O.P.Code: 20EC0423	R20	H.T.No.									

SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY:: PUTTUR

(AUTONOMOUS)

B.Tech III Year II Semester Regular & Supplementary Examinations July-2024

MICROWAVE THEORY & TECHNIQUES

(Electronics & Communications Engineering)

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

(Answer all Five Units **5 x 12 = 60** Marks)

UNIT-I

1	a	Discuss in detail about the concept of mode.	CO2	L2	6M
	b	Describe the concept of dominant mode with suitable examples.	CO2	L2	6M

OR

2	a	Briefly discuss the losses that occur in a transmission structure in ideal and practical situation.	CO5	L2	6M
	b	Explain about various losses that occur in microwave transmission.	CO4	L2	6M

UNIT-II

3	a	Explain with neat sketch the working of coaxial line transmission line.	CO1	L1	6M
	b	Derive the equation for the propagation of TE waves in rectangular waveguide.	CO4	L3	6M

OR

4	a	Describe the cavity resonator with neat sketch and List it types & applications.	CO1	L1	6M
	b	Derive expression for fo in rectangular cavity resonator.	CO4	L3	6M

UNIT-III

5	a	List out the properties of S-matrix.	CO3	L1	6M
	b	Derive S-matrix calculation for two port network.	CO4	L2	6M

OR

6	a	Construct the microwave tee, whose rectangular slot is cut both along the width and breadth of long waveguide dimension, Describe in detail.	CO2	L3	6M
	b	Discuss about the applications of the magic Tee.	CO3	L2	6M

UNIT-IV

7	a	Explain the velocity modulation process in two cavity Klystron tube.	CO4	L2	6M
	b	What is meant by bunching process and transit time?	CO5	L1	6M

OR

8	a	Discuss about magnetron and its various modes.	CO4	L2	6M
	b	List the applications of travelling wave tube.	CO1	L1	6M

UNIT-V

9	a	With the help of a neat sketch, briefly explain the functions of different blocks of a microwave bench.	CO4	L2	6M
	b	What is VSWR? How to calculate reflection coefficient from VSWR measurements.	CO5	L1	6M

OR

10	a	Explain about measurement of attenuation using RF substitution method.	CO4	L2	6M
	b	What are the methods used to overcome losses in impedance matching?	CO4	L1	6M

***** END *****

O.P.Code: 20ME0322	R20	H.T.No.									

SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY:: PUTTUR

(AUTONOMOUS)

B.Tech III Year II Semester Regular & Supplementary Examinations July-2024

NON-CONVENTIONAL ENERGY RESOURCES

(Mechanical Engineering)

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

(Answer all Five Units **5 x 12 = 60** Marks)

		UNIT-I			
1	**a**	Outline the merits and demerits of Conventional energy sources.	**CO1**	**L2**	**6M**
	b	Assess the need of renewable energy resources.	**CO1**	**L5**	**6M**
		OR			
2	**a**	Develop and equation for solar radiation on tilted surface.	**CO1**	**L3**	**6M**
	b	List the merits and demerits of primary energy sources.	**CO1**	**L1**	**6M**
		UNIT-II			
3	**a**	Explain about Solar Radiation.	**CO2**	**L2**	**6M**
	b	Describe the process of space heating with solar energy.	**CO2**	**L2**	**6M**
		OR			
4		Enumerate the different types of concentrating type collectors.	**CO2**	**L1**	**12M**
		UNIT-III			
5	**a**	Describe the functions of wind energy system components	**CO3**	**L2**	**6M**
	b	Describe the working of VAWT with a neat sketch.	**CO3**	**L2**	**6M**
		OR			
6	**a**	What is the impact of wind energy on environment?	**CO3**	**L1**	**6M**
	b	Outline the advantages and disadvantages of VAWT.	**CO3**	**L2**	**6M**
		UNIT-IV			
7	**a**	Define biomass and why is it called renewable energy?	**CO4**	**L1**	**6M**
	b	Explain about biomass direct combustion.	**CO4**	**L2**	**6M**
		OR			
8	**a**	How do you classify the gasifiers? Explain anyone in detail.	**CO4**	**L1**	**6M**
	b	Describe the working of Spreader stroker with a neat sketch.	**CO4**	**L2**	**6M**
		UNIT-V			
9	**a**	Distinguish between wave and tidal energy.	**CO5**	**L4**	**6M**
	b	What is the geothermal energy? Explain its extraction process.	**CO6**	**L2**	**6M**
		OR			
10		What is the basic principle of ocean thermal energy conversion? Name the main types of OTEC power plants? Describe their working.	**CO6**	**L1**	**12M**

***** END *****

O.P.Code: 20EE0224	R20	H.T.No.									

SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY:: PUTTUR
(AUTONOMOUS)
B.Tech III Year II Semester Regular & Supplementary Examinations July-2024
POWER SYSTEM OPERATION AND CONTROL
(Electrical & Electronics Engineering)

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

(Answer all Five Units **5 x 12 = 60** Marks)

UNIT-I

1	a	What is the need of system variables and explain briefly?	CO1	L2	6M
	b	Explain about optimum generation allocation with line loss neglected.	CO1	L2	6M
		OR			
2		Derive the expression for general transmission loss formula in Optimal operation of Thermal Power Station.	CO1	L3	12M
		UNIT-II			
3	a	What is the necessity of connecting two different plants on same load?	CO2	L1	6M
	b	Explain the hydro-thermal co-ordination and its importance.	CO2	L2	6M
		OR			
4	a	Briefly explain about short term problem in hydrothermal scheduling.	CO2	L2	6M
	b	Briefly explain about long term problem in hydrothermal scheduling.	CO2	L2	6M
		UNIT-III			
5	a	Explain the functions of flyball speed governor and hydraulic amplifier in speed governing system.	CO2	L2	6M
	b	A 100 MVA synchronous generator operates on full load at a frequency of 50 Hz. The load is scheduled to 50 MW. Due to time lag in the governor system, the steam valve begins to close after 0.4 seconds. Determine the change in frequency that occurs in this time. M = 5 KW-S/KVA of generator capacity.	CO3	L3	6M
		OR			
6	a	Explain about first order turbine model.	CO3	L2	6M
	b	Sketch the schematic diagram of speed governor system.	CO3	L3	6M
		UNIT-IV			
7	a	Why frequency of the power system should be kept constant?	CO4	L4	6M
	b	Discuss in detail the importance of load frequency control.	CO4	L2	6M
		OR			
8	a	Derive the expression for dynamic response of isolated power system under uncontrolled case.	CO4	L3	6M
	b	A 500MW generator has a speed regulation of 4%. If the frequency drops by 0.12Hz with an unchanged reference, determine the increase in turbine power. And also find by how much the reference power setting should be changed if the turbine power remain unchanged.	CO4	L3	6M
		UNIT-V			
9		Explain clearly what do mean by compensation of a transmission line and discuss briefly different methods of compensation.	CO5	L2	12M
		OR			
10	a	Explain the limitations of series compensation.	CO5	L2	6M
	b	What is surge impedance loading and also derive the necessary equations.	CO5	L1	6M

***** END *****

O.P.Code: 20EC0433	R20	H.T.No.									

SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY:: PUTTUR

(AUTONOMOUS)

B.Tech III Year II Semester Regular & Supplementary Examinations July-2024

FIBER OPTIC COMMUNICATIONS

(Electronics and Commnications Engineering)

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

(Answer all Five Units **5 x 12 = 60** Marks)

		UNIT-I			
1	a	Explain the Elements of Optical Communication System with neat sketch.	CO1	L1	6M
	b	List out the merits and demerits of optical fiber communication.	CO1	L1	6M
		OR			
2	a	Define group velocity, Illustrate the impact of group delays in optical Communication.	CO2	L2	6M
	b	Explain the effects of signal distortion in optical waveguide.	CO2	L2	6M
		UNIT-II			
3	a	Illustrate the working principle of an edge emitter LED with neat diagram.	CO3	L2	6M
	b	What are the various types of LED structures? Explain about double heterostructure with neat diagram.	CO3	L2	6M
		OR			
4	a	Explain about resonant frequencies of LASER Diode.	CO3	L2	6M
	b	Describe about Temperature effects of Laser characteristics.	CO3	L1	6M
		UNIT-III			
5	a	Explain in detail about the operation of Avalanche Photo Diode using suitable diagram.	CO3	L2	6M
	b	An GaAs Photodetector a pulse of 100 ns emits 6x106 photons at 1300 nm wavelength. Average e-h pair generated are 5.4x106 . Calculate the quantum efficiency of the detector.	CO3	L2	6M
		OR			
6	a	Explain in detail about any one type of front-end amplifier in detail.	CO3	L3	6M
	b	Construct the optical receiver configuration.	CO3	L2	6M
		UNIT-IV			
7	a	Illustrate in detail about Link power budget.	CO4	L2	8M
	b	List the types of budgets in optical communication system.	CO4	L1	4M
		OR			
8	a	What is meant by Receiver Sensitivity? How do you measure and compare receiver sensitivity for different modulation formats and bit rates?	CO5	L1	6M
	b	Explain in detail about Receiver Sensitivity.	CO5	L2	6M
		UNIT-V			
9		Explain in detail about Optical network topologies.	CO5	L2	12M
		OR			
10	a	Illustrate the basic concept of optical CDMA.	CO6	L2	6M
	b	Why we need optical networks?	CO5	L3	6M

***** END *****

O.P.Code: 20EE0225	R20	H.T.No.									

SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY:: PUTTUR
(AUTONOMOUS)
B.Tech III Year II Semester Regular & Supplementary Examinations July-2024
POWER SEMICONDUCTOR DRIVES
(Electrical & Electronics Engineering)

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

(Answer all Five Units **5 x 12 = 60** Marks)

		UNIT-I			
1		Draw and explain the operation of 1-Ø semi controlled converter fed by separately excited dc motor.	**CO1**	**L2**	**12M**
		OR			
2		For firing angle $\alpha=30^{\circ}$, draw voltage and current waveforms of 3-Ø semi converter fed by DC series motor and explain its operation.	**CO1**	**L5**	**12M**
		UNIT-II			
3	**a**	Compare Ideal and practical dual converter based on various aspects.	**CO2**	**L3**	**6M**
	b	Compare practical non circulating and circulating type dual converter.	**CO2**	**L3**	**6M**
		OR			
4	**a**	A 230V, 870rpm, 100A separately excited DC motor has an armature resistance of 0.02Ω. It is coupled to an over hauling with a torque of 400N-m. Determine the speed at which motor can hold the Load by regenerative braking.	**CO2**	**L3**	**6M**
	b	Explain the operation of closed loop speed control of dc drive.	**CO2**	**L2**	**6M**
		UNIT-III			
5		Explain the operation of first quadrant chopper fed by separately excited DC motor with necessary waveforms.	**CO3**	**L2**	**12M**
		OR			
6		A separately excited dc motor with armature resistance of 0.01Ω with dc supply 220V, 100A, 1000 rpm is fed with chopper control for its motoring and braking operations. Assuming continuous conduction calculate (i) The duty ratio of the chopper at rated torque with speed of 500 rpm for its motoring operation (ii) The duty ratio of the chopper at rated torque with speed of 500 rpm for its braking operation.	**CO3**	**L3**	**12M**
		UNIT-IV			
7	**a**	Explain voltage control method of Induction motor drive?	**CO4**	**L2**	**6M**
	b	A 3-Ø star-connected 400V,50Hz, 4-pole induction motor has the following per phase parameters referred to the stators: R_1=0.15Ω, X_1=0.45Ω, R_2'=0.12Ω, X_2'=28.5Ω. Compute the stator current and power factor when the motor is operated at rated voltage and frequency with S=0.04.	**CO4**	**L3**	**6M**
		OR			
8	**a**	Comparison of VSI Drive with CSI Drive.	**CO4**	**L2**	**6M**
	b	Explain the closed loop speed control of 3-Ø induction motor drive.	**CO4**	**L3**	**6M**
		UNIT-V			
9	**a**	Explain the operation of self - control of synchronous motor.	**CO5**	**L2**	**6M**
	b	Discuss the operation of separate -control of synchronous motor.	**CO5**	**L2**	**6M**
		OR			
10		Explain the closed loop control scheme of adjustable speed synchronous motor drive. Mention its need and advantages	**CO6**	**L2**	**12M**

***** END *****

O.P.Code: 20CS0535	R20	H.T.No.									

SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY:: PUTTUR
(AUTONOMOUS)
B.Tech III Year II Semester Regular & Supplementary Examinations July-2024
MACHINE LEARNING
(Computer Science & Information Technology)

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

(Answer all Five Units **5 x 12 = 60** Marks)

UNIT-I

1	a	List out various Unsupervised learning techniques used in Machine Learning.	CO1	L1	6M
	b	Analyze Reinforcement Learning with neat diagram.	CO2	L2	6M
		OR			
2	a	Describe Generalization process in machine learning	CO1	L2	6M
	b	Analyze the real world applications of ML.	CO1	L4	6M

UNIT-II

3	a	Differentiate various Parametric and Non-Parametric Methods.	CO5	L4	6M
	b	Explain logistic regression in machine learning.	CO1	L1	6M
		OR			
4	a	List out various Regression techniques in Machine Learning.	CO1	L1	6M
	b	Illustrate Gradient Descent algorithm and its variants.	CO3	L3	6M

UNIT-III

5	a	List out the various applications of clustering	CO6	L1	6M
	b	Estimate the problems associated with clustering large data	CO6	L5	6M
		OR			
6	a	Explain about Gaussian Mixture Models.	CO3	L2	6M
	b	Generalize K-Means Clustering algorithm in Unsupervised Learning.	CO6	L2	6M

UNIT-IV

7	a	List out Advantages and limitations of Non parametric methods in ML.	CO3	L2	6M
	b	Discuss the Principle Component Analysis.	CO5	L2	6M
		OR			
8	a	Compare Multidimensionality scaling and Metric dimensionality scaling.	CO5	L2	6M
	b	Explain about Subset Selection Techniques.	CO4	L4	6M

UNIT-V

9	a	Explain in detail about Single State Case: K-Armed Bandit problem	CO4	L4	6M
	b	Describe Exploration and Exploitation strategies in temporal difference learning.	CO4	L1	6M
		OR			
10	a	Explain Generalization process in Model Based Learning.	CO5	L2	6M
	b	Difference between Model based learning and Model free learning.	CO4	L1	6M

***** END *****

O.P.Code: 20CS1205	R20	H.T.No.									

SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY:: PUTTUR
(AUTONOMOUS)
B.Tech III Year II Semester Regular & Supplementary Examinations July-2024
VIRTUALIZATION TECHNIQUES
(CSE with Specialization in Cloud Computing)

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

(Answer all Five Units **5 x 12 = 60** Marks)

UNIT-I

1	a	Compare and contrast Threaded Interpretation with other emulation techniques.	CO1	L2	6M
	b	How Pre-Coded and Direct Interpretation methods.	CO1	L1	6M
		OR			
2		Define what a virtual machine is and explain how it differs from physical machines.	CO1	L1	12M

UNIT-II

3	a	Compare and contrast the different implementation levels of virtualization, such as full virtualization, para-virtualization, and hardware-assisted virtualization.	CO2	L2	6M
	b	Discuss the typical structure of a virtualized environment and the key components involved.	CO2	L3	6M
		OR			
4		Explain the concept of hypervisor and its role in managing virtualized resources.	CO2	L2	12M

UNIT-III

5	a	What is Layer 2 network device virtualization?	CO3	L2	6M
	b	How do Layer 3 VRF instances enhance network security?	CO3	L2	6M
		OR			
6	a	Describe the role of Layer 3 VRF instances in network security.	CO3	L3	6M
	b	How does network virtualization impact network service deployment?	CO3	L2	6M

UNIT-IV

7		Discuss the concept of Label Switched Paths (LSPs) in network routing.	CO4	L3	12M
		OR			
8	a	Describe the operation of Label Switched Paths in routing.	CO4	L2	6M
	b	How does control-plane virtualization streamline network management tasks?	CO4	L2	6M

UNIT-V

9		What are the main differences between Guest OS, Host OS, Hypervisor, Emulation, and Kernel Level virtualization?	CO5	L3	12M
		OR			
10	a	How does virtualization improve resource utilization in server environments?	CO5	L3	6M
	b	Discuss the role of hypervisors in managing virtualized server resources.	CO5	L2	6M

***** END *****

O.P.Code: 20AG0724	R20	H.T.No.									

SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY:: PUTTUR
(AUTONOMOUS)
B.Tech III Year II Semester Regular & Supplementary Examinations July-2024
SOLID WASTE & BY-PRODUCT UTILIZATION
(Agricultural Engineering)

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

(Answer all Five Units **5 x 12 = 60** Marks)

		UNIT-I			
1	**a**	Explain incineration in solid waste management.	**L2**	**CO1**	**6M**
	b	Explain briefly about Solid waste management.	**L2**	**CO1**	**6M**
		OR			
2		Explain about recovery of energy from municipal solid waste.	**L2**	**CO1**	**12M**
		UNIT-II			
3	**a**	Write about the classification of bio mass.	**L1**	**CO2**	**6M**
	b	Explain in detail about combustion process.	**L2**	**CO2**	**6M**
		OR			
4	**a**	Write about bio fuels and their raw materials.	**L1**	**CO1**	**6M**
	b	Distinguish incineration and pyrolysis.	**L4**	**CO1**	**6M**
		UNIT-III			
5		Explain in detail about steps involved in gasification process.	**L2**	**CO4**	**12M**
		OR			
6		Explain Up- draft and down-draft Gasifier with neat sketch.	**L2**	**CO4**	**12M**
		UNIT-IV			
7	**a**	The following data are given for a family biogas digester suitable for the output of five cows; the retention time is 20 days, temperature 32 0C, dry matter consumed per day = 2kg, biogas yield is 0.24 m3/kg. The efficiency of burner is 60%, methane proportion is 0.6 heat of combustion of methane =32 MJ/m3 Calculate: i) the volume of biogas digester ii) The power availability from the digester	**L3**	**CO5**	**6M**
	b	Discuss advantages and disadvantages of floating drum type biogas plant.	**L3**	**CO5**	**6M**
		OR			
8		Explain about fixed dome type biogas plant with neat sketch.	**L2**	**CO5**	**12M**
		UNIT-V			
9	**a**	What is Briquetting? Write about importance of shredding in briquetting process.	**L2**	**CO6**	**4M**
	b	Discuss about factors effecting of briquetting process.	**L3**	**CO6**	**4M**
	c	What are the advantages and disadvantages of briquettes?	**L1**	**CO6**	**4M**
		OR			
10	**a**	Explain working principle of piston type briquetting machine with neat diagram.	**L2**	**CO6**	**6M**
	b	Draw a flow diagram for ethanol production from sugar cane.	**L2**	**CO6**	**6M**

***** END *****

O.P.Code: 20CE0139	R20	H.T.No.									

SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY:: PUTTUR
(AUTONOMOUS)
B.Tech III Year II Semester Regular & Supplementary Examinations July-2024
CONCRETE TECHNOLOGY
(Civil Engineering)

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

(Answer all Five Units **5 x 12 = 60** Marks)

UNIT-I

1		What are Bogue's compounds? Explain in detail how each one of these compounds influences the strength and setting properties of cement.	CO1	L1	12M

OR

2	a	Explain the term super plasticizers. How are they useful in concrete production?	CO1	L2	6M
	b	Explain the advantages of using plasticizers and super plasticizers in concrete making.	CO1	L1	6M

UNIT-II

3		With neat diagram, write the procedure involved in determining the split tensile strength of concrete.	CO2	L2	12M

OR

4	a	Explain the Maturity concept for strength development of concrete.	CO2	L2	6M
	b	The strength of a sample of fully matured concrete is found to be 40 MPa. Find the strength of identical concrete at the age of 7 days when cured at an average temperature during day time at 20°C and night time at 10°C.	CO2	L3	6M

UNIT-III

5		Explain the procedure for UPV and Rebound hammer test.	CO4	L2	12M

OR

6		Explain the procedure to conduct Modulus of elasticity test in the laboratory and explain the various factors affecting the modulus of elasticity.	CO3	L2	12M

UNIT-IV

7		Explain briefly about chloride attack on concrete.	CO5	L2	12M

OR

8		Explain about factors affecting permeability of concrete.	CO5	L2	12M

UNIT-V

9		Design a M35 concrete mix using IS method of Mix Design for the following data: i) Maximum size of aggregate - 20mm (Angular) ii) Degree of workability - 0.90 compaction factor. iii) Quality control - good iv) Type of exposure - mild v) Specific Gravity a). Cement - 3.12 b). Sand - 2.63 c).Coarse aggregate - 2.666 vi) Water absorption: a). Coarse aggregate - 0.5% b). Fine aggregate - 1.0% vii) Free surface moisture: a). Coarse aggregate – Nil b).Fine aggregate - 2.2% viii) Sand confirms to Zone I grading. Assume any other data required suitably.	CO5	L6	12M

OR

10	a	Discuss briefly about durability best practices for concrete mix designs.	CO6	L1	6M
	b	What are the factors affecting durability of concrete?	CO6	L2	6M

***** END *****

O.P.Code: 20CS1111	R20	H.T.No.									

SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY:: PUTTUR

(AUTONOMOUS)

B.Tech III Year II Semester Regular & Supplementary Examinations July-2024

BIG DATA ANALYTICS

CSE(Artificial Intelligence & DataScience)

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

(Answer all Five Units **5 x 12 = 60** Marks)

UNIT-I

1		Distinguish between structure,unstructured and semi-structured at a with an Examples.	CO1	L4	12M
		OR			
2	a	How to implement IBM Big Data Strategy?	CO1	L2	6M
	b	Generalize the list of tools related to Hadoop.		L6	6M
		UNIT-II			
3		Explain the block, name node and data node in Hadoop file system.	CO2	L2	12M
		OR			
4		Elaborate the AVRO file format with diagram.	CO2	L6	12M
		UNIT-III			
5	a	Discuss different types of failures in Classic MapReduce.	CO3	L2	6M
	b	List out the different types of failures in Yet Another Resource Negotiator.	CO3	L1	6M
		OR			
6		Justify types of output formats in MapReduce.	CO4	L5	12M
		UNIT-IV			
7	a	Illustrate the concept of grunt.	CO5	L3	5M
	b	Why Do We Need ApachePig?Identify the features of PIG.	CO5	L5	7M
		OR			
8		Examine the Pig Latin Relational Operators.	CO5	L5	12M
		UNIT-V			
9	a	Draw a neat sketch of Hive architecture.	CO6	L3	6M
	b	Explain about components of Hive architecture.	CO6	L2	6M
		OR			
10		Explain with a neat diagram the architecture of Hbase.	CO6	L6	12M

***** END *****

O.P.Code: 20CS0534	R20	H.T.No.									

SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY:: PUTTUR
(AUTONOMOUS)
B.Tech III Year II Semester Regular & Supplementary Examinations July-2024
HUMAN COMPUTER INTERACTION
(Common to CSE, CIC & CSM)

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

(Answer all Five Units **5 x 12 = 60** Marks)

UNIT-I

1		Distinguish between GUI and Web page design.	CO1	L4	12M
		OR			
2	a	Summarize history of the Screen design.	CO1	L2	6M
	b	Examine the importance of good design.	CO1	L3	6M

UNIT-II

3		How to presenting the information simply and meaningfully?	CO2	L1	12M
		OR			
4		Discuss various technological considerations involved in designing an interface.	CO2	L2	12M

UNIT-III

5		Explain about Device-based controls and Screen-based controls.	CO3	L2	12M
		OR			
6	a	What is window in GUI? Explain various types of Windows.	CO3	L1	6M
	b	Discuss about various operable controls in HCI.	CO3	L2	6M

UNIT-IV

7	a	What is an Icon? Explain different icons in detail.	CO4	L1	6M
	b	Explain in detail about how to choose colors.	CO4	L2	6M
		OR			
8		Evaluation procedure for developing and conducting the test.	CO4	L4	12M

UNIT-V

9		Explain in brief about Building tools.	CO5	L2	12M
		OR			
10		Examine the following term i) Indirect pointing devices ii) Function keys of Keyboard	CO5	L3	12M

*** END ***

O.P.Code: 20ME0333	R20	H.T.No.									

SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY:: PUTTUR
(AUTONOMOUS)
B.Tech III Year II Semester Regular & Supplementary Examinations July-2024
AUTOMOBILE ENGINEERING
(Mechanical Engineering)

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

(Answer all Five Units **5 x 12 = 60** Marks)

UNIT-I

1	a	Differentiate between S I engines and CI engines.	CO1	L2	6M
	b	List out the components of I.C engine and its function.	CO1	L1	6M
		OR			
2	a	Write characteristics of good chassis and frame.	CO1	L2	6M
	b	Explicate front and rear wheel drive layout in detail with relevant sketch.	CO1	L3	6M

UNIT-II

3	a	Explain briefly about MPFI fuel injection system used in Automobiles.	CO2	L2	6M
	b	Fuel mileage with MPFI engines are more than normal injection systems. Justify.	CO2	L4	6M
		OR			
4	a	Elucidate the working of 3-way catalytic converter with a neat sketch.	CO2	L2	6M
	b	Write a note on emissions from alternative fuels like hydrogen, bio-mass and alcohol.	CO2	L2	6M

UNIT-III

5	a	Describe the grading phenomena of Lubricant.	CO3	L2	6M
	b	Is lubricant used in 2 stroke and 4 stroke engines are same? Explain.	CO3	L4	6M
		OR			
6		Name various types of components used in Lighting System used in automobile with neat sketch.	CO3	L1	12M

UNIT-IV

7	a	What are the different materials used for manufacturing of Clutch.	CO4	L1	6M
	b	Explain the working of a centrifugal clutch with a neat diagram.	CO4	L2	6M
		OR			
8	a	What is the function of Universal joint in an automobile.	CO4	L1	6M
	b	Elucidate in detail about Differential used in automobile with neat diagram.	CO6	L2	6M

UNIT-V

9		Explain with the help of a neat layout about Rigid Axle Suspension system.	CO5	L2	12M
		OR			
10	a	Discuss the classification of brakes from different considerations.	CO5	L2	6M
	b	What are the different components of a hydraulic brake system? Explain.	CO5	L2	6M

***** END *****

O.P.Code: 20HS0814	R20	H.T.No.									

SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY:: PUTTUR
(AUTONOMOUS)
B.Tech III Year II Semester Regular & Supplementary Examinations July-2024
INTELLECTUAL PROPERTY RIGHTS
(Open Elective-II)

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

(Answer all Five Units **5 x 12 = 60** Marks)

		UNIT-I			
1	a	Explain with an example why Intellectual Properties need to be protected.	CO1	L1	6M
	b	Describe the importance of intellectual property rights.	CO1	L2	6M
		OR			
2	a	Illusrate the functions and Role of UNO in development of WIPO.	CO1	L3	6M
	b	Discuss the prohibition of registration of certain Geographical Indication.	CO1	L2	6M
		UNIT-II			
3	a	Explain about purpose and functions of Trademark.	CO2	L1	6M
	b	Describes about protectable matters of Trademark.	CO2	L2	6M
		OR			
4	a	Explain the origin function of trademark.	CO2	L1	6M
	b	Discuss the reasons for protecting trademarks in the system of acquisition.	CO2	L2	6M
		UNIT-III			
5	a	Briefly explain the process of obtaining copyright.	CO3	L4	6M
	b	Write a short about right of reproduction.	CO3	L1	6M
		OR			
6	a	Describe the advantages of Law of patent.	CO3	L2	6M
	b	Differentiate types of copyrights in cinema autography in India.	CO3	L3	6M
		UNIT-IV			
7	a	Describe why Trade Secrets are necessary. How do they function.	CO4	L2	6M
	b	List out the liabilities for misapplication of Trade Secrets.	CO4	L1	6M
		OR			
8	a	How long does a trade secret last?	CO4	L3	6M
	b	Explain in briefly about misappropriation right of publicity.	CO4	L2	6M
		UNIT-V			
9	a	Write a short note on i) Computer Progrms ii) Video game.	CO5	L2	6M
	b	Anlyses the New Developments in Patent Law.	CO5	L4	6M
		OR			
10	a	Distinguish International trademark law and copy right law.	CO5	L3	6M
	b	Eluciate about international developments in trade secrets law.	CO5	L4	6M

***** END *****

O.P.Code: 20EC0452	R20	H.T.No.									

SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY:: PUTTUR
(AUTONOMOUS)

B.Tech III Year II Semester Regular & Supplementary Examinations July-2024
ELEMENTS OF EMBEDDED SYSTEMS
(Open Elective -II)

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

(Answer all Five Units **5 x 12 = 60** Marks)

		UNIT-I			
1	a	With the neat sketch, Explain the general block diagram of embedded system.	CO1	L3	6M
	b	With the neat sketch, Explain architecture of embedded system.	CO1	L2	6M
		OR			
2	a	Explain the classification of Embedded systems based on Performance and Functional Requirements.	CO1	L2	6M
	b	Explain the classification of Embedded systems based on Complexity.	CO1	L2	6M
		UNIT-II			
3	a	Discuss in detail about 7-segment LED display interfacing with 8-bit microcontroller.	CO3	L2	6M
	b	Distinguish between RISC and CISC design.	CO1	L2	6M
		OR			
4	a	Define sensor and Actuator and examples for each.	CO4	L1	6M
	b	Explain the role of following circuitry in embedded system. i) Watchdog Timer ii) Embedded Firmware.	CO2	L2	6M
		UNIT-III			
5	a	Explain the features of Bluetooth and concept of IrDA.	CO3	L2	6M
	b	Explain the concept of I2C in Detail.	CO2	L2	6M
		OR			
6	a	With a neat sketch explain UART communication interfaces.	CO2	L3	6M
	b	Explain the concept of RS232 communication Interface.	CO3	L2	6M
		UNIT-IV			
7	a	With a neat block diagram explain the Arduino architecture.	CO3	L3	6M
	b	Write a program to control DC motor using PWM technique.	CO4	L2	6M
		OR			
8	a	In which language Arduino software was written and also elaborate the software structure functions.	CO4	L2	6M
	b	Write a suitable program to interface Stepper motor with Arduino processor.	CO4	L2	6M
		UNIT-V			
9	a	How the IoT technology can be implemented in home automation such as smart lightening and intrusion detection systems?	CO6	L2	6M
	b	Differentiate between MAC address and IP address.	CO5	L2	6M
		OR			
10	a	Explain how IoT technology can used in the following application areas: (i)Surveillance (ii)Weather monitoring.	CO6	L2	6M
	b	Briefly discuss the MQTT, XMPP and CoAP protocols in application layer.	CO5	L2	6M

***** END *****

O.P.Code: 20ME0355	R20	H.T.No.									

SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY:: PUTTUR
(AUTONOMOUS)
B.Tech III Year II Semester Regular & Supplementary Examinations July-2024
GENERAL MECHANICAL ENGINEERING
(Open Elective-II)

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

(Answer all Five Units **5 x 12 = 60** Marks)

		UNIT-I			
1	a	Discuss the application of Biomaterials.	CO1	L2	6M
	b	Biomaterials plays a vital role in human life. Justify.	CO1	L4	6M
		OR			
2	a	Biomaterials plays a vital role in human life. Justify.	CO1	L4	6M
	b	Discuss the application of Biomaterials?	CO1	L2	6M
		UNIT-II			
3	a	What is the Role of computers in manufacturing?	CO2	L1	6M
	b	Illustrate the conventional design process in product cycle.	CO2	L2	6M
		OR			
4	a	Explain the components of CIM with neat block diagram.	CO2	L3	6M
	b	List out various Benefits of CIM.	CO2	L1	6M
		UNIT-III			
5	a	Write the Industrial Robotics advantages and application.	CO3	L2	6M
	b	Discuss in detail about the Wrist configuration of Robots.	CO3	L2	6M
		OR			
6	a	List out various types of basic components used in NC machines.	CO3	L1	6M
	b	Compare the Traditional and NC ma.	CO3	L3	6M
		UNIT-IV			
7	a	Define Engine and Heat Engine.	CO4	L1	6M
	b	Differentiate between External Combustion Engine and Internal Combustion Engine.	CO4	L2	6M
		OR			
8	a	What are the parts in Internal combustion engine?	CO4	L1	6M
	b	How Rotary engine is different from Reciprocating Engine.	CO4	L2	6M
		UNIT-V			
9	a	Differentiate between Vapour Absorption system and Vapour Compression system.	CO6	L2	6M
	b	In an vapour absorption refrigeration system heating, cooling and refrigeration takes place at temp 100°C, 20°C, and -10°C. Find out theoretical COP of the system.	CO5	L4	6M
		OR			
10	a	Illustrate the working of year round Air conditioning with a neat Sketch.	CO5	L2	6M
	b	How central Air conditioning is different from Unitary Air conditioning system.	CO5	L2	6M

***** END *****

O.P.Code: 20EE0235	R20	H.T.No.									

SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY:: PUTTUR
(AUTONOMOUS)
B.Tech III Year II Semester Regular & Supplementary Examinations July-2024
INDUSTRIAL INSTRUMENTATION
(Open Elective-II)

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

(Answer all Five Units **5 x 12 = 60** Marks)

		UNIT-I			
1	a	Discuss various systematic errors that exist in the measurement systems.	CO1	L2	6M
	b	Explain the Pulse Code Modulation (PCM) technique.	CO2	L2	6M
		OR			
2	a	Explain any six static characteristics of the measurement system.	CO1	L2	6M
	b	Discuss the terms (i) Sampling (ii) Modulation (iii) Sample and Hold circuit.	CO2	L2	6M
		UNIT-II			
3	a	Draw and explain the block diagram of the general telemetry system.	CO3	L2	6M
	b	Explain in detail about the various components used in digital Data Acquisition (DAQ) systems.	CO3	L2	6M
		OR			
4	a	Compare the Frequency Modulation (FM) with Phase Modulation (PM).	CO3	L2	6M
	b	Discuss the technique of Time division multiplexer.	CO3	L2	6M
		UNIT-III			
5	a	Explain the operational details of Hetrodyne wave analyzer.	CO3	L2	6M
	b	Explain the working details of integrating type digital voltmeters with a neat sketch.	CO4	L2	6M
		OR			
6	a	Discuss the constructional details of the basic spectrum analyzer.	CO3	L2	6M
	b	Explain the constructional details of digital tachometer.	CO4	L2	6M
		UNIT-IV			
7	a	Describe the construction and working of LVDT with a neat schematic.	CO5	L1	6M
	b	What is piezo-electric effect and explain its theory of operation.	CO5	L2	6M
		OR			
8	a	What is a transducer? Explain classification of transducers.	CO5	L2	6M
	b	Discuss about the working principles of photo diode and photo conductive cell.	CO5	L2	6M
		UNIT-V			
9	a	Explain force measurement using load cells.	CO6	L2	6M
	b	What are the different types of accelerometers used for acceleration measurement? Explain any one type with a neat diagram.	CO6	L2	6M
		OR			
10	a	Explain the operation of the Resistance thermometer.	CO6	L2	6M
	b	Discuss in detail any one method used for the measurement of liquid level.	CO6	L2	6M

***** END *****

O.P.Code: 20CE0147	R20	H.T.No.									

SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY:: PUTTUR
(AUTONOMOUS)
B.Tech III Year II Semester Regular & Supplementary Examinations July-2024
FUNDAMENTALS OF URBAN PLANNING
(Open Elective-II)

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

(Answer all Five Units **5 x 12** = **60** Marks)

UNIT-I

1	a	Describe the guiding principles of town planning.	CO1	L1	8M
	b	Elucidate the necessity for town planning in detail.	CO1	L1	4M
		OR			
2		Explicate the modern town planning of India in detail.	CO1	L2	12M

UNIT-II

3	a	What is functional survey? Mention the information collected in functional survey.	CO2	L1	6M
	b	What is social survey? Mention the information collected in functional survey.	CO2	L1	6M
		OR			
4		Explain in detail the concept of Special Economic Zones in detail.	CO2	L2	12M

UNIT-III

5	a	Write a detailed account on Low cost Housing.	CO3	L1	6M
	b	Explain in detail about National Housing Policy (NHP).	CO3	L2	6M
		OR			
6		What are the various characteristics of slums? Explain each of them in detail.	CO4	L1	12M

UNIT-IV

7		Explain the principles of design of public building.	CO5	L2	12M
		OR			
8		Discuss the function of a local authority with respect to the building byelaws.	CO5	L2	12M

UNIT-V

9		With neat sketches explain various types of street systems.	CO6	L2	12M
		OR			
10		Discuss in detail about the advantages & disadvantages of traffic signals.	CO6	L2	12M

*** END ***

O.P.Code: 20HS0864	R20	H.T.No.									

SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY:: PUTTUR
(AUTONOMOUS)
B.Tech III Year II Semester Regular & Supplementary Examinations July-2024
HUMAN VALUES AND PROFESSIONAL ETHICS
(Common to ECE, ME & EEE)

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

(Answer all Five Units **5 x 12 = 60** Marks)

UNIT-I

1	a	What do you mean by human values? Make a list of fundamental concecept of human values.	CO1	L1	6M
	b	Explain why the study of human values is essential to engineers. List a few important human values and sub values.	CO1	L2	6M
		OR			
2	a	What is service learning? Why is service learning important?	CO1	L1	6M
	b	What are the important characteristics of service learning?	CO1	L1	6M

UNIT-II

3	a	Write short notes on 'senses or dimensions of engineering ethics.	CO2	L2	6M
	b	Explain work ethics in detail.	CO2	L2	6M
		OR			
4	a	Write down the factors influencing the ethical concern?	CO2	L1	6M
	b	What is meant by moral autonomy? What are the abilities needed to boost moral autonomy?	CO2	L2	6M

UNIT-III

5	a	What are the general responsibilities of engineers to society?	CO3	L1	6M
	b	Explain about conscientiousness.	CO3	L2	6M
		OR			
6	a	List out various merits and demerits of standardization.	CO3	L2	6M
	b	What is the engineering responsibility regarding the law?	CO3	L1	6M

UNIT-IV

7	a	Outline safety. Enumerate criteria for ensuring safe design.	CO4	L2	6M
	b	Define risk? What are the factors influencing risk?	CO4	L2	6M
		OR			
8	a	Define the term Risk and Safety. Explain about the relationship between risk and safety.	CO4	L2	6M
	b	List out various criterions required for the determination of risks.	CO4	L2	6M

UNIT-V

9	a	Explain the meaning of environmental ethics. What are the various environmental concerns for engineers?	CO5	L2	6M
	b	Discuss about Human-Centered environmental ethics.	CO5	L2	6M
		OR			
10	a	What are the three main responsibilities of engineers as managers?	CO5	L2	6M
	b	List out various conflicts faced by Managers and also Enlist the principles used by the managers to resolve them.	CO5	L2	6M

***** END *****

O.P.Code: 20CS0522	R20	H.T.No.									

SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY:: PUTTUR
(AUTONOMOUS)
B.Tech III Year II Semester Regular & Supplementary Examinations July-2024
ARTIFICIAL INTELLIGENCE
(Computer Science and Engineering)

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

(Answer all Five Units **5 x 12 = 60** Marks)

		UNIT-I			
1		Recall the applications of Artificial Intelligence.	CO1	L1	12M
		OR			
2	a	Illustrate any four PEAS description of the task environment for intelligent agents and Explain it.	CO1	L2	6M
	b	Difference between Forward Chaining and Backward Chaining.	CO1	L2	6M
		UNIT-II			
3	a	Illustrate the concept of Problem Solving Agent with an example.	CO2	L3	6M
	b	Design and Solve Vacuum Cleaner toy problem in AI.	CO2	L6	6M
		OR			
4		Discuss about i) Greedy best-first search. ii) A* search.	CO4	L2	12M
		UNIT-III			
5		Explain resolution in predicate logic with suitable example..	CO3	L2	12M
		OR			
6		Explain the method of performing exact inference in Bayesian networks briefly.	CO3	L3	12M
		UNIT-IV			
7	a	What are the various of Feedback Analysis in Learning.	CO5	L1	6M
	b	Analyze the Linear Regression in Supervised Learning.	CO5	L4	6M
		OR			
8	a	Explain Generalization in Reinforcement Learning.	CO5	L2	6M
	b	How will Policy Search Reinforcement Learning..	CO5	L1	6M
		UNIT-V			
9	a	List out the Applications of Expert System and Explain.	CO5	L1	6M
	b	Why Expert System is required? What is the Technology used in it.	CO5	L4	6M
		OR			
10		Explain the expert System life Cycle.	CO6	L2	12M

***** END *****

O.P.Code: 20CI0608	R20	H.T.No.									

SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY:: PUTTUR
(AUTONOMOUS)
B.Tech III Year II Semester Regular & Supplementary Examinations July-2024
DATA ANALYTICS USING R
(Computer Science & Information Technology)

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

(Answer all Five Units **5 x 12 = 60** Marks)

		UNIT-I			
1	a	Find the mean, median and mode of the following data: 23, 57, 24, 49, 31, 37, 10, 30, 57, 40, 35, 16, 57, 29, 03, 40.	CO1	L3	6M
	b	Suppose the current annual salary of all teachers in the United States have a normal distribution with a mean of 51000 dollars and a standard deviation of 6000 dollars. Find the probability that the annual salary of a randomly selected teacher would be between 42000 and 65000.	CO1	L2	6M
		OR			
2	a	Explain the needs of Data Analytics.	CO1	L4	6M
	b	Discuss about the tools used for Data Analytics.	CO1	L2	6M
		UNIT-II			
3	a	Explain the different functions of Variables in R.	CO2	L3	6M
	b	Write a R program to do all the arithmetic operations.	CO2	L2	6M
		OR			
4	a	List and explain the different sections of the control panel in R-studio.	CO2	L4	6M
	b	Discuss in detail about the comments in R.	CO2	L2	6M
		UNIT-III			
5	a	Illustrate the input statements with example.	CO3	L3	6M
	b	Explain the objects in R language with appropriate examples.	CO3	L4	6M
		OR			
6	a	Write a R program to find whether a given number is even or odd.	CO3	L3	6M
	b	Explain the break and next statements in R with an example .	CO3	L3	6M
		UNIT-IV			
7	a	How to access the elements of a vector ? Explain.	CO4	L4	6M
	b	Explain the arithmetic & logical operations in vector data type in R with examples.	CO4	L3	6M
		OR			
8	a	Explain vector indexing with an example.	CO4	L3	6M
	b	Write a R program to obtain the length of the vector.	CO4	L4	6M
		UNIT-V			
9	a	What is a list in R ? Explain how to create a list with an example.	CO5	L4	6M
	b	Explain why R is preferred over Python in data visualization.	CO5	L2	6M
		OR			
10		Explain how to add title and colors in the Pie chart with an example.	CO5	L3	12M

***** END *****

O.P.Code: 20CS1103	R20	H.T.No.									

SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY:: PUTTUR
(AUTONOMOUS)
B.Tech III Year II Semester Regular & Supplementary Examinations July-2024
FUNDAMENTALS OF MACHINE LEARNING
(Common to CAD & CCC)

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

(Answer all Five Units **5 x 12 = 60** Marks)

		UNIT-I			
1	a	List out applications and algorithms used in Machine Learning. Explain it?	CO1	L1	6M
	b	Describe classification techniques in supervised learning with an examples.	CO1	L1	6M
		OR			
2	a	Analyze the clustering techniques with examples.	CO2	L4	6M
	b	Differentiate Machine Learning and Artificial Intelligence.	CO5	L4	6M
		UNIT-II			
3	a	Explain Model Selection in Machine learning.	CO1	L2	6M
	b	Describe Generalization process in machine learning.	CO1	L1	6M
		OR			
4	a	Establish the Association rules in unsupervised learning.	CO3	L2	6M
	b	Explain logistic regression in machine learning.	CO1	L2	6M
		UNIT-III			
5	a	Explain logistic regression in machine learning.	CO6	L1	6M
	b	List out the various applications of clustering.	CO6	L1	6M
		OR			
6	a	Analyze the working principle of K-means Clustering.	CO2	L4	6M
	b	Estimate the problems associated with clustering large data.	CO6	L4	6M
		UNIT-IV			
7	a	State and explain various Non-Parametric Density Estimation techniques	CO3	L1	6M
	b	Illustrate Condensed Nearest Neighbor (CNN).	CO4	L3	6M
		OR			
8	a	Distinguish between parametric and non-parametric classifications.	CO5	L4	6M
	b	Describe the Factor Analysis Technique.	CO5	L1	6M
		UNIT-V			
9	a	Define and explain about the Reinforcement learning	CO4	L1	6M
	b	List out the advantages and disadvantages of Reinforcement Learning.	CO1	L1	6M
		OR			
10	a	Explain in detail about Single State Case: K-Armed Bandit problem.	CO4	L2	6M
	b	Explain Generalization process in Model Based Learning.	CO5	L2	6M

***** END *****

O.P.Code: 20CE0125	R20	H.T.No.									

SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY:: PUTTUR
(AUTONOMOUS)
B.Tech III Year II Semester Regular & Supplementary Examinations July-2024
ENVIRONMENTAL ENGINEERING
(Civil Engineering)

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

(Answer all Five Units **5 x 12 = 60** Marks)

UNIT-I

1	a	Explain the factor affecting the per capita demand.	CO1	L2	6M
	b	Write short notes on the estimation of water demand for a town or city.	CO1	L2	6M

OR

2		The population of five decades from 1940 to 1980 are given below. Find out the population in decades 1990, 2000 and 2010 by using decrease rate of growth method.	CO1	L4	12M

Year	1940	1950	1960	1970	1980
Population	25000	28000	32500	40000	50000

UNIT-II

3	a	Define hardness of water and brief about their types.	CO2	L1	6M
	b	Compare slow sand filter with rapid sand filter.	CO2	L2	6M

OR

4	a	Briefly explain any three chemical characteristics of water.	CO2	L2	6M
	b	List the types of chlorination and explain break point chlorination in detail.	CO2	L2	6M

UNIT-III

5		A certain district of a city has a projected population of 80000 residing over an area of 70 hectares. Find the design discharge for the sewer line for the following data: (i) Rate of water supply = 200 LPCD (ii) Average impermeability coefficient for the entire area =0.3 (iii) Time of concentration = 50 minutes.	CO4	L4	12M

OR

6		A main combined sewer is to be designed to serve an area of 12 sq.km with a population density of 250 persons/hectare. The average rate of sewage flow is 250 LPCD. The maximum flow of 100% in excess of average together with the rainfall equivalent of 15 mm in 24 hours, all of which are runoff. Determine the capacity of the sewer. Taking the maximum velocity of flow as 3 m/sec, determine the size of the circular sewer.	CO4	L4	12M

UNIT-IV

7		Briefly explain about the various characteristics of sewage.	CO5	L2	12M

OR

8		Compare between the conventional rate trickling filter and high rate trickling filter.	CO5	L2	12M

UNIT-V

9	a	What is a septic tank?	CO6	L1	2M
	b	Design a septic tank for 200 persons assuming water supply as 120 LPCD.	CO6	L4	10M

OR

10		Write a detailed note on design of Imhoff tank with sketch.	CO6	L1	12M

***** END *****

O.P.Code: 20CS1005	R20	H.T.No.									

SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY:: PUTTUR
(AUTONOMOUS)

B.Tech III Year II Semester Regular & Supplementary Examinations July-2024

CYBER CRIME INVESTIGATION AND DIGITAL FORENSICS

CSE (Internet of Things and Cyber security Including Block Chain Technology)

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

(Answer all Five Units **5 x 12 = 60** Marks)

UNIT-I

1	Explain the types of Cybercrimes in detail.	CO1	L2	12M
	OR			
2	Demonstrate Property Cybercrime in detail.	CO1	L3	12M

UNIT-II

3	Discuss in detail about Malicious code and its attack ways.	CO4	L3	12M
	OR			
4	Evaluate in detail about Mail Bombs.	CO4	L5	12M

UNIT-III

5	Illustrate in brief about the working of E-discovery.	CO3	L2	12M
	OR			
6	Summarize briefly about E-mail tracking.	CO3	L2	12M

UNIT-IV

7	Discuss in detail about Digital Forensics.	CO4	L6	12M
	OR			
8	Distinguish Face and IRIS Recognition.	CO4	L4	12M

UNIT-V

9	Distinguish between Reactive and Proactive security.	CO5	L4	12M
	OR			
10	Estimate the strategy to give security guidelines to Web servers.	CO5	L6	12M

***** END *****

O.P.Code: 20CS0906	R20	H.T.No.									

SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY:: PUTTUR
(AUTONOMOUS)
B.Tech III Year II Semester Regular & Supplementary Examinations July-2024
ADVANCED MACHINE LEARNING
CSE(Artificial Intelligence and Machine Learning)

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

(Answer all Five Units **5 x 12 = 60** Marks)

UNIT-I

1	a	Differentiate Machine Learning and Artificial Intelligence.	CO5	L6	6M
	b	Describe Types of Data in Machine Learning.	CO1	L2	6M
		OR			
2	a	In How many ways the data can be represented in Machine Learning	CO5	L1	6M
	b	Compare structured , unstructured and semi structured data in machine learning.	CO2	L5	6M

UNIT-II

3	a	List various common regression algorithms and explain.	CO2	L2	6M
	b	Analyze Bayesian Linear Regression with simple example.	CO2	L4	6M
		OR			
4		Discuss Simple Linear, polynomial Regression and regularization techniques in supervised learning.	CO3	L2	12M

UNIT-III

5	a	Generalize K-Means Clustering algorithm in Unsupervised Learning with simple example.	CO3	L6	6M
	b	Analyze the mixture of latent variable models.	CO4	L5	6M
		OR			
6	a	Demonstrate linkage methods in Hierarchical Clustering.	CO4	L2	6M
	b	Compare Divisive and Agglomerative clustering.	CO4	L6	6M

UNIT-IV

7	a	Discuss the Principal Component Analysis.	CO5	L2	6M
	b	List out the Applications of PCA in machine learning.	CO5	L1	6M
		OR			
8	a	Compare Multidimensionality scaling and Metric dimensionality scaling.	CO5	L5	6M
	b	List out the applications of MDS.	CO5	L1	6M

UNIT-V

9	a	Explain Model-Based Learning with an example.	CO6	L4	6M
	b	Illustrate about Temporal Difference Learning(TDL) and its applications.	CO6	L3	6M
		OR			
10	a	Describe Exploration and Exploitation strategies in Machine learning.	CO6	L2	6M
	b	Assess in detail about partially observables states in Reinforcement learning.	CO6	L5	6M

***** END *****

O.P.Code: 20EC0421	R20	H.T.No.									

SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY:: PUTTUR
(AUTONOMOUS)
B.Tech III Year II Semester Regular & Supplementary Examinations July-2024
ANTENNAS AND WAVE PROPAGATION
(Electronics and Communication Engineering)

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

(Answer all Five Units **5 x 12 = 60** Marks)

UNIT-I

1	a	Define the following terms. i) Radiation Resistance ii) Bandwidth iii) Beam Efficiency	CO1	L1	6M
	b	Write short notes on effective aperture.	CO1	L1	6M
		OR			
2		Derive the expression for radiation Parameters of a Quarter wave monopole antenna.	CO3	L3	12M
		UNIT-II			
3	a	Discuss about the helical antenna of normal mode and its radiation pattern.	CO2	L2	8M
	b	List the applications of Helical Antenna.	CO2	L1	4M
		OR			
4	a	Discuss the design considerations of pyramidal horn antenna.	CO2	L2	6M
	b	Calculate the directivity of pyramidal horn antenna with an aperture. If size 12x12cm operating with 3.2cm wavelength.	CO2	L3	6M
		UNIT-III			
5	a	Discuss the construction of rectangular patch antenna.	CO2	L2	8M
	b	What are the applications of microstrip antenna?	CO2	L1	4M
		OR			
6	a	Explain Cassegrain Feed system and give its advantages.	CO2	L2	6M
	b	Explain about the reciprocity with respect to antenna measurements.	CO5	L5	6M
		UNIT-IV			
7	a	Write brief note on pattern and its types.	CO4	L1	8M
	b	What are the different cases of arrays of two-point sources?	CO4	L1	4M
		OR			
8		Explain End fire array with increase directivity and derive the directivity equation.	CO4	L2	12M
		UNIT-V			
9		Draw and explain the structure of Ionosphere with its typical electron density variation characteristics.	CO6	L3	12M
		OR			
10	a	Explain the relation between MUF and skip distance.	CO6	L2	6M
	b	Explain Multi hop propagation.	CO6	L2	6M

***** END *****

O.P.Code: 20EC0416	R20	H.T.No.									

SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY:: PUTTUR
(AUTONOMOUS)
B.Tech III Year II Semester Regular & Supplementary Examinations July-2024
MICROPROCESSORS AND MICROCONTROLLERS
(Electrical & Electronics Engineering)

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

(Answer all Five Units **5 x 12 = 60** Marks)

		UNIT-I			
1	a	How does Microprocessor works? Explain in details.	CO2	L1	4M
	b	List different computer languages and explain them.	CO2	L2	8M
		OR			
2	a	Illustrate the microcomputer system with example.	CO1	L3	6M
	b	Draw the block diagram of output section of Microcomputer . Describe the role of tristate bus driver, decoder and latch.	CO2	L4	6M
		UNIT-II			
3	a	Define an interrupt and explain the different types of interrupts available in the 8085 microprocessor.	CO2	L2	6M
	b	List out the control and status signals in 8085 microprocessor.	CO2	L1	6M
		OR			
4	a	Explain the Arithmetic instructions of the 8085 microprocessor.	CO2	L2	6M
	b	Explain the branch control instructions of the 8085 microprocessor.	CO2	L2	6M
		UNIT-III			
5	a	List out the special function registers in 80851microcontroller.	CO5	L1	6M
	b	Describe the internal RAM structure in the 8051 microcontroller.	CO2	L2	6M
		OR			
6	a	Compare serial communication and parallel communication.	CO4	L4	6M
	b	Explain how the 8051 microcontroller transfers the serial data input and output using UART.	CO5	L2	6M
		UNIT-IV			
7	a	Describe the different types of addressing modes supported by 8051 with suitable examples.	CO4	L2	6M
	b	List out the any five instructions for immediate addressing mode and indirect addressing mode with suitable example.	CO4	L1	6M
		OR			
8	a	Write and explain an ALP program of AND ,OR and XROR operation in 8051.	CO4	L2	6M
	b	Write and explain an ALP program of four time rotate right and rotate left carry operation in 8051.	CO4	L2	6M
		UNIT-V			
9	a	List out types of 16 key layout and draw the diagram of the lead per key keyboard configuration.	CO5	L4	6M
	b	Design the x-y matrix keyboard and coded key board.	CO5	L6	6M
		OR			
10	a	Design and explain the A/D converter circuit.	CO5	L2	6M
	b	List any five advantages of A/D converter and it applications.	CO5	L1	6M

***** END *****

O.P.Code: 20ME0321	R20	H.T.No.									

SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY:: PUTTUR
(AUTONOMOUS)
B.Tech III Year II Semester Regular & Supplementary Examinations July-2024
METROLOGY & MEASUREMENTS
(Mechanical Engineering)

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

(Answer all Five Units **5 x 12 = 60** Marks)

		UNIT-I			
1		Construct the conventional diagram of limits and fits and explain all terms.	**CO1**	**L2**	**12M**
		OR			
2		Describe briefly the principal features of the Indian standard System of limits and fits.	**CO1**	**L2**	**12M**
		UNIT-II			
3		Elaborate the construction and uses of i) Vernier gauge ii) Vernier height gauge	**CO2**	**L2**	**12M**
		OR			
4		Construct in detail the working of the Sine Bar to measure unknown angle.	**CO2**	**L2**	**12M**
		UNIT-III			
5		Explain with the help of neat sketches the principle and construction of an auto collimator.	**CO3**	**L2**	**12M**
		OR			
6	**a**	What are the factors affecting surface roughness?	**CO3**	**L2**	**6M**
	b	Discuss the principal reasons for controlling the surface texture.	**CO3**	**L2**	**6M**
		UNIT-IV			
7		List out Displacement transducers. Explain inductive transducer with suitable sketch.	**CO5**	**L2**	**12M**
		OR			
8		Write short notes on: (i) Photoelectric tachometer (ii) toothed rotor variable reluctance tachometer (iii) stroboscopic tachometer.	**CO5**	**L2**	**12M**
		UNIT-V			
9		List out thermal expansion methods and describe electrical resistance sensor of RTD with neat sketch.	**CO6**	**L1**	**12M**
		OR			
10		Discuss the Differential U-Tube Manometer in details and Derive the expression for pressure difference.	**CO6**	**L2**	**12M**

***** END *****

O.P.Code: 20EC0422	R20	H.T.No.									

SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY:: PUTTUR

(AUTONOMOUS)

B.Tech III Year II Semester Regular & Supplementary Examinations July-2024

EMBEDDED SYSTEMS AND IoT

(Electronics and Communication Engineering)

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

(Answer all Five Units **5 x 12 = 60** Marks)

		UNIT-I			
1	a	Explain the role of following in embedded system i) Oscillator ii) Real Time Clock	CO1	L4	6M
	b	Describe the IDE tools for developing application on embedded system.	CO1	L2	6M
		OR			
2	a	Distinguish between RISC and CISC design.	CO1	L2	6M
	b	List various applications of embedded systems.	CO1	L1	6M
		UNIT-II			
3	a	Illustrate the Physical design with an generic block diagram of an IoT device and explain it briefly.	CO2	L4	6M
	b	With the help of neat diagrams, describe the level1 to level3 of IoT and Deployment Templates with an example.	CO2	L2	6M
		OR			
4	a	Describe the implementation of IoT technology in Health and life style as health and fitness monitoring.	CO2	L2	6M
	b	How the IoT technology can be implemented in smart appliances and smoke/gas detection systems?	CO2	L1	6M
		UNIT-III			
5		Develop a program for LCD and Keyboard programming interface for an Arduino.	CO3	L6	12M
		OR			
6	a	Explain the Key elements of Software defined network for IoT.	CO3	L4	6M
	b	Define M2M and List out the communication protocols used for M2M local area networks.	CO3	L1	6M
		UNIT-IV			
7		Explain File handling and date/time operations in python with an example.	CO4	L4	12M
		OR			
8	a	Discuss the characteristics of Python programming language.	CO4	L2	6M
	b	Describe the packages used in python.	CO4	L2	6M
		UNIT-V			
9		Design and development of an automatic refrigerator light system with LED, switch & raspberry pi and write a python program to support the working of that design.	CO5	L6	12M
		OR			
10	a	Justify how Raspberry Pi is different from a desktop computer.	CO5	L1	6M
	b	What is a module in python? Explain with an example.	CO5	L4	6M

***** END *****

O.P.Code: 20CS1001	R20	H.T.No.									

SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY:: PUTTUR
(AUTONOMOUS)
B.Tech III Year II Semester Regular & Supplementary Examinations July-2024
CRYPTOGRAPHY & DATA SECURITY
(CSE with Specialization in Cloud Computing)

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

(Answer all Five Units **5 x 12 = 60** Marks)

		UNIT-I			
1	a	Explain in detail about passive attacks.	CO1	L2	6M
	b	Differentiate Substitution and Transposition techniques.	CO1	L3	6M
		OR			
2	a	Classify possible types of attacks in cryptography.	CO1	L2	6M
	b	Describe Symmetric and Asymmetric key cryptography techniques.	CO1	L2	6M
		UNIT-II			
3	a	State and explain the principles of public key cryptography.	CO2	L1	6M
	b	Compare conventional key with public key encryption.	CO2	L5	6M
		OR			
4	a	Explain Rail fence Technique and Row Columnar techniques.	CO2	L2	6M
	b	Infer the Principles of Stream Cipher and Block cipher.	CO2	L2	6M
		UNIT-III			
5	a	Evaluate the structure of blowfish algorithm and list out the merits and Demerits.	CO4	L1	8M
	b	Write about the strength of RSA.	CO3	L1	4M
		OR			
6	a	Evaluate the structure of blowfish algorithm and list out the merits and Demerits.	CO4	L1	8M
	b	Derive the concepts of Stream ciphering in asymmetric key ciphers.	CO3	L3	4M
		UNIT-IV			
7		Classify various types of viruses in IDS Security.	CO5	L4	12M
		OR			
8		Illustrate various types of malicious software viruses.	CO5	L3	12M
		UNIT-V			
9	a	Examine the Proof of Digital signature algorithm.	CO6	L3	6M
	b	Differentiate between SHA1 and SHA2.	CO6	L4	6M
		OR			
10		Discuss about Digital Signature Standard approach. Identify the benefits and key objectives.	CO6	L2	12M

***** END *****

O.P.Code: 20CE0126	R20	H.T.No.									

SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY:: PUTTUR
(AUTONOMOUS)
B.Tech III Year II Semester Regular & Supplementary Examinations July-2024
HYDROLOGY AND WATER RESOURCES ENGINEERING
(Civil Engineering)

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

(Answer all Five Units **5 x 12 = 60** Marks)

		UNIT-I			
1	a	Explain the water budget method with a neat sketch.	CO1	L1	6M
	b	Explain the energy balance method with a neat sketch.	CO1	L2	6M
		OR			
2	a	Explain the procedure for construction of S-curve.	CO1	L2	4M
	b	Briefly explain different types of soil structures which can occur in nature.	CO1	L2	8M
		UNIT-II			
3	a	Enumerate in detail about factor affecting duty of irrigation water.	CO2	L1	6M
	b	Explain in detail about the methods of improving duty.	CO2	L2	6M
		OR			
4		The left branch canal carrying a discharge of 20cumecs has a Culturable commended area of 20000 hectares? The intensity of rabi crop is 80% and base period is 120 days. The right branch canal carrying a discharge of 8 cumecs has a Culturable commanded area of 12000 hectares, intensity of irrigation of rabi cropis 50% and base period is 120 days. Compare the efficiencies of the two canal systems.	CO2	L3	12M
		UNIT-III			
5	a	Explain the function of cross regulators and distributor head regulators.	CO4	L1	6M
	b	Write the criteria to design the crest level and length of downstream floor in cross regulator design.	CO4	L3	6M
		OR			
6		Design a Sarada type fall for the following set of data. Full Supply Discharge- 14 m^3/s, Bed width- 18 m, Full Supply Depth (FSD) - 1.5 m, Full Supply Level (U/S) -101.00 m, Full Supply Level (D/S) -100.00 m, U/S Bed Level - 99.5 m, D/S Bed Level- 98.5m, Natural Surface Level-99.5 m (D/S), Bligh's Coefficient (c) is -8.	CO4	L4	12M
		UNIT-IV			
7	a	Explain the term life of reservoir in detail.	CO5	L2	6M
	b	Write the calculation of determination of safe yield from reservoir.	CO5	L2	6M
		OR			
8	a	Explain the mass inflow curve and demand curve.	CO5	L2	6M
	b	Write down the Procedure for calculation of life of a reservoir.	CO5	L2	6M
		UNIT-V			
9	a	Discuss in brief about the merits and demerits of any two types of dam.	CO6	L1	6M
	b	What do you understand by gravity dam?	CO6	L3	6M
		OR			
10		Discuss in detail various modes of failure of a gravity dam.	CO6	L2	12M

***** END *****

O.P.Code: 20EE0223	R20	H.T.No.									

SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY:: PUTTUR
(AUTONOMOUS)
B.Tech III Year II Semester Regular & Supplementary Examinations July-2024
POWER SYSTEM ANALYSIS
(Electrical & Electronics Engineering)

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

(Answer all Five Units **5 x 12 = 60** Marks)

UNIT-I

1	a	Derive the necessary expressions for building up of Z-bus whenNew element is added to Reference.	CO1	L1	6M
	b	What is a primitive network and represents its forms?	CO1	L1	6M
		OR			
2	a	Derive the expression for the Direct inspection method for a 3 Bus power system network.	CO1	L2	6M
	b	Define the terms i) Graph ii) Sub-graph iii) Tree iv) Co-tree v) Planar Graph vi) Branch and Links.	CO1	L1	6M

UNIT-II

3	a	Discuss the principle of symmetrical components. Derive the necessary equations to convert: i) Phase quantities into symmetrical components. ii) Symmetrical components into phase quantities.	CO2	L2	10M
	b	Define per unit system and write an equation for new base impedance.	CO2	L1	2M
		OR			
4	a	Explain different types of reactors briefly.	CO2	L2	6M
	b	Explain the merits and demerits of different types of system protection using reactors.	CO2	L2	6M

UNIT-III

5	a	What is load flow analysis? What is the necessity for load flow studies?	CO3	L1	6M
	b	Explain the data for Load flow studies.	CO3	L2	6M
		OR			
6	a	What is Acceleration factor and Explain its role gauss seidel method?	CO3	L1	6M
	b	State merits and demerits of Gauss-Seidel method.	CO3	L1	6M

UNIT-IV

7	a	With neat sketch explain the Flow Chart for N-R Rectangular Coordinate Method when PV Bus is present.	CO4	L2	10M
	b	Define stability.	CO4	L1	2M
		OR			
8	a	Explain about Decoupled Load Flow Method.	CO4	L2	6M
	b	Explain about Fast Decoupled Load Flow Method.	CO4	L2	6M

UNIT-V

9	a	What is critical clearing angle? Explain by using Swing curves.	CO5	L1	6M
	b	Derive an expression for critical clearing angle.	CO5	L2	6M
		OR			
10	a	What is equal Area Criteria? What are the applications of equal area criterion?	CO5	L1	6M
	b	50Hz,4 pole turbo alternator rated 100MVA, 11KV has an inertia constant of 8 MJ/MVA. Find: i) The energy stored in the rotor at synchronous speed. ii) The rotor acceleration if the mechanical input is suddenly raised to 80MWfor an electric load.	CO5	L3	6M

***** END *****

O.P.Code: 20CS1104	R20	H.T.No.									

SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY:: PUTTUR

(AUTONOMOUS)

B.Tech III Year II Semester Regular &Supplementary Examinations July-2024

R PROGRAMMING FOR DATA SCIENCE

CSE(Artificial Intelligence & DataScience)

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

(Answer all Five Units **5 x 12 = 60** Marks)

UNIT-I

1	a	Classify different data types in R with example	CO1	L4	6M
	b	Conclude how to check the data type of a variable and convert between different data types.	CO1	L4	6M
		OR			
2	a	Differentiate between matrices and data frames.	CO1	L4	6M
	b	Create a program for 2x3 matrix and accessing its second row? Discriminate the following data structures with syntax and example.	CO1	L6	6M

UNIT-II

3	a	Compare the functions next and break with example program.	CO2	L5	6M
	b	Explain the concept of nested if-else statements and prepare an example that uses the ifelse() function to create a new vector based on conditions.	CO2	L6	6M
		OR			
4	a	Classify various types of operators in R and write about any two operators.	CO2	L4	6M
	b	Write a program that demonstrates the use of various arithmetic and Boolean operators.	CO2	L2	6M

UNIT-III

5	a	Distinguish Markov chains and their significance in modeling probabilistic systems.	CO3	L4	6M
	b	Illustrate how to import data in R programming.	CO3	L3	6M
		OR			
6	a	Classify set operations (union, intersection, difference) and their implementation for data manipulation in R.	CO3	L4	6M
	b	Explain reading and writing files in R.	CO3	L2	6M

UNIT-IV

7	a	Discuss the advantages of using R base graphics for creating graphs.	CO4	L2	6M
	b	Categorize some common types of graphs that can be created using the plot() function	CO4	L4	6M
		OR			
8	a	Illustrate Data visualization with R and ggplot2.	CO4	L3	6M
	b	Identify the different options available for adjusting the size and aspect ratio of a graph in R.	CO4	L3	6M

UNIT-V

9	a	Assess the Poisson regression model and its application in analyzing count data.	CO5	L5	6M
	b	Summarize advantages of using Random Forest.	CO5	L2	6M
		OR			
10	a	Discuss the advantages of random forests over traditional statistical models.	CO5	L2	6M
	b	Give examples of real-world scenarios where random forests are used for predictive modeling.	CO5	L2	6M

***** END *****

O.P.Code: 20CS0524	R20	H.T.No.									

SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY:: PUTTUR
(AUTONOMOUS)
B.Tech III Year II Semester Regular & Supplementary Examinations July-2024
WEB TECHNOLOGIES
(Common to CSE & CSIT)

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

(Answer all Five Units **5 x 12 = 60** Marks)

UNIT-I

1		Write a program to Create a webpage using HTML and add CSS to the webpage.	CO1	L6	12M
		OR			
2	a	Distinguish between CSS and CSS 3.0	CO1	L2	6M
	b	Discuss Basic XHTML Syntax and Semantics.	CO1	L1	6M

UNIT-II

3		Explain briefly about Built in Java script Objects.	CO2	L1	12M
		OR			
4	a	Explain JavaScript Arrays?	CO2	L5	6M
	b	Develop a program using onclick Event in JavaScript.	CO2	L6	6M

UNIT-III

5	a	Develop a program using onclick Event in JavaScript.	CO3	L1	6M
	b	Describe DOM Event handling.	CO3	L1	6M
		OR			
6		Write html and servlet to demonstrate invoking a servlet from a html.	CO3	L2	12M

UNIT-IV

7	a	Write a program to find average of first ten natural numbers using for loop.	CO4	L6	6M
	b	Illustrate SAX –Transforming XML documents.	CO4	L2	6M
		OR			
8		What is the difference between Session and Cookie? Write a program to create a session, to set a value in session, and to remove data from a session.	CO4	L6	12M

UNIT-V

9		Explain Java web service API with an example.	CO5	L1	12M
		OR			
10	a	What is the difference between XML HTTP Request and AJAX ?	CO5	L1	6M
	b	Discuss the security issues of AJAX.	CO5	L2	6M

***** END *****

O.P.Code: 20CS0907	R20	H.T.No.									

SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY:: PUTTUR
(AUTONOMOUS)
B.Tech III Year II Semester Regular & Supplementary Examinations July-2024
WEB PROGRAMMING FOR ARTIFICIAL INTELLIGENCE
CSE(Artificial Intelligence and Machine Learning)

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

(Answer all Five Units **5 x 12 = 60** Marks)

UNIT-I

1	a	What is CSS? Explain the CSS box model.	L1	CO1	6M
	b	What is Inheritance? Explain the CSS Inheritance.	L1	CO1	6M

OR

2	a	List and explain in detail the various selector strings with example.	L1	CO1	6M
	b	Explain XHTML and Specify some new tags in XHTML.	L1	CO1	6M

UNIT-II

3		What is Single Page web application with example?	L6	CO2	12M

OR

4		Create an application using MeteorJS framework.	L1	CO2	12M

UNIT-III

5		What is servlet? What are the advantages of servlet? Explain the Life cycle ofservlets.	L6	CO3	12M

OR

6		Explain in detail about working of cookies with an example.	L5	CO3	12M

UNIT-IV

7		Discuss Rendering JSON Data.	L5	CO3	12M

OR

8		Create a shopping cart application.	L6	CO4	12M

UNIT-V

9		Explain Briefly MongoDB Framework.	L6	CO5	12M
10		Explain Manipulating of MongoDB Documents from Node.js	L6	CO5	12M

***** END *****

O.P.Code: 20AG0714 | R20 | H.T.No.

SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY:: PUTTUR
(AUTONOMOUS)
B.Tech III Year II Semester Regular & Supplementary Examinations July-2024
IRRIGATION & DRAINAGE ENGINEERING
(Agricultural Engineering)

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

(Answer all Five Units **5 x 12 = 60** Marks)

UNIT-I

1	a	An irrigation canal has gross commanded area of 80,000 hects. Out of which 85% is culturable irrigable. The intensity of irrigation for kharif season is 30% and for Rabi season is 60%. Find the discharge required at the head of canal if the duty at its head is 800 hect/cumec for kharif and 1,700 hect/cumec for rabi season.	CO1	L3	6M
	b	Define the following: (i) Saturation capacity (ii) Field capacity (iii) Permanent wilting point (PWP) (iv) Moisture equivalent (v) Gross irrigation area (GIA).	CO1	L1	6M

OR

2		The table below gives the necessary data about the crops, their duty and the area under each crop, commanded by a canal taking off from a storage tank. Taking a time factor to be 13/20, calculate the discharge required at the head of the canal. If the capacity factor is 0.8, determine the design discharge.	CO1	L3	12M

Crop	Base period (days)	Area (ha)	Duty at the head of the canal (ha/cumec)
Sugarcane	320	850	580
Overlap for sugarcane (hot weather)	90	120	580
Wheat (Rabi)	120	600	1600
Bajra (Monsoon)	120	500	2000
Vegetables (hot weather)	120	360	600

UNIT-II

3		Explain in brief the hydraulics design of sprinkler system.	CO3	L3	12M

OR

4		Define Drip irrigation system, Explain its suitability, advantages and Disadvantages.	CO1	L5	12M

UNIT-III

5	a	Explain the need of chlorine treatment and procedure for chlorine treatment.	CO3	L3	6M
	b	Explain the factors influencing the effective fertigation.	CO3	L1	6M

OR

6	a	Define fertigation and explain advantages, limitation of fertigation.	CO3	L5	6M
	b	Explain fertilizer solubility and their compatibility.	CO3	L3	6M

UNIT-IV

7	a	Define bio drainage and vertical drainage system. Define drainage Co-efficient and Mole drainage system.	CO4	L1	6M
	b	Explain leaching requirement.	CO4	L3	6M
		OR			
8		Derive Ernst equation with neat diagram.	CO4	L4	12M

UNIT-V

9	a	Define observation wells and write in detail about its installation.	CO6	L4	6M
	b	Explain manning's equation and its application.	CO5	L3	6M
		OR			
10		Explain the methods involved in determination of hydraulic conductivity.	CO5	L5	12M

***** END *****

O.P.Code:20CE0114/SS	R20/SS	H.T.No.									

SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY:: PUTTUR
(AUTONOMOUS)
B.Tech III Year II Semester Regular & Supplementary Examinations June-2024
GEOTECHNICAL ENGINEERING
(Civil Engineering)

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

(Answer all Five Units **5 x 12 = 60** Marks)

UNIT-I

1	a	Using three phase diagram of soil, develop an expression for Void ratio, water content, specific gravity and degree of saturation.	CO1	L3	6M
	b	The moist unit weight of soil sample is 19.2 kN/m3 and has water content of 9.8%. The specific gravity of soil particles is 2.69. Determine dry unit weight, void ratio,porosity and degree of saturation.	CO1	L3	6M

OR

2	a	Write short notes on Index Properties of soils.	CO1	L1	4M
	b	Explain in detail the laboratory method for particle size distribution of coarse grained soils by dry sieve analysis.	CO1	L2	8M

UNIT-II

3		For constructing an embankment, the soil is transported from a Borrow area using a truck which can carry 6 m^3 of soil at a time. With the following details, determine the number of truckloads of soil required to obtain 100 m^3 of compacted earth fill and the volume of borrow pit.	CO2	L3	12M

Property	Borrow area (In-situ)	Truck (Loose)	Field (Compacted)
Bulk Unit Weight (kN/m^3)	16.6	11.5	18.2
Water Content (%)	14	8	6

OR

4		What is consolidation? Describe briefly various types of consolidation of soils.	CO2	L1	12M

UNIT-III

5	a	Explain the concept of 'Westergaards theory' in soils.	CO3	L2	6M
	b	Determine the vertical stress at a point P which is 3m below and at a radial distance of 3m from the vertical load 100kN. Use westergaard's solution.	CO3	L3	6M

OR

6		Describe the vane shear test with a neat sketch.	CO4	L2	12M

UNIT-IV

7		Analyze the slope, if it is made of clay having $c_1 = 30$ kN/m^2, $\varphi_1 = 20^0$, e = 0.65 and G = 2.67 and under the following conditions: (i) When the soil is dry. (ii) When waterseeps parallel to the surface of the slope (iii) When the slope is submerged slope angle = 25^o	CO5	L2	12M

OR

8		With the help of a neat sketch explain in detail about friction circle method.	CO5	L2	12M

UNIT-V

9	a	A SPT was conducted in fine sand below the water table and a value of 25 is obtained for N. What is the corrected value of N.	CO6	L3	6M
	b	A SPT was conducted in a dense sand deposit at a depth of 22m and a value of 48 was observed for N. The density of the sand was 15 kN/m^2 . What is the value of Ncorrected for over burden pressure?	CO6	L3	6M

OR

10	a	Describe in detail execution of soil exploration program.	CO6	L1	6M
	b	Explain various salient features of a soil exploration report	CO6	L2	6M

***** END *****

O.P.Code: 20AG0713	R20	H.T.No.									

SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY:: PUTTUR
(AUTONOMOUS)
B.Tech III Year II Semester Regular & Supplementary Examinations July-2024
DAIRY AND FOOD ENGINEERING
(Agricultural Engineering)

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

(Answer all Five Units **5 x 12 = 60** Marks)

UNIT-I

1	a	How the density and viscosity of milk affect the milk processing operations.	CO2	L1	4M
	b	Explain the factors which are affecting composition of milk	CO2	L2	8M
		OR			
2	a	Explain the effect of pH and water content on growth of microorganisms.	CO2	L2	6M
	b	Define Distilation, Crystallization and Filtration.	CO2	L1	6M

UNIT-II

3	a	Draw the flow chart of HTST pasteurization system and explain the flow process.	CO3	L2	8M
	b	Write the classification of UHT sterilization process.	CO3	L1	4M
		OR			
4	a	Explain continuous rotary retort for sterilization.	CO3	L2	6M
	b	Draw the process flow chart for preparation of icecream and cheddar cheese.	CO3	L2	6M

UNIT-III

5		Explain the different parts of the homogenizer with suitable figures and also state their functions.	CO4	L2	12M
		OR			
6	a	What are the factors considered while planning dairy building.	CO5	L1	4M
	b	Give the process flow chart for manufacturing of paneer and list out the equipments required.	CO4	L2	4M
	c	Explain the working principle of Disc centrifuge with neat sketch.	CO4	L2	4M

UNIT-IV

7	a	Explain agitated thin film evaporator with neat sketch.	CO6	L2	6M
	b	Draw the schematic flow diagram of Mechanical and thermal recompression.	CO6	L1	6M
		OR			
8		Apple juice is being concentrated in a natural-circulation single-effect evaporator. At steady state conditions, dilute juice is the feed introduce data rate of 0.67 kg/s. The concentration of the dilute juice is 11% totalsolids. The juice is concentrated to 75% total solids. The specific heats of dilute apple juice and concentrate are 3.9 and 2.3 kJ/(kg °C), respectively. The steam pressure is measured to be 304.42 kPa. The inlet feed temperature is 43.3°C. The product inside the evaporator boils at 62.2°C. The overall heat-transfer coefficient is assumed to be 943 W/m^2°C. Assume negligible boiling-point elevation. Calculate the mass flow rateof concentrated product, steam requirements, steam economy, and the heat-transfer area. From the steam table: Temperature of steam at 304.42 kPa=134°C; Enthalpy for saturated vapor at 134°C=2725.9 kJ/kg; Enthalpy for saturated liquid at 134°C =563.41kJ/kg; Enthalpy for saturated vapor at 62.2°C =2613.4 kJ/kg.	CO6	L3	12M

UNIT-V

9	a	Explain the working mechanism of air blast freezer with neat sketch.	CO6	L2	6M
	b	What are the methods for controlling water content and explain the effect of Water content duringstorage.	CO6	L1	6M
		OR			
10	a	Discuss reverse osmosis and write the characteristics of reverse osmosis.	CO6	L2	6M
	b	Explain the method for determination of carbohydrates.	CO6	L2	6M

***** END *****

O.P.Code: 20CS0523 | R20 | H.T.No.

SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY:: PUTTUR
(AUTONOMOUS)
B.Tech III Year II Semester Regular & Supplementary Examinations July-2024
DESIGN AND ANALYSIS OF ALGORITHMS
(Common to CSE, CSIT, CAD, CSM, CIC)

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

(Answer all Five Units **5 x 12 = 60** Marks)

UNIT-I

1	a	What do you mean by an algorithm? List some of the properties of it.	CO1	L1	4M
	b	Classify the rules of Pseudo code for Expressing Algorithms.	CO1	L2	8M
		OR			
2	a	Solve the given function If $f(n)= 5n^2+ 6n+ 4$ then prove that f(n) is $0(n^2)$.	CO1	L3	6M
	b	Explain two types of recurrences in detail with suitable examples.	CO1	L3	6M

UNIT-II

3		Analyze the working strategy of merge sort and illustrate the process of merge sort algorithm for the given data: 43, 32, 22, 78, 63, 57, 91, 13.	CO2	L4	12M
		OR			
4	a	Compare between BFS and DFS techniques.	CO2	L4	6M
	b	What is divide and conquer strategy? Write briefly about general method and its algorithm.	CO2	L3	6M

UNIT-III

5	a	Simplify the algorithm for Knapsack problem and analyze time complexity.	CO3	L4	6M
	b	What is the minimum cost spanning tree and write the algorithm of pseudo-code for Kruskals algorithm.	CO3	L4	6M
		OR			
6		Construct an optimal solution for Knapsack problem, where n=7,M=15 and (p1,p2,p3,p4,p5,p6,p7) = (10,5,15,7,6,18,3) and (w1,w2,w3,w4,w5,w6,w7) = (2,3,5,7,1,4,1) by using Greedy strategy.	CO3	L3	12M

UNIT-IV

7	a	Recall the graph coloring. Explain in detail about graph coloring with an example.	CO4	L5	9M
	b	Discuss the General method of backtracking	CO4	L3	3M
8		Find the LC branch and bound solution for the traveling sale person problem whose cost matrix is as follows:	CO4	L4	12M

	1	2	3	4	5
1	∞	20	30	10	11
2	15	∞	16	4	2
3	3	5	∞	2	4
4	19	6	18	∞	3
5	16	4	7	16	∞

UNIT-V

9		How to make reduction for 3-sat to clique problem? and Explain	CO5	L3	12M
		OR			
10	a	Explain and shows the relationship between P, NP, NP Hard and NP Complete with neat diagram	CO5	L4	6M
	b	Statement the following with examples i) Optimization problem ii) Decision problem	CO5	L1	6M

*** END ***

O.P.Code: 20ME0320	R20	H.T.No.									

SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY:: PUTTUR
(AUTONOMOUS)
B.Tech III Year II Semester Regular & Supplementary Examinations July-2024
DESIGN OF MACHINE ELEMENTS-II
(Mechanical Engineering)

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

(Answer all Five Units **5 x 12 = 60** Marks)

UNIT-I

1		Design a helical compression spring for a maximum load of 1000 N for a deflection of 25 mm using the value of spring index as 5. The maximum permissible shear stress for spring wire is 420 MPa and modulus of rigidity is 84 kN/mm2.	CO1	L2	12M
		OR			
2	a	Classify springs according to their shapes. Draw neat sketches indicating in each case whether stresses are induced by bending or by torsion.	CO1	L4	4M
	b	A helical spring is made from a wire of 6 mm diameter and has outside diameter of 75 mm. If the permissible shear stress is 350 MPa and modulus of rigidity 84 kN/mm2, find the axial load which the spring can carry and the deflection per active turn.	CO1	L5	8M

UNIT-II

3		A 75mm journal bearing 100mm long is subjected to 2.5kN at 600rpm. If theroom temperature is 240C, what viscosity of oil should be used to limit the bearing surface temperature at 550C ,D/C=1000.	CO2	L5	12M
		OR			
4		The ball bearing for the drilling machine spindle is rotating at 3000rpm. Itis subjected to radial load of 2500N and an axial load of 1500N. It is to work 50 hours per week for one year. Design a suitable bearing if the diameter of the spindle is 40mm.	CO2	L6	12M

UNIT-III

5		An open belt connects two flat pulleys. Pulley diameters are 300 mm and 450mm and the corresponding angles of cap are 160^0 and 210^0 . the smaller pulley runs at 200rpm, μ=0.25. it is found that the belt is on the point of slipping when 3kw is transmitted. To increase the power transmitted two alternatives are suggested., namely (i) increase the initial tension by10% and (ii) increasing μ by 10% by the application of a suitable dressing to the belt. Which of these two methods would be more effective ? find the percentage increase in power possible in each case.	CO4	L4	12M
		OR			
6		Two shafts whose centres are 1 metre apart are connected by a V-beltdrive. The driving pulley is supplied with 95 Kw power and has an effective diameter of 300 mm. It runs at 1000 r.p.m. while the driven pulley runs at 375 r.p.m. The angle of groove on the pulleys is 40°. Permissible tension in 400 mm2 cross-sectional area belt is 2.1 Mpa. The material of the belt has density of 1100 kg / m3. The driven pulley is overhung, the distance of the centre from the nearest bearing being 200 mm. The coefficient of friction between belt and pulley rim is 0.28. Estimate: i). The number of belts required.ii). Diameter of driven pulley shaft, if permissible shear stress is 42 Mpa.	CO4	L5	12M

UNIT-IV

7		A pair of straight spur gears is required to reduce the speed of shaft from 500 to 100 rpm while continuously running 12hr per day. The pinion is of 40C8 steel and has 20 teeth. The wheel is of cast iron of grade FG200 and has 100 teeth. The gears are of 8mm module, 100 mm face width and 20^0 pressure angle. Calculate power rating.	CO5	L5	12M
		OR			
8		A pair of gears is to be designed to transmit 30kW for a pinion speed of 1000 rpm and a speed ratio of 5. Design the gear train.	CO5	L6	12M

UNIT-V

9	a	Enumerate the qualities of good cylinder liners.	CO6	L2	6M
	b	What is the function of piston? Explain piston troubles.	CO6	L1	6M
		OR			
10		Design a plain carbon steel centre crank shaft for a single acting four stroke single cylinder engine for the following data: Bore = 400 mm; Stroke = 600 mm; Engine speed = 200 r.p.m; Mean effective pressure = 0.5 N/mm2; Maximum combustion pressure = 2.5 N/mm2; Weight of fly wheel used as a pulley = 50 kN; Total belt pull = 6.5 kN. When the crank has turned through 35 degrees from the top dead centre, the pressure on the piston is 1 N/mm2 and torque on the crank is maximum. The ratio of the connecting rod length to the crank radius is 5. Assume any other data required for the design.	CO6	L5	12M

***** END *****

O.P.Code: 20AG0712	R20	H.T.No.									

SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY:: PUTTUR

(AUTONOMOUS)

B.Tech III Year II Semester Regular & Supplementary Examinations July-2024

TRACTOR SYSTEMS & CONTROLS

(Agricultural Engineering)

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

(Answer all Five Units **5 x 12 = 60** Marks)

UNIT-I

1	a	Explain the components of multiple plate clutch.	CO1	L1	6M
	b	Explain the working principle of the fluid coupling and torque converter with the help of neat sketches.	CO1	L2	6M
		OR			
2	a	Describe the function of a tractor's differential, final drive, and differential lock.	CO1	L2	6M
	b	What is the velocity ratio and gear ratio? Find the gear ratio of a tractor of its final drive, the tractor has a 1.2 m tractor wheel and a forward speed of 5 kmph when the engine is running at 100 rpm. If the reduction in transmission is 3:1 and the reduced differential is 3.5:1.	CO1	L3	6M

UNIT-II

3	a	Define the brake and Explain the internal and external contracting shoe-type brakes with a neat sketch.	CO2	L2	6M
	b	Write short notes on toe-in, toe-out, king pin inclination with a neat sketch.	CO2	L1	6M
		OR			
4	a	Draw the steering system layout with all components. How does the Ackerman steering geometry improve vehicle handling during turns?	CO2	L2	6M
	b	What is the steering system in a track-type tractor and write all the components? How does it differ from that in wheeled vehicles?	CO2	L1	6M

UNIT-III

5	a	Explain the principle of operation of the hydraulic system in the tractor with a neat sketch.	CO3	L2	6M
	b	Explain the three-point hitching system and list the types of hitching systems. And also write the advantages of it.	CO3	L2	6M
		OR			
6	a	Explain the types of hydraulic control systems being used in tractors.	CO3	L2	6M
	b	Explain different types of hydraulic valves.	CO3	L2	6M

UNIT-IV

7	a	Explain the mechanics of the tractor under dynamic conditions with a neat free-body diagram.	CO4	L2	6M
	b	List and explain different traction aids.	CO4	L2	6M
		OR			
8	a	Explain the following terms: Ply rating, Tyre inflation pressure, Traction, Weight transfer, Rolling resistance, and Tractive efficiency.	CO4	L2	6M
	b	Explain the suspension method of C.G. measurement of the tractor.	CO4	L2	6M

UNIT-V

9	a	Explain the procedure of tractor testing.	CO5	L1	6M
	b	Define ROPS and explain their purpose in tractor safety. Also, Discuss the impact of ROPS on operator safety during tractor rollovers.	CO5	L2	6M
		OR			
10	a	List out all State Agricultural universities in India where prototype testing is conducted.	CO5	L1	6M
	b	Discuss a few ergonomic considerations for tractor safety.	CO5	L2	6M

***** END *****

O.P.Code: 20CE0127 | R20 | H.T.No.

SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY:: PUTTUR
(AUTONOMOUS)
B.Tech III Year II Semester Regular & Supplementary Examinations July-2024
CONSTRUCTION PROJECT MANAGEMENT
(Civil Engineering)

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

(Answer all Five Units **5 x 12 = 60** Marks)

UNIT-I

1 What are the different phases in construction project? Explain briefly. **CO1 L2 12M**

OR

2 The Activity Breakdown for a certain project is as under. **CO1 L3 12M**

Activity	1	2	3	4	5	6	7
Duration(Weeks)	1	2	4	3	1	2	4

Activity 2 & 3 can be done concurrently and both must follow activity 1. Activity 2 must precede activity 4. activity 5 cannot begin until both activities 2 & 3 are complete. Activity 6 can be started only after activities 4 & 5 complete. Activity 7 is the last activity which can be started only after completion of activity 5. Prepare the bar chart.

UNIT-II

3 A project schedule has the following characteristics **CO2 L3 12M**

a) Construct network diagram
b) Find the estimated duration and variance
c) Find the critical path and expected project completion time
d) What is the probability of completing the project on or before 22 weeks.

Activity	Predecessor	Duration (weeks)		
		t_o	t_m	t_p
A	-	5	6	7
B	-	1	3	5
C	-	1	4	7
D	A	1	2	3
E	B	1	2	9
F	C	1	5	9
G	C	2	2	8
H	E,F	4	4	10
I	D	2	5	8
J	H,G	2	2	8

OR

4 a What is CPM Network analysis? Explain with any one example. **CO2 L2 6M**

b What do you understand by critical path? How is it determined? **CO2 L2 6M**

UNIT-III

5		The below figure gives the information about various activities of network.	CO3	L3	12M

The project overhead costs are @ Rs. 300.0 per day. Determine

i. Direct cost-duration relationship

ii. Total cost-duration relationship and the corresponding least cost plan (network)

Activity	Normal duration (days)	Normal Cost (Rs.)	Crash Duration (Days)	Crash Cost (Rs.)
1-2	9	8000	6	9500
2-3	5	5000	3	5500

OR

6		Explain about Resources usage profiles histograms.	CO4	L2	12M

UNIT-IV

7		Discuss about Total quality management.	CO5	L2	12M

OR

8	a	Define Audit? Explain different types of Audits.	CO5	L2	6M
	b	Explain Why Audit and requirements of Internal Audit.	CO5	L2	6M

UNIT-V

9		Discuss the preventive measures to be taken during accidents.	CO6	L2	12M

OR

10		Explain indetail about CPWD contract conditions.	CO6	L2	12M

***** END *****

O.P.Code: 20CS0517 | R20 | H.T.No.

SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY:: PUTTUR
(AUTONOMOUS)
B.Tech III Year II Semester Regular & Supplementary Examinations July-2024
DATA WAREHOUSING AND DATA MINING
(Common to CCC & CIC)

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

(Answer all Five Units **5 x 12 = 60** Marks)

UNIT-I

1	a	Contrast between the data warehouse and data minig.	CO1	L1	6M
	b	Describe the data mining prcess and knowledge discovery.	CO1	L2	6M

OR

2	a	Describe the advantage of dimentionality reduction.	CO1	LI	6M
	b	Explain the hierarchy generation for categorical data.	CO1	L2	6M

UNIT-II

3	a	Define OLAP. And construct the architecture of OLAP.	CO2	L2	6M
	b	Descibe the Legacy database.	CO2	L3	6M

OR

4	a	Descuss the following list of data ware house model. i). Data Mart ii). Enterprise Warehouse iii).Virtual Warehouse	CO2	L2	6M
	b	Write the extension and use about the following list of servers i) ROLAP ii) MOLAP iii) HOLAP	CO2	L3	6M

UNIT-III

5	a	Illustrate the Market Basket Analysis in association mining.	CO3	L2	6M
	b	Describe the Apriori algorithm for finding frequent item sets with following example table. It generates the list of frequent item-set ordered by their corresponding suffixes, where the minimum support count is 2 and minimum Confidence is 60%.	CO4	L2	6M

TID	*List of item_IDs*
T100	I1, I2, I5
T200	I2, I4
T300	I2, I3
T400	I1, I2, I4
T500	I1, I3
T600	I2, I3
T700	I1, I3
T800	I1, I2, I3, I5
T900	I1, I2, I3

OR

6	a	Explain the advantages of FP-Growth algorithm.	CO3	L1	6M
	b	Describe the multidimensional association rules for mining data.	CO3	L2	6M

UNIT-IV

7	a	Descibe the following terms i) Gini Index ii) Gain ratio iii) Information Gain	CO5	L2	6M
	b	Defferentiate between Supervised and Unsupervised learning.	CO5	L2	6M

OR

8	a	Discriminate prediction about Linear regression method.	CO5	L4	6M
	b	Apply the accuracy of Naive Bayesian Classification with your own example.	CO5	L5	6M

UNIT-V

9	a	Justify various types of data in Cluster Analysis.	CO6	L5	6M
	b	Explain K-Means and K-Medoids partitioning methods in detail.	CO6	L2	6M

OR

10	a	Derive the key issues in hierarchical clustering algorithm.	CO6	L3	6M
	b	Discuss in detail about the applications and trends in Data Mining.	CO6	L2	6M

***** END *****