Apply	2
6.	Describe Layout Design rules	[8]	Understanding	2

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Shri Shankaracharya Institute of Professional Management & Technology
Department of Electronics and Telecommunication Engineering
Class Test – II Session- Jan. – June, 2022 Month- June
Sem- ET&T 6th Subject- Digital Signal Processing - C028613(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.	Determine the direct Forms I and II realizations for a third-order HR transfer function. $H(z) = \frac{028z^2+0.319z+0.04}{0.5z^3+0.3z^2+0.17z-0.2}$	[8]	Apply	CO2
2.	An LTI system is described by the equation $y(n) - \frac{1}{4}y(n-1) - \frac{1}{8}y(n-2) = x(n) = +3x(n-1) + 2x(n-2)$. Determine the cascade realization structure of the system.	[8]	Apply	CO2
3.	Realization the given system in and parallel forms. $H(z) = \frac{1\frac{1}{2}z^{-1}}{\left(1 - z^{-1} + \frac{1}{4}z^{-2}\right)\left(1 - z^{-1} + \frac{1}{2}z^{-2}\right)}$	[8]	Apply	CO2
4.	The desired response of a low-pass filter is $H_d(e^{j\omega}) = \begin{cases} e^{-j\omega}, & -3x/4 \le \omega \le 3x/4 \\ 0, & 3x/4 < \lvert\omega\rvert \le x \end{cases}$ Determine $H(e^{j\omega})$ *for* $M = 7$ *using a Hamming window.*	[8]	Apply	CO3
5.	A law=pass filter is to be desingned with the following desired frequency response $H_d(e^{j\omega}) = \begin{cases} e^{-j2\omega}, & -\pi/4 \le \omega \le \pi/4 \\ 0, & \pi/4 < \lvert\omega\rvert \le \pi \end{cases}$ Determine the filter coefficients $h_d(n)$ if the window function is defind as $w(n) = \begin{cases} 1, & 0 \le n \le 4 \\ 0, & \text{otherwise} \end{cases}$ Also, determine the frequency response $H_d(e^{j\omega})$ of the designed filter.	[8]	Analysis	CO3
6.	A low=pass filter gas the desired response as given below $H_d(e^{j\omega}) = \begin{cases} e^{-j3\omega}, & 0 \le \omega < \frac{\pi}{2} \\ 0, & \frac{\pi}{2} \le \omega \le \pi \end{cases}$ Determine the filter coefficients h(n) for M=7, using type-Ifrequency sampling technique.	[8]	Analysis	CO3

Shri Shankaracharya Institute of Professional Management & Technology

Department of Electronics andTelecommunication

Class Test – II Session- Jan.– June 2022 Month- June

Sem- ET 6th Subject- Information Theory and Coding C028631(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.	The Parity Check matrix of (7,4) linear code is as follows: $H=\begin{pmatrix}1&1&1&0&1&0&0\\1&1&0&1&0&1&1\\1&0&1&1&0&0&1\end{pmatrix}$ Calculate the syndrome vector for single bit errors.	[8]	Understand	CO3
2.	The generator matrix for (6,3) block codes is given below. Find all code vectors of this code. $G=\begin{pmatrix}1&0&0&0&1&1\\0&1&0&1&0&1\\0&0&1&1&1&0\end{pmatrix}$	[8]	Apply	CO3
3.	For a (6,3) linear block code the coefficient matrix [p] is as follows: $P=\begin{pmatrix}0&1&1\\1&0&1\\1&1&0\end{pmatrix}$ The received code words at the receiver are i) 0001110 ii) 111011 Check whether they are correct or contain errors.	[8]	Understand	CO3
4.	For a systematic linear block code, the three parity check digits , C_4, C_5 , C_6 are given by $C_4 = d_1 + d_2 + d_3$ $C_5 = d_1 + d_2$ $C_6 = d_1 + d_3$ i) Construct generator matrix ii) Construct code generated by this matrix iii) Determine error correcting capability iv) Prepare suitable decoding table	[8]	Apply	CO3
5.	For a (7,4) cyclic code , find out the generator matrix if G(D)= 1+D+D3	[8]	Apply	CO4
6.	Dwetermine the generator polynomial of a single error correcting BCH code with the block length n=15.	[8]	Apply	CO4

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Class Test – II Session- Jan june 2022 Month- June

Sem- ET&T 6th Subject- Antennas & Wave Propagation Code- C028612(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.	Write a short note on Tropospheric scatter & Duct Propagation	[8]	Understanding	CO2
2.	Explain Antenna Top Loadind & Tuning Effect	[8]	Understanding	CO5
3.	Derive an expression of Field Strength of a Tropospheric wave	[8]	Apply	CO2
4.	Explain Ground wave, Sky wave & Space wave Communication.	[8]	Understanding	CO2
5.	Explain: (1) Beverage Anteena (2) V Antenna	[8]	Understanding	CO

"Teachers can open the door, but you must enter it yourself."

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Shri Shankaracharya Institute of Professional Management & Technology

Department of Electronics & Telecommunication

Class Test – II Session- Jan June 2022 Month- June

Sem- ET&T 6th Subject- Antennas & Wave Propagation Code- C028612(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.	Write a short note on Tropospehric scatter & Duct Propagation	[8]	Understanding	CO1
2.	Explain Antenna Top Loadind & Tuning Effect	[8]	Understanding	CO5
3.	Derive an expression of Field Strength of a Tropospheric wave	[8]	Apply	CO2
4.	Explain Ground wave, Sky wave & Space wave Communication.	[8]	Understanding	CO2
5.	Explain: (1) Beverage Anteena (2) V Antenna	[8]	Understanding	CO5

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Department of Electronics and Telecommunication Engineering
Class Test – II Session- Jan – June, 2022 Month- June
Sem- ET&T 6th Subject – AI and Machine Learning - C000630(028)
Time Allowed: 2 hrs Max Marks: 40

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

Q. NO.	Questions	Marks	Levels of Bloom's taxonomy	COs
1.	Explain goal based agent and utility based agent with diagram.	[10]	Understanding	CO1
2.	Explain hill climbing method and write its features. Also explain local maximum, global maximum, plateau and ridges.	[10]	Understanding	CO1
3.	Explain alpha beta pruning and knowledge based agent in artificial intelligence.	[10]	Understanding	CO2
4.	Explain wompus world in artificial intelligence and also explain breeze, pit and stench with respect to wompus world.	[10]	Understanding	CO2
5.	What is knowledge representation in AI. Explain different types of knowledge in AI.	[10]	Understanding	CO3

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Class Test – II Session- Jan – June, 2022 Month- June
Sem- ET&T 6th Subject – AI and Machine Learning - C000630(028)
Time Allowed: 2 hrs Max Marks: 40

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

Q. NO.	Questions	Marks	Levels of Bloom's taxonomy	COs
1.	Explain goal based agent and utility based agent with diagram.	[10]	Understanding	CO1
2.	Explain hill climbing method and write its features. Also explain local maximum, global maximum, plateau and ridges.	[10]	Understanding	CO1
3.	Explain alpha beta pruning and knowledge based agent in artificial intelligence.	[10]	Understanding	CO2
4.	Explain wompus world in artificial intelligence and also explain breeze, pit and stench with respect to wompus world.	[10]	Understanding	CO2
5.	What is knowledge representation in AI. Explain different types of knowledge in AI.	[10]	Understanding	CO3