Vivekananda College of Engineering & Technology, Puttur

[A Unit of Vivekananda Vidyavardhaka Sangha Puttur ®]

Affiliated to VTU, Belagavi & Approved by AICTE New Delhi

CRM08	Rev 1.13	<FY>	<27.12.2023>

CONTINUOUS INTERNAL EVALUATION - 2

Dept: FY	Sem / Div: **1 AI & CD**	Sub: **Introduction to Electronics and Communication**	S Code: **BESCK104C**
Date: 10.01.2024	Time: 10:00-11:30	Max Marks: 50	Elective: Y

Note: Answer any 2 full questions, choosing one full question from each part.

QN		Questions	Marks	RBT	CO's
		PART A			
1	a	Using suitable diagrams, explain Instrumentation and Control System.	8	L2	CO3
	b	Describe the blocks of Communication System with neat block diagram.	8	L2	CO4
	c	Discuss different types of Communication Systems. List the advantages of Digital Communication over Analog Communication.	9	L2	CO4
		OR			
2	a	Write a brief note on operation of LED. Explain how 7-Segment LED display can be used to display the data.	8	L2	CO3
	b	Define Amplitude and Frequency Modulation. Sketch AM and FM waveforms. Also, write a note on Quadrature Phase Shift Keying (QPSK) modulator.	8	L2	CO4
	c	With neat diagram, explain different types of radio wave propagation.	9	L2	CO4
		PART B			

3	a	Perform the following: (i) $(1010100)_2 - (1000100)_2$ using 1's complement and 2's complement method. (ii) $(4456)_{10} - (34234)_{10}$ using 9's complement and 10's complement method.	8	L3	CO2
	b	Mention the different Theorems and Postulates of Boolean Algebra and Prove each of them.	8	L2	CO2
	c	Convert the following numbers to its equivalent numbers and show the steps: (i) $(1AD.E0)_{16} = (?)_{10}$ (ii) $(37.625)_{10} = (?)_2$ (iii) $(110100111001.110)_2 = (?)_8$ (iv) $(345.AB)_{16} = (?)_2$	9	L2	CO2
		OR			
4	a	Express the Boolean function – (i) $F_1 = A + \bar{B}C$ in a sum of minterms form (ii) $F_2 = xy + \bar{x}z$ in a product of maxterms form.	8	L3	CO2
	b	Implement half adder and full adder circuit with its truth-table and write the expressions for Sum and Carry.	8	L3	CO2
	c	Using basic Boolean theorems prove – (i) $(x + y)(x + \bar{y}) = x$ (ii) $xy + \bar{x}z + yz = xy + \bar{x}z$ (iii) $xy + xz + y\bar{z} = xz + y\bar{z}$	9	L3	CO2

Prepared by: Prabha G S

HOD

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CRM08	Rev 1.14 (2022 rev)	BS	27/12/2023

CONTINUOUS INTERNAL EVALUATION - 2

Dept:BS	Sem / Div:I/ AIML,CD,CSE A & B	Sub: Mathematics-I for CSE Stream	S Code: BMATS101
Date:09/01/24	Time: 10:00-11:30	Max Marks: 50	Elective:N

Note: Answer any 2 full questions, choosing one full question from each part.

QN		Questions	Marks	RBT	CO's
		PART A			
1	a	Find the orthogonal trajectories of the family of curves $r^n cosn\theta = a^n$.	8	L3	CO3
	b	Find the general solution of linear Diophantine equation $70x + 112y = 168$.	8	L2	CO4
	c	(i)Find the least positive value of x such that $78 + x \equiv 3(mod5)$ (ii)Find the last digit of 7^{2013}. (iii)Find the remainder when $175 \times 113 \times 53$ is divided by 11.	9	L2	CO4
2	a	Solve $xy\left(\frac{dy}{dx}\right)^2 - (x^2+y^2)\frac{dy}{dx} + xy = 0$	8	L2	CO3
	b	Solve the system of linear congruences $x \equiv 2(mod3), x \equiv 3(mod5), x \equiv 2(mod7)$ using Chinese remainder theorem.	8	L3	CO4
	c	(i)Find the remainder when 14! is divided by 17. (ii)Show that $8^{30} - 1$ is divisible by 31. (iii)Solve $x^3 + 5x + 1 \equiv 0(mod27)$	9	L2	CO4

PART B

			Marks	Level	CO
3	a	Test for consistency and solve $x + 2y + 3z = 14$ $4x + 5y + 7z = 35$ $3x + 3y + 4z = 21$	8	L2	CO5
	b	Solve the system of equations by Gauss-Siedel method: $2x - 3y + 20z = 25$ $3x + 20y - z = -18$ $20x + y - 2z = 17$	8	L2	CO5
	c	Find the largest eigenvalue and the corresponding eigenvector of the matrix A by using the power method by initial vector as $[1,1,1]^T$ $A = \begin{bmatrix} 2 & -1 & 0 \\ -1 & 2 & -1 \\ 0 & -1 & 2 \end{bmatrix}$	9	L2	CO5
4	a	Find the rank of the matrix $\begin{bmatrix} 2 & -1 & -3 & -1 \\ 1 & 2 & 3 & -1 \\ 1 & 0 & 1 & 1 \\ 0 & 1 & 1 & -1 \end{bmatrix}$	8	L2	CO5
	b	Apply Gauss-Jordan method to solve the following system of equations $2x_1 + x_2 + 3x_3 = 1$ $4x_1 + 4x_2 + 7x_3 = 1$ $2x_1 + 5x_2 + 9x_3 = 3$	8	L2	CO5
	c	Investigate the values of λ and μ such that the system of equations $x + y + z = 6, x + 2y + 3z = 10, x + 2y + \lambda z = \mu$ may have (i)unique solution (ii) infinite solution (iii) no solution.	9	L3	CO5

Prepared by:Reshma

HOD:M Ramananda Kamath