CODE: **20CEE333**   **SET-1**

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI
(AUTONOMOUS)
III B.Tech II Semester Regular Examinations, May, 2023
GROUND IMPROVEMENT TECHNIQUES

(CIVIL ENGINEERING)

Time: 3 Hours   **Max Marks: 60**

Answer ONE Question from each Unit
All Questions Carry Equal Marks
All parts of the Question must be answered at one place

			Marks	CO	Blooms Level
		UNIT-I			
1.	a)	Describe the vibroflotation technique of densifying granular soil.	5	1	6
	b)	State the need for densification of granular soils	5	1	1
		(OR)			
2.	a)	Explain in detail the advantage of using vertical drains along with preloading?	5	1	3
	b)	What is a stone column? What are the methods of installing a stone column?	5	1	1
		UNIT-II			
3.	a)	Explain the principle and application of soil-lime stabilization.	5	2	3
	b)	Discuss the various foundation stabilization techniques adopted in expansive soils.	5	2	3
		(OR)			
4.	a)	Discuss cement and bitumen stabilization along with its merits and demerits.	5	2	4
	b)	Explain in detail mechanical stabilization of soils.	5	2	1
		UNIT-III			
5.	a)	Explain the open sumps and vacuum well dewatering systems.	5	3	1
	b)	What are the filter requirements of a filler material around the drains?	5	3	1
		(OR)			
6.	a)	Explain single and multistage well point system of dewatering.	5	3	1
	b)	State various advantages and disadvantages of Sumps and Ditches	5	3	1
		UNIT-IV			
7.	a)	Describe with illustrations the differences between geotextiles and geomembranes.	5	4	5
	b)	What are the practical applications of geotextiles?	5	4	5
		(OR)			
8.	a)	How does the use of a geosynthetic as a filler differ from that of drainage?	5	4	6
	b)	Write a short note on geomembranes and gabions.	5	4	6

UNIT-V

9.   a)   What do you understand by reinforced earth? Enumerate various applications of reinforced earth.   5   5   1

     b)   Explain the design principles of reinforced earth walls.   5   5   1

(OR)

10. a)   Write a short note on soil nailing.   5   5

     b)   Mention various stability checks to be considered in soil nailing and write a short notes on them   5   5   1

UNIT-VI

11. a)   What is a grout? Explain in detail the applications of grouting.   5   6   3

     b)   Describe briefly different grouting techniques.   5   6   3

(OR)

12. a)   Explain in detail with the help of a neat sketch the different stages of grouting.   5   6   6

     b)   Explain in detail the post grout tests.   5   6   6

CODE: 20CSE332   **SET-1**

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI
(AUTONOMOUS)
III B.Tech II Semester Regular Examinations, May, 2023
Data Warehousing and Data Mining
(COMPUTER SCIENCE AND ENGINEERING)

Time: 3 Hours   **Max Marks: 60**

Answer ONE Question from each Unit
All Questions Carry Equal Marks
All parts of the Question must be answered at one place

			Marks	CO	Blooms Level
		UNIT-I			
1.	a	Explain data mining as a step-by-step process of knowledge discovery. Mention the Functionalities of Data mining.	5M	1	L2
	b	Explain different types of data mining task primitives ?	5M	1	L2
		(OR)			
2.	a	What is noisy data? Explain the binning methods for data smoothening.	4M	1	L2
	b	How to summarize the properties of data using statistical measures? Give example for each measure.	6M	1	L2
		UNIT-II			
3.	a	Explain various data pre-processing methods with appropriate examples	5M	2	L2
	b	What are different schemas for design of a data ware house? Explain with neat sketches	5M	2	L2
		(OR)			
4.	a	What is a data Warehouse? Explain multi-dimensional data model.	5M	2	L2
	b	Describe the problem of data quality with some examples. Explain the usage of feature subset selection in data preprocessing	5M	2	L2
		UNIT-III			
5.		Illustrate OLAP operations.	10 M	3	L2
		(OR)			
6.	a	How to classify the data using decision tree induction algorithm? Explain what attributes can be considered for classifying email as spam or ham.	5M	3	L2
	b	What is data generalization and summarization?.Explain data generalization and summarization based characterization.	5M	3	L2
		UNIT-IV			
7.	a	What is association rule Mining problem? Explain Aprori algorithm for finding frequent item sets with example.	5M	4	L2
	b	What is Apriori algorithm explain how it is used to find frequent sets?	5M	4	L2
		(OR)			
8.	a	What is the difference between mining frequent item sets with candidate generation and without candidate generation? Explain.	5M	4	L2
	b	What is FP growth algorithm explain in detail?	5 M	4	L2
		UNIT-V			
9.	a	What is Accuracy of a classifier? Explain how to evaluate the accuracy of a classifier.	6 M	5	L2
	b	How do you write an algorithm for a Decision Tree Induction ?	4 M	5	L2
		(OR)			
10.	a	What is classification and prediction explain in detailed?	4 M	5	L2
	b	Explain Naive Bayesian classification algorithm ?	6 M	5	L2
		UNIT-VI			
11.	a	Write about Min, Max, and Average links used in clusterings.	5M	6	L2
	b	What is clustering ,explain different types of clustering methods ?	5M	6	L2
		(OR)			
12.	a	Explain K-means clustering algorithm with its additional issues.	5M	6	L2
	b	Explain Agglomerative Hierarchical clustering ?	5M	6	L2

CODE: 20ECE331   **SET-1**

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI
(AUTONOMOUS)
III B.Tech II Semester Regular Examinations, May, 2023
EMBEDDED AND REAL TIME OPERATING SYSTEMS
(ELECTRONICS AND COMMUNICATION ENGINEERING)

**Time: 3 Hours**   **Max Marks: 60**

Answer ONE Question from each Unit
All Questions Carry Equal Marks
All parts of the Question must be answered at one place

			Marks	CO	Blooms Level
		UNIT-I			
1.		Define Embedded system. Compare embedded system with general computing systems.	10	1	K1
		(OR)			
2.		Classify Embedded Systems and explain about major aplication Areas of Embedded Systems with example.	10	1	K1
		UNIT-II			
3.		Explain the core of embedded system design.	10	2	K1
		(OR)			
4.		Explain about Application specific Instruction Set processors with real time example.	10	2	K1
		UNIT-III			
5.		Explain the external communication interface used in embedded system.	10	3	K1
		(OR)			
6.		What is the need for communication in embedded system .	10	3	K2
		UNIT-IV			
7.	a)	With suitable examples discuss about semaphores and its management function calls.	5	4	K2
	b)	Explain about Mutex in RTOS?	5	4	K3
		(OR)			
8.		Define kernel and explain its functions in detail.	10	4	K3
		UNIT-V			
9.		Explain about Mail boxes, even registers and pipes,signals & timers in RTOS.	10	5	K1
		(OR)			
10.		Explain about memory management with example.	10	5	K1
		UNIT-VI			
11.		Justify the need for operating system based approach for embedded system with real time example.	10	6	K3
		(OR)			
12.		Explain about handheld operating system Windows CE ,Real-time operating system RT LINUX.	10	6	K2

CODE: 20EEE331   SET-2
ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI
(AUTONOMOUS)
III B.Tech II Semester Regular Examinations, May, 2023
PRINCIPLES OF SIGNALS AND SYSTEMS
(ELECTRICAL AND ELECTRONICS ENGINEERING)

Time: 3 Hours   Max Marks: 60

Answer ONE Question from each Unit
All Questions Carry Equal Marks
All parts of the Question must be answered at one place

		Marks	CO	Blooms Level
	UNIT-I			
1.	For the signal X(t) shown in figure. find the following signals a) $x(t-3)$ and $x(t+3)$ b) $x(2t+2)$ and $x(\frac{1}{2}t-2)$ c) $x\left(\frac{5}{3}t\right)$ and $x(\frac{3}{5}t)$ d) $x(-t+2)$ and $x(-t-2)$ e) Express given signal in terms of elementary signals	10	CO-1	L3
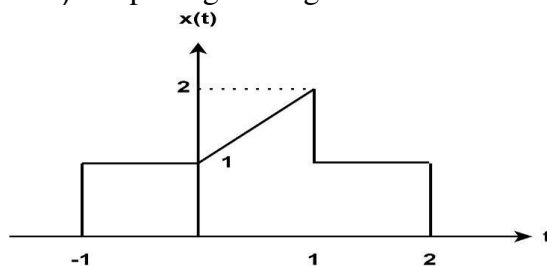
(OR)

2.	a	Classify the signals and explain each with on example	5	CO-1	L2
	b	Verify the Linearity, time-invariance and causality for the following systems a) y(t)=x(2t) b) y(t)=x(t-2)	5	CO-1	L3

UNIT-II

3.	Determine convolution 0f following two sequences by 1) Graphical method 2) Matrix second method $x(n) = \{1, -1, 2, 3\}$ $h(n) = \{1, -2, 3, -1\}$ $\uparrow$	10	CO-2	L3

(OR)

4.	Define stability. Check any one system with an example.	10	CO-2	L2

UNIT-III

5. Find the Fourier series expansion of half wave rectified sine wave shown below.   10   CO-3   L3
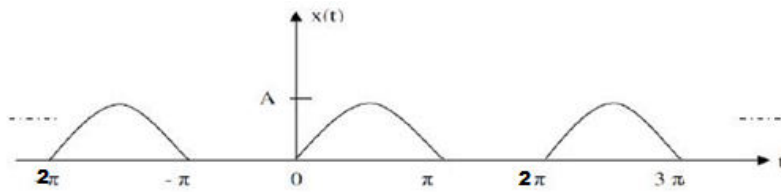
(OR)

6. Derive the relation between exponential Fourier coefficients and trigonometric Fourier coefficients   10   CO-3   L2

UNIT-IV

7. State and prove any four properties of fourier transforms.   10   CO-4   L2

(OR)

8. Find the Fourier transform of following signals   10   CO-4   L3

a) $x(t) = e^{-3|t|} sin2t$ b) $x(t) = \Delta(\frac{t}{2})$

UNIT-V

9. a Find the Laplace transform of the following signals   5   CO-5   L3
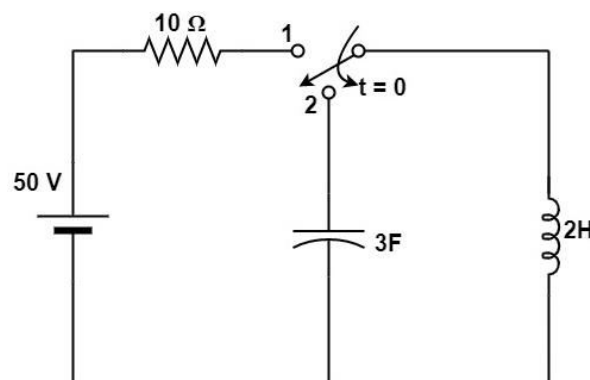
i) $x(t) = t\, cos\omega_0 t\, u(t)$

ii) $x(t) = \frac{d}{dt}(e^{-3(t-2)} u(t-2))$

b State and prove time differentiation, frequency differentiation properties of Laplace Transform?   5   CO-5   L2

(OR)

10. a In the circuit shown in figure below the switch is at position 1 for a very long time. At t=0 the switch is moved to position 2.Solve for current i(t) for $t \geq 0$ 5   CO-5   L3

b Determine the inverse Laplace of the following function.   5   CO-5   L3

$$X(S) = \frac{1}{S(S+1)(S+3)}$$

11.   Determine z-transform of following sequences   10   CO-6   L3
  i) $(0.2)^n\{u(n) - u(n - 4)\}$
  ii) $\frac{a^n}{n!}$ for $n > 0$

(OR)

12.   Find the inverse z- transform of X(z)=z/(z+2)(z-3) using long division   10   CO-6   L3
  method and partial differentiation method

AR20

CODE: 20ITE332   **SET-2**

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI
(AUTONOMOUS)
III B.Tech II Semester Regular Examinations, May, 2023
CRYPTOGRAPHY AND NETWORK SECURITY
(INFORMATION TECHNOLOGY)

Time: 3 Hours   Max Marks: 60

Answer ONE Question from each Unit
All Questions Carry Equal Marks
All parts of the Question must be answered at one place

			Marks	CO	Blooms Level
		UNIT-I			
1.	a)	List and briefly define Security attacks and mechanisms	5M	CO1	L1
	b)	Draw and explain the model for network security	5M	CO1	L3
		(OR)			
2.	a)	Describe about software vulnerabilities	5M	CO1	L2
	b)	What is a Substitution technique? Explain with example.	5M	CO1	L2
		UNIT-II			
3.	a)	Draw a neat sketch of DES architecture and explain it.	7M	CO2	L3
	b)	Distinguish between symmetric key and asymmetric key	3M	CO2	L4
		(OR)			
4.	a)	Describe Blowfish algorithm	7M	CO2	L2
	b)	Write about CipherBlockModesofOperations	3M	CO2	L1
		UNIT-III			
5.	a)	Explain SecureHashFunctions(SHA-1).	6M	CO2	L2
	b)	List out the Approaches to MessageAuthentication.	4M	CO2	L1
		(OR)			
6.	a)	Describedigital signature with example	4M	CO3	L2
	b)	Do the encryption and decryption using RSA Algorithm for P=11, Q=3,E=3 and M=7.	6M	CO3	L5
		UNIT-IV			
7.	a)	Describe Kerberos V4 simple dialogue	5M	CO4	L2
	b)	DescribeMIME content types	5M	CO4	L2
		(OR)			
8.	a)	Explain X.509 authentication Certificate format.	6M	CO4	L2
	b)	What are the limitations of SMTP?	4M	CO4	L2
		UNIT-V			
9.	a)	Describe about IP security architecture with neat diagram	6M	CO5	L2
	b)	Explain about Secure Electronic Transaction Payment processing	4M	CO5	L2
		(OR)			
10.	a)	Write about transport and tunnel mode of AH and ESP protocols.	4M	CO5	L2
	b)	Explain about SSL architecture with neat diagram	6M	CO5	L2
		UNIT-VI			
11.	a)	Describe about different types of malicious programs.	6M	CO6	L3
	b)	List out and explain the characteristics of firewalls	4M	CO6	L4
		(OR)			
12.	a)	Explain about the various types of firewalls?	6M	CO6	L2
	b)	Distinguish between viruses and warms	4M	CO6	L3

CODE: 20MEE332   **SET-1**

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI
(AUTONOMOUS)
III B.Tech II Semester Regular Examinations, May, 2023
UNCONVENTIONAL MACHINING PROCESS
(MECHANICAL ENGINEERING)

Time: 3 Hours   Max Marks: 60

Answer ONE Question from each Unit
All Questions Carry Equal Marks
All parts of the Question must be answered at one place

			Marks	CO	Blooms Level
		UNIT-I			
1.	a)	Explain the reasons for the development of Unconventional Machining Process.	5M	CO1	L2
	b)	Discuss the applications, advantages and disadvantages of USM Process.	5M	CO1	L2
		(OR)			
2.	a)	Discuss the advantages, disadvantages and applications of non-traditional machining methods.	5M	CO1	L6
	b)	Explain the function of major components of USM equipment with neat sketch.	5M	CO1	L2
		UNIT-II			
3.	a)	Explain the working principle of WJM process with a neat sketch.	5M	CO2	L2
	b)	Explain the effect of process variables of AJM that influences MRR.	5M	CO2	L2
		(OR)			
4.		Explain the mechanism of material removal in WJM and AWJM processes.	10M	CO2	L2
		UNIT-III			
5.	a)	Describe the working principle of ECM process.	7M	CO3	L2
	b)	Discuss the masking techniques for different production level in CHM	3M	CO3	L2
		(OR)			
6.	a)	Discuss about the working process of Electro chemical honing process.	5M	CO3	L2
	b)	Compare the CHM with ECM with respect to their process parameters.	5M	CO3	L4
		UNIT-IV			
7.	a)	Explain the process of Electrical discharge grinding (EDG).	7M	CO4	L2
	b)	Discuss about the dielectric medium and electrodes that are used in EDM process.	3M	CO4	L2
		(OR)			
8.	a)	Distinguish wire cut EDM and conventional EDM processes.	6M	CO4	L4
	b)	List and explain the effect of various process parameters in the EDM process.	4M	CO4	L2

UNIT-V

9.	a)	Distinguish between transferred and non-transferred arc type used in PAM process.	5M	CO5	L4
	b)	Explain the mechanism of material removal in EBM process.	5M	CO5	L2

(OR)

10.	a)	Explain the plasma arc machining process with neat sketch.	5M	CO5	L2
	b)	With a neat sketch explain the working principle of laser beam machine.	5M	CO5	L2

UNIT-VI

11.	a)	Explain on the process parameters of ESD and their applications.	5M	CO6	L2
	b)	Explain the shaped tube electrolytic machining construction details	5M	CO6	L2

(OR)

12.	a)	Explain the working principal of shaped tube electrolytic machining with neat sketch.	7M	CO6	L2
	b)	Explain the working principle of ESD. In what respects it is different from conventional ECM?	3M	CO6	L2

CODE: 13EC3021 **SET-2**
ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI
(AUTONOMOUS)
III B.TECH II SEM SUPPLEMENTARY EXAMINATIONS, MAY,2023

VLSI DESIGN
(ELECTRONICS & COMMUNICATION ENGINEERING)

Time: 3 Hours **Max Marks: 70**
PART-A
ANSWER ALL QUESTIONS **[1 x 10 = 10 M]**

1. a) Give the advantages of CMOS IC
   b) What are four generations of Integration Circuits?
   c) What is Stick diagram?
   d) Give the various color coding used in stick diagram?
   e) What is Latch – up?
   f) What is the difference between simulation and synthesis?
   g) Explain what is a sequential circuit?
   h) Define Threshold voltage in CMOS?
   i) Which is the tool used for analog design of vlsi circuits?
   j) What's the difference between Testing & Verification?

PART-B

Answer one question from each unit **[5x12=60M]**

UNIT-I

2. a) Explain the MOS transistor operation with the help of neat sketches in the Depletion mode. [6 M]
   b) With neat sketches explain the CMOS n-well fabrication process [6 M]
   (OR)
3. a) Explain the MOS transistor operation with the help of neat sketches in the Enhancement mode. [6 M]
   b) Explain the NMOS fabrication procedure. [6 M]

UNIT-II

4. a) Derive an equation for I_{DS} of an n-channel Enhancement MOSFET operating in Saturation region. [6 M]
   b) The drain of an n – channel MOSFET is shorted to the gate so that $V_{GS}=V_{DS}$. The threshold voltage (V_T) of MOSFET is 1 V. If the drain current (I_D) is 1 mA for V_{GS} = 2 V, then for $V_{GS}=3\ V$, I_D is [6 M]
   (OR)
5. a) Determine of pull-up to pull-down ratio of NMOS inverter. [6 M]
   b) With neat diagram explain the operation of Bi-CMOS inverter [6 M]

UNIT-III

	a)	Design an area efficient layout diagram for the CMOS NAND gate	[6 M]
	b)	Write about the scaling limitations.	[6 M]

(OR)

7.	a)	Design a stick diagram for two input CMOS NAND and NOR gates	[6 M]
	b)	Why scaling is required? Write the scaling factors for different types of device parameters?	[6 M]

UNIT-IV

8.	a)	What is meant by sheet resistance(Rs)? Explain the concept of Rs applied to MOS transistors.	[6 M]
	b)	Write a short notes on Pass Transistor Logic	[6 M]

(OR)

9.	a)	What is meant by standard unit of capacitance? Give some area capacitance calculations	[6 M]
	b)	Give the subsystem design considerations of a four-bit adder	[6 M]

UNIT-V

10.	a)	Explain about design capture tools	[6 M]
	b)	Explain about design- verification tools	[6 M]

(OR)

11.	Explain Chip level test techniques and system level test techniques	[12M]

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AR16

CODE: 16CE3021   SET-1

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI
(AUTONOMOUS)
III B.Tech II Semester Supplementary Examinations, May, 2023
INDUSTRIAL WASTE AND WASTE WATER MANAGEMENT
(CIVIL ENGINEERING)

Time: 3 Hours   Max Marks: 70

Answer ONE Question from each Unit
All Questions Carry Equal Marks
All parts of the Question must be answered at one place

UNIT-I

1.	a)	What are the general characteristics of Industrial waste water?	6M
	b)	Write a detailed note on Equalization and Proportioning.	8M

(OR)

2.	What is neutralization? Why industrial wastes are neutralized? Discuss various methods for neutralization of acid and alkali wastes.	14M

UNIT-II

3.	a)	Discuss the effects of industrial waste water on rivers and lakes.	8M
	b)	Explain how recirculation of waste water is useful in industry.	6M

(OR)

4.	Can all the industrial wastes be treated in municipal sewage treatment plant? What are the advantages and limitations of treating industrial wastes along with domestic wastes?	14M

UNIT-III

5.	a)	With a neat diagram explain the manufacturing process of pulp and paper industry. Identify the sources of waste water.	8M
	b)	Discuss various biological treatment options available for the treatment of waste water from pulp and paper industry.	6M

(OR)

6.	a)	Discuss the sources and characteristics of waste water from a diary industry.	6M
	b)	Explain the method of treating cotton textile mill wastes with the help of flow sheet.	8M

UNIT-IV

7.	a)	Explain the sources and characteristics of waste water from a sugar industry.	7M
	b)	Discuss various method of treatment of waste water from sugar industry with appropriate flow sheets.	7M

(OR)

8.	a)	Describe the sources of waste water from oil refinery?	6M
	b)	Explain how liquid wastes from an oil refinery are treated.	8M

UNIT-V

9.		Explain the concept of Common Effluent Treatment Plant. Discuss advantages and limitations of Common Effluent Treatment Plants.	14M

(OR)

10.	a)	Write a short note on 'Zero discharge'.	6M
	b)	Describe how you design treatment plant for the effluent of corn starch industry.	8M

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AR16

CODE: 16CS3020   **SET-1**

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI
(AUTONOMOUS)
III B.Tech II Semester Supplementary Examinations, May, 2023
Data Warehousing and Data Mining
(Common to CSE & IT)

Time: 3 Hours   **Max Marks: 70**

Answer ONE Question from each Unit
All Questions Carry Equal Marks
All parts of the Question must be answered at one place

UNIT-I

1. Discuss in detail about the major issues in Data Mining and its functionalities.   14M

(OR)

2. a) What is data pre-processing? Explain why it is essential to pre-process the data before mining.   7M

    b) Explain in detail about various pre-processing techniques.   7M

UNIT-II

3. a) What is multi-dimensional data model? Explain its concept.   5M

    b) Differentiate ROLAP, MOLAP, and HOLAP.   9M

(OR)

4. a) Define concept Hierarchy. Explain its concept.   7M

    b) Compare data warehouse with database system.   7M

UNIT-III

5. Describe the following with examples.   14M
     i) Frequent itemset   ii) closed itemset   iii) Support & Confidence

(OR)

6. a) Define association rule. Write and explain Apriori algorithm with a suitable example.   9M

    b) Explain how to improve the performance of Apriori algorithm.   5M

UNIT-IV

7. a) What is tree pruning? Explain various pruning techniques.   7M

    b) Explain about the methods used to measure the performance of the classifier.   7M

(OR)

8. a) How the classification is different from Prediction?   6M

    b) Describe various prediction techniques.   8M

UNIT-V

9. a) Discuss about different data types used in cluster analysis.   8M

    b) Differentiate Agglomerative and Divisive Clustering.   6M

(OR)

10. Explain the following clustering techniques.   14M
     i) K-Means   ii) DBSCAN

AR18

CODE: 18BST309   **SET-1**

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI
(AUTONOMOUS)
II B. Tech II Semester Supplementary Examinations, May,2023

BIOLOGY
(Electronics and Communication Engineering)

Time: 3 Hours   Max Marks: 60

Answer ONE Question from each Unit
All Questions Carry Equal Marks
All parts of the Question must be answered at one place

UNIT-I

1. a) Discuss the importance of biological sciences in engineering studies.   6

   b) Contrast and compare the characters between bird and aircraft .   6

(OR)

2. a) Discuss different types of disciplines present in biology.   6

   b) Who coined the term "cell" in biology and discuss the postulations of cell theory in brief.   6

UNIT-II

3. a) Classify the ecological aspects of single celled organisms.   6

   b) Differentiate between prokaryote and eukaryotes.   6

(OR)

4. a) Classify the organisms based on their ammonia excretion.   6

   b) Briefly discuss the process of identification of micro-organisms.   6

UNIT-III

5. a) Demonstrate proteins as transports, receptors, enzymes and structural elements.   6

   b) Determine the mechanism of enzyme action with example.   6

(OR)

6. a) Discuss mono, oligo, and poly saccharides withs examples. .   6

   b) Briefly discuss the double helical structure of DNA.   6

UNIT-IV

7. a) Discuss the primary structure of a protein.   6

   b) Discuss different functions of proteins in a human body.   6

(OR)

8. a) Classify the enzymes according to their functions.   6

   b) Illustrate the hierarchy of protein structure.   6

UNIT-V

9. a) Distinguish between exothermic and endothermic reactions with examples.   6

   b) Examine how a glucose molecule split into a pyruvic acid molecule in detail(glycolsis)   6

(OR)

10. a) Discuss any three energy yielding reactions that you know.   6

    b) State the first law of thermodynamics and explain it in the context of biology with example.   6

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AR18

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI
(AUTONOMOUS)
III B.Tech II Semester Supplementary Examinations, May, 2023
PRINCIPLESOFSIGNALSANDSYSTEMS
(ELECTRICAL AND ELECTRONICS ENGINEERING)

Time: 3 Hours   Max Marks: 60

Answer ONE Question from each Unit
All Questions Carry Equal Marks
All parts of the Question must be answered at one place

UNIT-I

1. a) Examine whether the following signals are periodic or not? If periodic determine   6 M
   the fundamental period.
   (i)   x(n)=cos(0.3πn)+sin(0.25πn)
   (ii)   x(t)=2cos2πt / 3+3cos2πt / 7

   b) Explain the following signals: a) Unit Step b) Unit Impulse c) Real Exponential   6 M
   d) Unit Ramp

(OR)

2. a) Whether the following signals are periodic or not? If periodic determine the   6 M
   fundamental period.
   (i) x(t) = 2 cos (10t + 1) – sin (4t – 1)

   (ii) $y[n] = \sin\left(\dfrac{6\pi}{7}n + 1\right)$

   b) Explain the following System properties   6 M
   (a) Memory-less,   (b) Causal,   (c) Linear,   (d) Time-invariant

UNIT-II

3. a) Show that the convolution sum   12 M

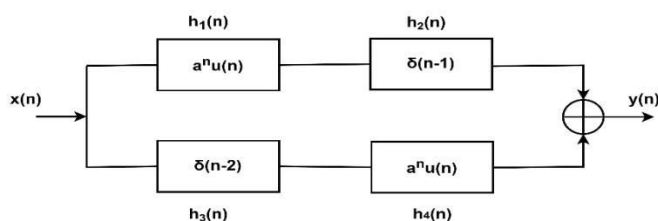$$y(n) = x(n) * h(n) = \sum_{k=-\infty}^{\infty} x(k).h(n-k)$$

.

(OR)

4. a) Find the convolution of the following sequence by matrix 1 method   6M
   and matrix second method

$$x(n) = 2\delta(n+1) - \delta(n) + \delta(n-1) + 3\delta(n-2)$$
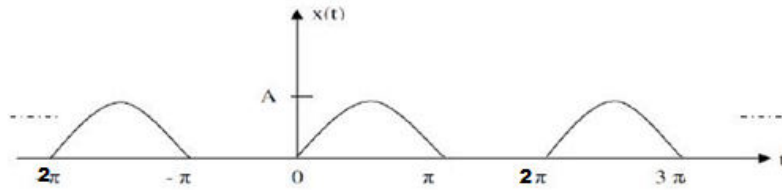
$$h(n) = 3\delta(n-1) + 4\delta(n-2) + 2\delta(n-3)$$

   b) Find the overall impulse response of the system shown in figure below   6 M

UNIT-III

5. a) Find out the relationship between Trigonometric and Exponential Fourier series.   6 M

   b) Find the Fourier series expression for the following halfwave rectified sinewave signal.   6 M

(OR)

6. a) Find the Fourier transform of $x(t) = e^{-a|t|}$, a>0 and plot its magnitude spectrum   6 M

   b) State and prove any five properties of Fourier Transform.   6 M

UNIT-IV

7. a) Find the Laplace Transform and of $x(t) = e^{-at} u(t) + e^{at} u(-t)$ 6 M

   b) State and proof the any three properties of the Laplace Transform.   6 M

(OR)

8. a) Obtain inverse Laplace transform of   6 M

$$F(s) = \frac{(2S+1)}{(S+1)((s^2+2s+2)}$$

.

   b) Find the Laplace Transform and of $x(t) = e^{-at} \sin\omega t \, u(t)$ 6 M

UNIT-V

9. a) Find the Z-Transform and ROC of the following sequences   6 M

     (i) $x(n) = a^n u(n)$ (ii) $x(n) = -a^n u(-n-1)$

   b) Using long division, Find the Inverse Z-Transform of $X(z) = \frac{z^2+2z}{z^3-3z^2+4z+1}$; $ROC \, |z| > 1$ 6 M

(OR)

10. a) Find the Z-Transform and ROC following sequence $\sin \omega n \, u(n)$ 6 M

   b) Find the Inverse Z-Transform of $X(z) = \frac{z^{-1}}{3-4z^{-1}+z^{-2}}$; $ROC \, |z| > 1$ 6 M

AR18

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI
(AUTONOMOUS)
III B.Tech II Semester Supplementary Examinations, May,2023
HUMAN VALUES
(Common to CIVIL, CSE, IT)

Time: 3 Hours   **Max Marks: 60**

Answer ONE Question from each Unit
All Questions Carry Equal Marks
All parts of the Question must be answered at one place

UNIT-I

1. a) What are the basic guidelines for value education? 6
   b) Critically examine the prevailing notions of happiness in society and their consequences. 6

(OR)

2. a) Illustrate the purpose of self-exploration. 6
   b) Discuss about the value time and co-operation. 6

UNIT-II

3. a) Distinguish between the needs of the Self and the needs of the Body. What are the needs of the 'self' and the 'body'? 6
   b) In what way are we irresponsible towards our bodies? What are its consequences? 6

(OR)

4. a) Explain how activities in self (I) are interrelated. 6
   b) 'Human being is co-existence of the Self and the Body' - elaborate on this statement. 6

UNIT-III

5. a) What do you understand by 'trust'? What is its importance in human relationships? 6
   b) Enumerate some important values that lie at the base of good relationships. 6

(OR)

6. a) "Family is a natural laboratory to understand human relationships" - elaborate. 6
   b) What is the role of the value system in family harmony? How can you maintain harmony in a relationship? 6

UNIT-IV

7. a) Define harmony in nature and how you will create it. 6
   b) Define existence? Show that existence is in the form of co-existence. 6

(OR)

8. a) Discuss the human interrelationship with nature. 6
   b) What are the four orders of nature? Briefly explain them. 6

UNIT-V

9. a) What is ethical human conduct? Explain in terms of values, policies and character with appropriate examples. 6
   b) What do you mean by universal human order? What are its implications? 6

(OR)

10. a) Explain the concept of holistic perception of harmony in existence. 6
    b) What are the principles for Humanistic Education 6

1 of 1

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