O.P.Code: 20AG0706	R20	H.T.No.									

SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY:: PUTTUR
(AUTONOMOUS)
B.Tech III Year I Semester Supplementary Examinations July/August-2024
SOIL AND WATER CONSERVATION ENGINEERING
(Agricultural Engineering)

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

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

UNIT-I

1	a	Explain the classification of gullies.	CO1	L2	6M
	b	Define torrent erosion and anthropogenic erosion.	CO2	L1	6M

OR

2	a	Explain the mechanism of water erosion.	CO1	L2	8M
	b	Write a short note on causes of soil erosion.	CO1	L1	4M

UNIT-II

3	a	75 ha area. The watershed is divided into three parts based on its land use and soil texture in which first part of 25ha with 1% slope is under cultivation(C=0.50), 30 ha with slope 7% is under pasture(C=0.36) and rest of the land land with slope 12% is under forest cultivation(C=0.50). The intensity of rainfall is 7.5cm/ha.	CO2	L3	6M
	b	Write the assumption and limitation of Rational method.	CO2	L2	6M

OR

4	a	Describe land use capability classification	CO2	L2	8M
	b	Write a short note on drainage density	CO2	L2	2M
	c	Explain two types watershed based on shape and how it effects the runoff	CO2	L2	2M

UNIT-III

5	a	Discuss the types of trenches with neat sketch	CO3	L2	6M
	b	Calculate the height and cross-sectional area of contour bund to be constructed on the land of slope 5%. The other details are given below i). Rainfall excess for 24-hr duration is 80cm ii). Horizontal interval is 15cm iii). Depth of water flow over the weir is 30 cm.	CO3	L3	6M

OR

6	a	Classify types of bunds and explain them	CO3	L2	6M
	b	Write the classification of terrace and explain broad base terrace	CO3	L2	6M

UNIT-IV

7	a	Describe important points to considered for site selection of grassed waterways construction.	CO4	L2	6M
	b	Write a short note on sediment delivery ratio and trap efficiency.	CO4	L2	6M

OR

8	a	Explain the type of waterways based on shape and explain why parabolic shape of grassed water ways is most suitable shape.	CO4	L2	6M
	b	Write down the uses of contour maps in SWCE.	CO4	L2	6M

UNIT-V

9	a	Write a short note on hydraulic jump.	CO5	L2	4M
	b	Explain various water harvesting techniques.	CO5	L2	8M

OR

10	a	Enlist permanent gully control structures and types of farm ponds.	CO5	L1	4M
	b	Calculate the capacity of farm pond using trapezoidal and Simpsons. formula. The area enclosed by different contours of pond site are as below.	CO5	L3	8M

Contour value	300	301	302	303	304	305	306
Area enclosed (sq.m)	220	250	320	370	450	530	600

***** END *****

O.P.Code: 20ME0314	R20	H.T.No.									

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

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

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

UNIT-I

1	a	How do you classify materials for engineering use?	CO1	L1	6M
	b	Describe the general design procedure while designing a machine element.	CO1	L2	6M

OR

2	a	Derive an expression for the shear stress developed in a shaft, when it is subjected to torsion.	CO1	L3	4M
	b	A hollow shaft is required to transmit 600 kW at 110 r.p.m., the maximum torque being 20% greater than the mean. The shear stress is not to exceed 63 MPa and twist in a length of 3 metres not to exceed 1.4 degrees. Find the external diameter of the shaft, if the internal diameter to the external diameter is 3/8. Take modulus of rigidity as 84 GPa.	CO1	L4	8M

UNIT-II

3	a	What is meant by factor of safety? Explain how it can be used in design applications.	CO2	L2	6M
	b	Describe the following theories of failures in detail (i) Rankine's theory (ii) Guest's or Tresca's theory (iii) Saint Venant theory	CO2	L2	6M

OR

4		A machine component is subjected to a flexural stress which fluctuates between + 300 MN/m2 and – 150 MN/m2 . Determine the value of minimum ultimate strength according to 1. Gerber relation; 2. Modified Goodman relation; and 3. Soderberg relation. Take yield strength = 0.55 Ultimate strength; Endurance strength = 0.5 Ultimate strength; and factor of safety = 2	CO2	L3	12M

UNIT-III

5	a	What are the advantages of preloading bolted joints?	CO3	L1	2M
	b	A steam engine of effective diameter 300 mm is subjected to a steam pressure of 1.5 N/mm2 . The cylinder head is connected by 8 bolts having yield point 330 MPa and endurance limit at 240 MPa. The bolts are tightened with an initial preload of 1.5 times the steam load. A soft copper gasket is used to make the joint leak-proof. Assuming a factor of safety 2, find the size of bolt required. The stiffness factor for copper gasket may be taken as 0.5.	CO3	L3	10M

OR

6	a	What is an eccentric loaded welded joint? Discuss the procedure for designing such a joint.	CO3	L2	6M
	b	A plate 100 mm wide and 10 mm thick is to be welded to another plate by means of double parallel fillets. The plates are subjected to a static load of 80 kN. Find the length of weld if the permissible shear stress in the weld does not exceed 55 MPa.	CO3	L3	6M

UNIT-IV

7	a	Classify the type of stresses induced in shafts.	CO4	L2	5M
	b	A solid circular shaft is subjected to a bending moment of 3000 N-m and a torque of 10 000 N-m. The shaft is made of 45 C 8 steel having ultimate tensile stress of 700 MPa and a ultimate shear stress of 500 MPa. Assuming a factor of safety as 6, determine the diameter of the shaft.	CO4	L3	7M

OR

8		Design and draw a cotter joint to support a load varying from 30 kN in compression to 30 kN in tension. The material used is carbon steel for which the following allowable stresses may be used. The load is applied statically. Tensile stress = compressive stress = 50 MPa; shear stress = 35 MPa and crushing stress = 90 MPa.	CO5	L3	12M

UNIT-V

9	a	What is a key? State its function with neat sketch.	CO6	L1	6M
	b	Design the rectangular key for a shaft of 50 mm diameter. The shearing and crushing stresses for the key material are 42 MPa and 70 MPa.	CO6	L3	6M

OR

10		Design a cast iron protective type flange coupling to transmit 15 kW at 900 r.p.m. from an electric motor to a compressor. The service factor may be assumed as 1.35. The following permissible stresses may be used : Shear stress for shaft, bolt and key material = 40 MPa Crushing stress for bolt and key = 80 MPa Shear stress for cast iron = 8 MPa Draw a neat sketch of the coupling	CO6	L3	12M

***** END *****

O.P.Code: 20EE0214	R20	H.T.No.									

SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY:: PUTTUR

(AUTONOMOUS)

B.Tech III Year I Semester Supplementary Examinations July/August-2024

CONTROL SYSTEMS

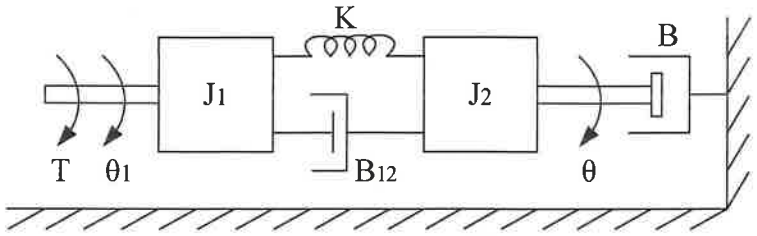
(Electrical & Electronics Engineering)

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

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

UNIT-I

1		Write the differential equations governing the mechanical rotational system shown in the figure and find transfer function.	CO2	L5	12M



OR

2	a	Give the block diagram reduction rules to find the transfer function of the system.	CO1	L2	6M
	b	List the properties of signal flow graph.	CO1	L2	6M

UNIT-II

3	a	What is the Time response? Explain the standard test input signals with neat sketch.	CO3	L1	6M
	b	List out the time domain specifications and derive the expressions for Risetime, Peak time and Peak overshoot.	CO3	L2	6M

OR

4		A unity feedback control system has an open loop transfer function, $G(s) = \frac{10}{s(s+2)}$. Find the rise time, percentage overshoot, peak time and settling time for a step input of 12 units.	CO3	L4	12M

UNIT-III

5	a	What is the stability the of the system. Explain the procedure for Routh Hurwitz stability criterion.	CO3	L1	6M
	b	With the help of Routh's stability criterion find the stability of the following systems represented by the characteristic equations: $9s^5 - 20s^4 + 10s^3 - s^2 - 9s - 10 = 0$	CO5	L3	6M

OR

6		Develop the root locus of the system whose open loop transfer function is $G(s) = \frac{K(s+1)}{s(s+1)(s+5)}$	CO5	L4	12M

UNIT-IV

7	a	Define the frequency domain specifications briefly.	CO4	L2	6M
	b	Given $\xi = 0.7$ and $\omega_n = 10$ rad/sec. Find the resonant peak, resonant frequency and bandwidth.	CO4	L5	6M

OR

8		Sketch the polar plot for the open loop transfer function of a unity feedback system is given by $G(s) = \frac{K(s+1)}{s(s+1)(2s+1)}$. Determine the Gain margins and Phase margin from the plot.	CO4	L5	12M

UNIT-V

9	a	Explain the properties of State Transition Matrix.	CO6	L1	6M
	b	Derive the expression for the transfer function from the state model.	CO2	L3	6M

$\dot{X} = Ax + Bu$ and $y = Cx + Du$

OR

10		A system is characterized by the following state space equations:	CO6	L5	12M

$\dot{X}_1 = -3x_1 + x_2$; $\dot{X}_2 = -2x_1 + u$; and $y = x_1$. Compute (i) Transfer function of the system, (ii) State transsion matrix.

***** END *****

O.P.Code: 20CE0119 | R20 | H.T.No.

SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY:: PUTTUR
(AUTONOMOUS)
B.Tech III Year I Semester Supplementary Examinations July/August-2024
STRUCTURAL DESIGN
(Civil Engineering)

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

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

UNIT-I

1	A T- beam of effective flange width of 740 mm, thickness of slab 100mm,width of rib 240mm and effective depth 400mm is reinforced with 5 numbers of 20mm diameter bars. Determine the moment of resistance of the section. The materials are M15 grade concrete and Fe250 grade steel.	CO1	L3	12M
	OR			
2	Design a singly reinforced concrete beam of clear span 5m to support a design working live load of 10 kN/m. Adopt M20 grade concrete and Fe 415 grade steel.	CO1	L4	12M

UNIT-II

3	A reinforced concrete beam of rectangular section 300 mm wide is reinforced with four bars of 25 mm diameter at an effective depth of 600 mm. The beam has to resists a factored shear force of 400 kN at support section. Assume f_{ck}= 25 N/mm2 and f_y = 415 N/mm2 , design vertical stirrups for the section.	CO2	L4	12M
	OR			
4	Design a dog-legged stair for a building in which the vertical distance between floors is 3.3 m. Adopt rise and tread of each step are 150 mm and 225 mm respectively. The stair hall measures 2.5 m x 4.5 m. The live load may be taken as 3kN/m2 and floor finish is 0.6 kN/m2 . Use M 20 grade concrete and Fe 415 grade steel. Assume the stairs are supported on 230 mm walls at the ends of outer edges of landing slabs.	CO2	L4	12M

UNIT-III

5	Design a circular column to carry an axial load of 1000 k N. Usc M20 grade concrete and Fe 415 steel.	CO3	L4	12M
	OR			
6	Design a square footing of uniform thickness for a reinforced concrete circular column of diameter 400 mm carrying an axial load of 1000 KN. The safe bearing capacity ofsoil is 200 kN/m2 . Use M 20 grade concrete and Fe 415 steel.	CO4	L3	12M

UNIT-IV

7		Design a lap joint between the two plates each if width 120mm if the thickness of one plate is 16mm and the other is 12mm.The joint has to transfer a design load of 160kN.The plates are of Fe410 grade.Use bearing type bolts.	CO5	L3	12M

OR

8	a	Define welding. Explain various types of weld connections with neat sketches.	CO5	L2	6M
	b	What are the advantages and disadvantages of welded connections?	CO5	L1	6M

UNIT-V

9		Design a slab base for a column ISHB 300 @ 577 N/m carrying an axial factored load of 1000 k N. M20 Concrete is used for the foundation. Provide welded connection between column and base plate.	CO6	L4	12M

OR

10		Design a simply supported I-section to support the slab of hall 9m x 24m with beam spaced at 3m centre to centre. Thickness of slab is 100mm. Consider floor finish load 0.5 k N/m2 and live load of 3 k N/m2 . The grade of steel is E=250.Assume that adequate lateralsupport is provided to compression flange.	CO6	L4	12M

***** END *****

O.P.Code: 20CE0161	R20	H.T.No.									

SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY:: PUTTUR
(AUTONOMOUS)
B.Tech III Year I Semester Supplementary Examinations July/August-2024
SOIL MECHANICS
(Agricultural Engineering)

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

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

UNIT-I

1	a	Explain in detail how soils are formed.	CO1	L1	6M
	b	Develop a relationship between the void ratio, water content, specific gravity of particles and degree of saturation.	CO1	L2	6M

OR

2	a	A test for the determination for the liquid limit was carried on a soil sample using Casagrande's apparatus. The following sets of observations were taken. Plot the flow curve and determine the liquid limit.	CO1	L3	6M

No. of Blows (N)	38	27	20	13
Water content (w) %	47.5	49.5	51.9	53.9

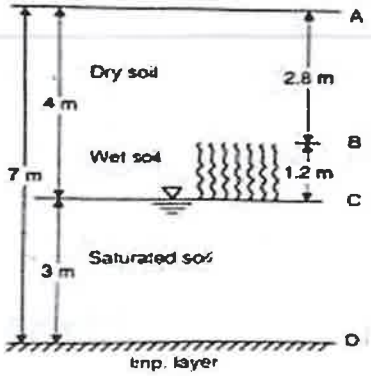
	b	Determine the specific gravity of solids from the following observations: (i) Mass of dry sample = 0.395 kg (ii) Mass of pycnometer full of water = 1.755 kg (iii) Mass of pycnometer containing soil and full of water = 2.005 kg	CO1	L3	6M

UNIT-II

3	a	Define total stress, neutral stress and effective stress. What is the importance of the effective stress?	CO2	L1	6M
	b	What is a quick sand? How would you calculate the hydraulic gradient required to create quick sand condition in a sample of sand?	CO2	L2	6M

OR

4		A granular soil deposit as shown in Figure 4.1 is 7 m deep over an impermeable layer. The ground water table is 4 m below the ground surface. The deposit has a zone of capillary rise of 1.2 m with a saturation of 50%. Plot the variation of total stress, pore water pressure and effective stress with the depth of deposit, e = 0.6 andG = 2.65.	CO2	L3	12M



UNIT-III

5	a	State the assumptions made in computing stresses below the ground surface due to a point load acting on it.	CO3	L1	6M
	b	Derive an expression for the vertical stress at a point due to a line load.	CO3	L2	6M
		OR			
6		Derive the equation for vertical stress under a strip load (a) at a point below the centre of the strip (b) point not below the centre of the strip.	CO3	L2	12M

UNIT-IV

7	a	Differentiate between 'Compaction' and 'Consolidation'.	CO5	L2	6M
	b	State the assumptions made by Terzaghi for theory of one-dimensional consolidation.	CO5	L1	6M
		OR			
8	a	With a neat graph outline the steps involved in determination of coefficient of consolidation using Square-root of time method.	CO5	L1	6M
	b	In a consolidation test the following results have been obtained. When the load was changed from 50 kN/m^2 to 100 kN/m^2, the void ratio changed from 0.70 to 0.65. Determine the coefficient of volume decrease, m_v and the compressionindex, C_c.	CO5	L3	6M

UNIT-V

9	a	Explain Coulomb's law for shearing strength of soils and its modification by Terzaghi.	CO6	L1	6M
	b	A shear vane of 7.5 cm diameter and 11.0 cm length was used to measure the shear strength of a soft clay. If a torque of 600 N-m was required to shear the soil, calculate the shear strength. The vane was then rotated rapidly to cause remoulding of the soil. The torque required in the remoulded state was 200N-m. Determine the sensitivity of the soil.	CO6	L3	6M
		OR			
10		The following results were obtained from a consolidated-undrained (CU) test on a normally consolidated clay. Plot the strength envelope in terms of total stresses and effective stresses and determine the strength parameters.	CO6	L3	12M

Sample No.	Confining pressure ((kN/m^2)	Deviator stress (kN/m^2)	Pore water pressure
1	250	152	120
2	500	300	250
3	750	455	350

*** END ***

Q.P.Code: **20CS0516** | R20 | **H.T.No.** | | | | | | | | | | |

SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY:: PUTTUR
(AUTONOMOUS)
:ch III Year I Semester Supplementary Examinations July/August-2024
COMPILER DESIGN
(Common to CSE & CSIT)

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

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

UNIT-I

1	a	Give the differences between compiler and interpreter.	CO1	L4	6M
	b	Differentiate tokens, patterns, and lexeme.	CO1	L4	6M

OR

2	a	Design the compiler by using the source program position=intial+rate*60.	CO3	L6	6M
	b	Illustrate the steps involved in designing the compiler by using the source program a=b+c*10.	CO3	L3	6M

UNIT-II

3	a	Explain the role of parser.Define parse tree.	CO1	L1	6M
	b	Construct Leftmost and Rightmost derivation and parse tree for the string 3*2+5 from the given grammar. Also check it's ambiguity for Set of alphabets ∑ = {0,...,9, +, *, (,)} E → I E → E + E E →E * E E → (E) I → ε | 0 | 1 | ... | 9	CO2	L6	6M

OR

4	a	What is left recursion? Describe the procedure of eliminating Left recursion.	CO1	L5	6M
	b	Eliminate left recursion for the following grammar E→ E+T/T T→ T*F/F F→ (E)/id	CO1	L1	6M

UNIT-III

5	a	Explain about handle pruning	CO1	L2	6M
	b	Summarize about LR parsing	CO1	L1	6M

OR

6	a	Explain in detail the processing procedure of YACC Parser generator tool.	CO3	L2	6M
	b	Explain syntax directed definition with example	CO2	L2	6M

UNIT-IV

7	a	List and define various representation of Three Address Codes	CO5	L1	6M
	b	Justify the need for Storage Organization	CO4	L6	6M

OR

8	a	Discuss about symbol table entries.	CO4	L2	6M
	b	Describe the various operations on symbol table.	CO4	L2	6M

UNIT-V

9	a	Discuss about function preserving transformations.	CO6	L2	6M
	b	Describe about loop optimization technique.	CO5	L2	6M

OR

10	a	Create the DAG for following statement. a+b*c+d+b*c	CO6	L6	6M
	b	Construct the DAG for the following basic blocks	CO6	L6	6M

i). t1:=4*i
ii). t2:=a[t1]
iii). t3:=4*i
iv). t4:=b[t3]
v). t5:=t2*t4
vi). t6:=prod+t5
vii). prod:=t6
viii). t7:=i+1
ix). i:=t7
if i<=20 goto 1

***** END *****

O.P.Code: 20CS0903	R20	H.T.No.									

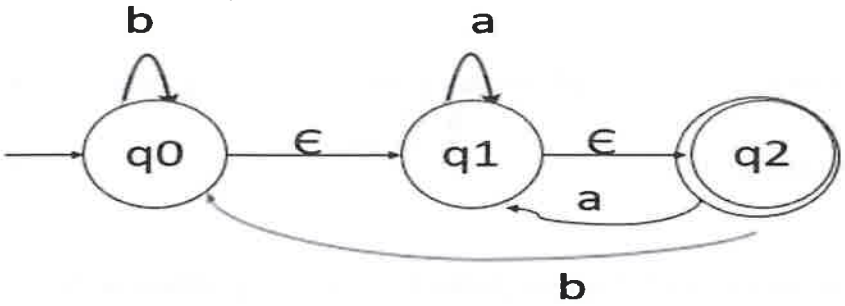
SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY:: PUTTUR
(AUTONOMOUS)
B.Tech III Year I Semester Supplementary Examinations July/August-2024
AUTOMATA THEORY AND COMPILER DESIGN
(Common to CSM & CIC)

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

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

UNIT-I

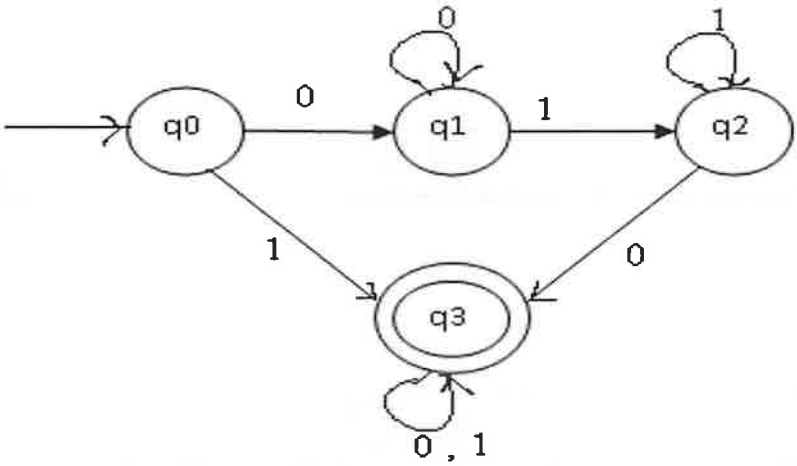
1	a	Convert the following NFA with ε moves to DFA.	CO2	L6	8M



	b	Give the Closure properties of Regular Sets	CO2	L1	4M

OR

2	a	State Pumping lemma for regular languages.	CO3	L1	4M
	b	Construct RE from the given FA by using Arden's Theorem	CO3	L6	8M



UNIT-II

3	a	Find the PCP solution for the following sets.	CO6	L5	8M

A	B
10	101
01	100
0	10
100	0
1	010

	b	Remove ϵ productons from the grammar S→ABaC A→BC B→b/ ϵ C→D/ϵ D→d	CO4	L3	4M
		OR			
4	a	Construct an equivalent PDA for the following CFG. S→aAB | bBA A→bS|a B→aS | b.	CO5	L6	8M
	b	Analyze and explain with example Chomsky Hierarchy of Languages	CO1	L4	4M
		UNIT-III			
5		Consider the grammar E→E+T/T T→T*F/F F→(E)|id Design a predictive parsing table and check given grammar is LL(1) Grammar or not.	CO3	L6	12M
		OR			
6	a	Explain in detail the role of the lexical analyzer in Compiler Design.	CO1	L2	6M
	b	Construct the Leftmost and Rightmost derivation and derivation tree for the string 0100110 S→0S/1AA A→0/1A/0B B→1/0BB	CO4	L6	6M
		UNIT-IV			
7		Design the LALR parser for the following Grammar S → AA A → aA A→b	CO3	L6	12M
		OR			
8		Discuss Type Checking with suitable examples.	CO4	L2	12M
		UNIT-V			
9	a	Produce quadruple, triples and indirect triples for following expression: (x + y) * (y + z) + (x + y + z)	CO5	L6	9M
	b	Create the DAG for the following statement. a+b*c+d+b*c.	CO6	L6	3M
		OR			
10	a	Define and Show Dead-code elimination with an example.	CO4	L1	6M
	b	Analyze Simple code generator.	CO6	L4	6M

***** END *****

O.P.Code: 20AG0708	R20	H.T.No.									

SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY:: PUTTUR

(AUTONOMOUS)

B.Tech III Year I Semester Supplementary Examinations July/August-2024

AGRICULTURAL PROCEE ENGINEERING

(Agricultural Engineering)

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

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

UNIT-I

1	a	Write the applications of Aero hydrodynamic,FrictionalandOpticalproperties of biological materials.	CO1	L1	6M
	b	Explain the platform scale method for measurement of volume, density and specific gravity of large objects with neat sketch.	CO2	L2	6M
		OR			
2		Explain the possible force-deformation curve for an agricultural product.	CO2	L2	12M
		UNIT-II			
3	a	Defineterminalvelocityandderiveequationforterminalvelocityofaparticle with neat sketch.	CO2	L3	8M
	b	Find the terminal velocity of fat particle of 6 μm in diameter and density 930 kg/m^3 in skim milk of 1036 kg/m^3 density. The viscosity of the skim milk is 0.00136 kg/ms. How long it will take to cover a distance of 15 cm.	CO2	L3	4M
		OR			
4		Write the application of engineering properties in handling, processing machines and storage structures.	CO1	L1	12M
		UNIT-III			
5	a	A screen is used to separate two components (A and B) from a feed where F, O and U are taken as mass flow rates of feed, overflow and underflow streams, respectively. The corresponding mass fraction of the oversize component A in these streams is X_f, X_o and X_u. Derive an expression for overall effectiveness of this screen.	CO4	L3	6M
	b	During the evaluation of an air screen grain cleaner with two screens the following data were observed. (i) The impurities present in feed were 6.5%, (ii) The impurities present in clean grain were 0.5%, (iii) The outflow of blower contained 0.2% clean seed, (iv) The overflow of 1st screen contained 1% clean seed and (v) The over flow contained 0.5% cleanseed.Compute the cleaning efficiency of the cleaner.	CO4	L3	6M
		OR			
6		Explain design consideration of an air-screen grain cleaner with neat sketch.	CO4	L2	12M
		UNIT-IV			
7	a	Explain working principle of ball mill with neat sketch.	CO4	L2	6M
	b	State Kicks and Rittinger's laws for energy requirement with related equations.	CO4	L1	6M
		OR			
8	a	Explain working principle of Attrition mil lwith neat sketch	CO4	L2	6M
	b	Explain the energy requirement of size deduction.	CO4	L2	6M

UNIT-V

9		Explain about rubber roll Sheller with neat sketch.	CO5	L2	12M
		OR			
10	a	Enlist filtration equipment's and write the basic requirements for filtration equipment's.	CO6	L2	4M
	b	Explain rotary and centrifugal filters with neat sketch.	CO6	L2	8M

***** END *****

O.P.Code: 20CE0121	R20	H.T.No.									

22/2/24 FN

SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY:: PUTTUR

(AUTONOMOUS)

B.Tech III Year I Semester Supplementary Examinations July/August-2024

ESTIMATION, COSTING AND VALUATION

(Civil Engineering)

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

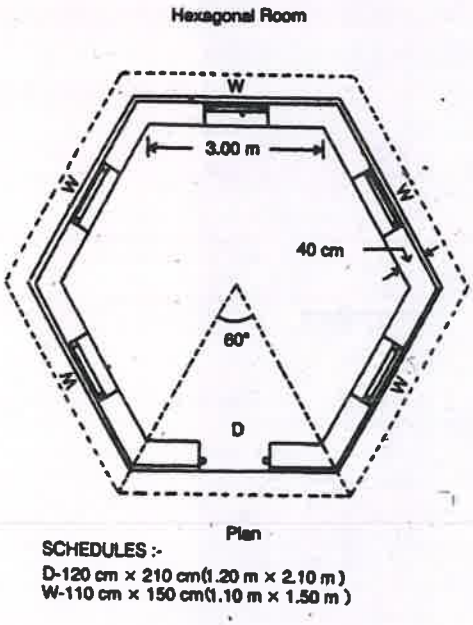
(Answer all Five Units **5 x 12 = 60** Marks)

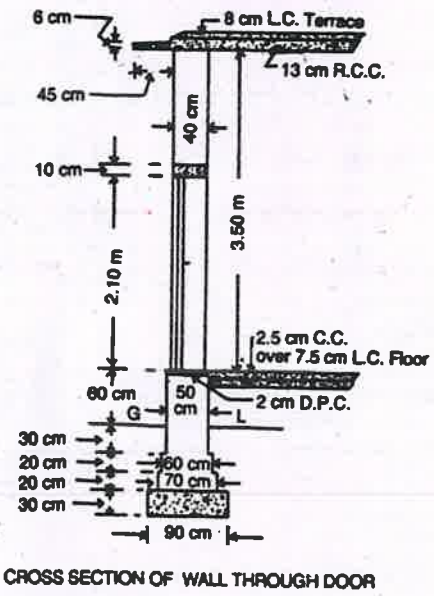
UNIT-I

1	a	A person constructs a building of a plinth area equal to 160 sq.m. on a plot of land in a certain locality at a rate of Rs. 25,50,000/- . The height of the building from ground level to the top of roof is 3.10 m and parapet wall of height equal to 75 cm is constructed on the terrace. Determine the cost of a similar building of a plinth area equal to 140 sq.m. is to be constructed in the same locality by plinth area rate and volume rate method.	CO1	L1	8M
	b	List out the main items of building work and explain briefly	CO1	L1	4M

OR

2	a	Estimate the quantities of the building items of a hexagonal room from the given plan and section as shown in Fig by using center line method. a) Earthwork excavation for foundation b) I-Class brick work for super structure c) Plastering in CM (1:5), 20 mm thick for inside walls. d) Marble flooring over cc bed with 20 mm thick	CO1	L3	12M





UNIT-II

3		Calculate the quantity of earth work by using Mid Sectional Area Method, Mean Sectional Area Method and Prismoidal Formula Method for 450 metre length for aportion of a road in an uniform ground heights of banks at the two ends being 1.50 m and 2.10 m. The formation width is 12 metre and side slopes 2:1(Horizontal: Vertical). Assume that there is no transverse slope	CO2	L2	12M

OR

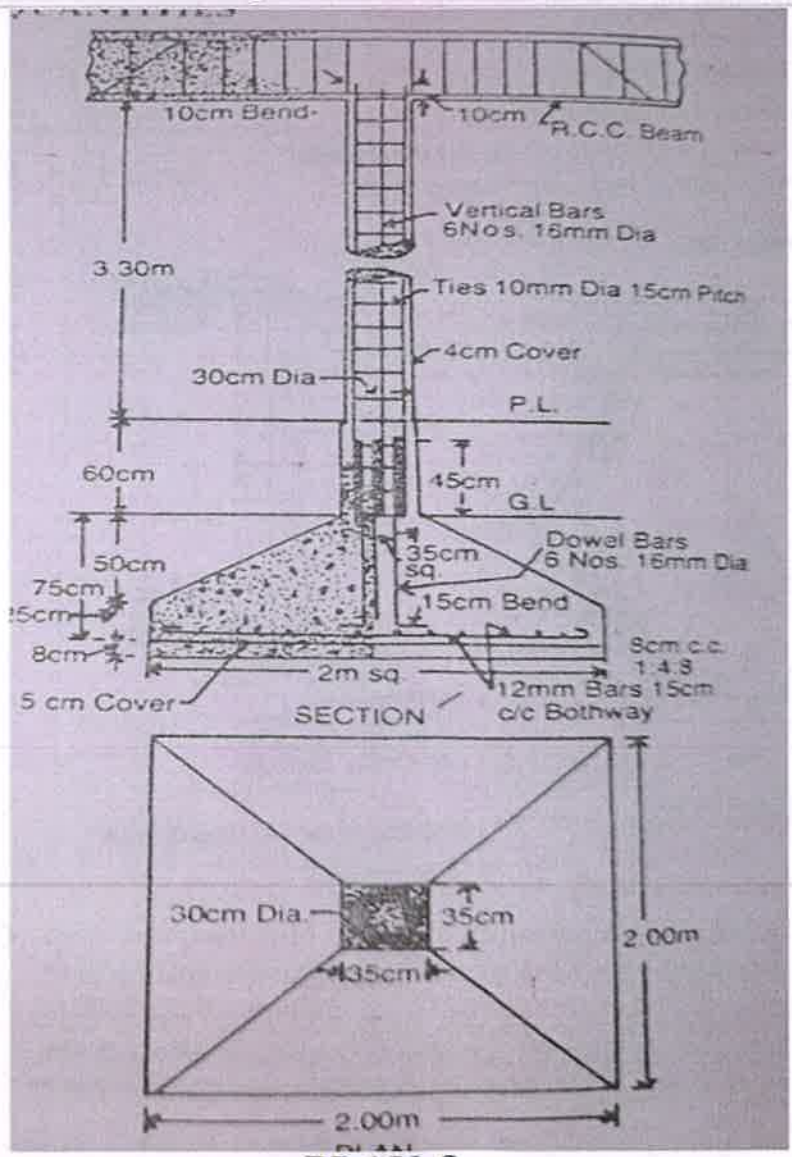
4		Estimate the cost of earthwork for a portion of road for 400 m length from the following data:- Formation width of the road is 10 m. Side	CO2	L3	12M

slopes are 2:1 in banking 1.5 in cutting

Station	Distance in m	RL of ground in m	RL of formation
25	1000	51.00	RL of formation is 52.00. Downward gradient of 1 in 200
26	1040	50.90	
27	1080	50.50	
28	1120	50.80	
29	1160	50.60	
30	1200	50.70	
31	1240	51.20	
32	1280	51.40	
33	1320	51.30	
34	1360	51.00	
35	1400	50.60	

UNIT-III

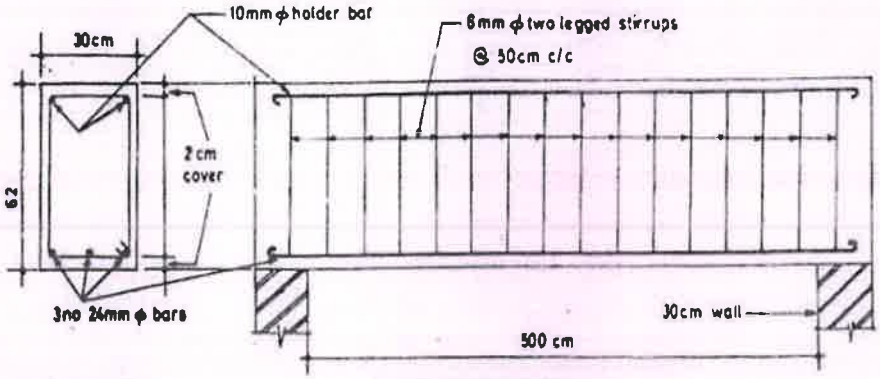
5 Prepare a detailed estimate of a RCC column with foundation footing from the given drawings. **CO3 L3 12M**



PLAN & SECTION

OR

6		The following figure shows the longitudinal section & cross section of a simple beam of clear span 5.0 m. The thickness of support wall is 300 mm. Workout the total quantity of the reinforcement in the beam. Also prepare the bar bending schedule.	CO3	L3	12M



Cross Section Longitudinal Section

UNIT-IV

7		Work out the rate analysis for white washing with two coats for out side walls and synthetic enamel paintting to wooden works with two coats over a primer coat	CO4	L3	12M

OR

8	a	Evaluate the rate analysis for Brick masonry in CM (1:5) for superstructure using I class bricks	CO4	L3	6M
	b	Evaluate the rate analysis for Brick masonry in CM (1:6) for superstructure using II class bricks	CO4	L3	6M

UNIT-V

9	a	Describe the general specification for first class buildings	CO5	L2	6M
	b	An old building has been purchased by a person @ a cost of Rs. 6,00,000 excluding the cost of land. Calculate the amount of annual sinking fund @ 9% interest assuming the life of building as 30 years and the scrap value of the building as 10% of the purchase	CO6	L3	6M

OR

10		A three-storied building is standing on a plot of land measuring 800 sq.m. The plinth area of each storey is 400 sq.m. The building is of RCC framed structure and the future life may be taken as 70 years. The building fetches a gross rent of Rs.1500.00 per month. Work out the capitalized value of the property on the basis of 6% net yield.For sinking fund 3% compound interest may be assumed. Cost of land may be taken Rs.40.00 per sq m. Other data as required may be assumed suitably	CO6	L3	12M

***** END *****

O.P.Code: 20ME0315	R20	H.T.No.									

SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY:: PUTTUR
(AUTONOMOUS)
B.Tech III Year I Semester Supplementary Examinations July/August-2024
HEAT & MASS TRANSFER
(Mechanical Engineering)

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

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

UNIT-I

1	a	What is convection heat transfer? Explain.	CO1	L1	6M
	b	Enumerate the some important areas which are covered under the discipline of heat transfer.	CO1	L2	6M
		OR			
2	a	Distinguish between conduction, convection and radiation modes of heat transfer.	CO1	L2	6M
	b	Calculate the rate of heat transfer per unit area through a copper plate 40mm thick, whose one face is maintained at 360 °C and the other face at 40 °C. Take thermal conductivity of copper as 370 W/m °C.	CO1	L3	6M

UNIT-II

3	a	Obtain the expression of heat conduction through hollow cylinder.	CO2	L3	6M
	b	A spherical shaped vessel of 1.5 m diameter is 70 mm thick. Find the rate of heat leakage, if the temperature difference between the inner and outer surface is 200°C. Thermal conductivity of the material of the sphere is 0.080 W/m °C.	CO2	L3	6M
		OR			
4	a	Write short note on transient heat conduction.	CO2	L1	6M
	b	A steel ingot (large in size) heated uniformly to 745 °C is hardened by quenching it in an oil bath maintained at 20 °C. Determine the time required for the temperature to reach 595 °C at a depth of 12 mm. The ingot may be approximated as a flat plate. For steel ingot take the thermal diffusivity as $1.2x10^{-5}$ m^2 /s.	CO2	L4	6M

UNIT-III

5	a	Distinguish between free and forced convection.	CO3	L4	6M
	b	Derive the expression for Reynolds number and how flows are determined by Reynolds number.	CO3	L3	6M
		OR			
6		Air at 20 °C and at a pressure of 1 bar is flowing over a flat plate at a velocity of 3m/s. If the plate is 250 mm wide and at 56 °C. Calculate the following quantities at x = 250 mm, given that properties of air at the bulk mean temperature °C are ρ =1.1374 kg/m3, k = 0.02732 W/m °C, C_p = 1.005 kJ/kg K, υ = 16.76x10-6 m^2/s, Pr =0.7 .i). Boundary layer thickness ii). Local friction coefficient iii). Average friction coefficient iv). Thickness of the boundary layer v). Local convective heat transfer vi). Average convective heat transfer..	CO3	L4	12M

UNIT-IV

7	a	Define Radiation heat transfer.	CO4	L1	6M
	b	Define the term absorptivity, reflectivity and transmittivity of radiation.	CO4	L1	6M

OR

8		Explain briefly the various regimes of saturated pool boiling with diagram.	CO4	L2	12M

UNIT-V

9		Derive the expression for Logarithmic Mean Temperature Difference (LMTD) in case of counter flow.	CO5	L3	12M

OR

10	a	Discuss about the modes of Mass transfer.	CO6	L2	6M
	b	What is Mass transfer coefficient? Explain it briefly.	CO6	L2	6M

***** END *****

Q.P.Code: **20CS0516** | R20 | **H.T.No.** | | | | | | | | | | |

SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY:: PUTTUR
(AUTONOMOUS)
:ch III Year I Semester Supplementary Examinations July/August-2024
COMPILER DESIGN
(Common to CSE & CSIT)

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

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

UNIT-I

1	a	Give the differences between compiler and interpreter.	CO1	L4	6M
	b	Differentiate tokens, patterns, and lexeme.	CO1	L4	6M

OR

2	a	Design the compiler by using the source program position=intial+rate*60.	CO3	L6	6M
	b	Illustrate the steps involved in designing the compiler by using the source program a=b+c*10.	CO3	L3	6M

UNIT-II

3	a	Explain the role of parser.Define parse tree.	CO1	L1	6M
	b	Construct Leftmost and Rightmost derivation and parse tree for the string 3*2+5 from the given grammar. Also check it's ambiguity for Set of alphabets ∑ = {0,...,9, +, *, (,)} E → I E → E + E E →E * E E → (E) I → ε | 0 | 1 | ... | 9	CO2	L6	6M

OR

4	a	What is left recursion? Describe the procedure of eliminating Left recursion.	CO1	L5	6M
	b	Eliminate left recursion for the following grammar E→ E+T/T T→ T*F/F F→ (E)/id	CO1	L1	6M

UNIT-III

5	a	Explain about handle pruning	CO1	L2	6M
	b	Summarize about LR parsing	CO1	L1	6M

OR

6	a	Explain in detail the processing procedure of YACC Parser generator tool.	CO3	L2	6M
	b	Explain syntax directed definition with example	CO2	L2	6M

UNIT-IV

7	a	List and define various representation of Three Address Codes	CO5	L1	6M
	b	Justify the need for Storage Organization	CO4	L6	6M

OR

8	a	Discuss about symbol table entries.	CO4	L2	6M
	b	Describe the various operations on symbol table.	CO4	L2	6M

UNIT-V

9	a	Discuss about function preserving transformations.	CO6	L2	6M
	b	Describe about loop optimization technique.	CO5	L2	6M

OR

10	a	Create the DAG for following statement. a+b*c+d+b*c	CO6	L6	6M
	b	Construct the DAG for the following basic blocks i). t1:=4*i ii). t2:=a[t1] iii). t3:=4*i iv). t4:=b[t3] v). t5:=t2*t4 vi). t6:=prod+t5 vii). prod:=t6 viii). t7:=i+1 ix). i:=t7 if i<=20 goto 1	CO6	L6	6M

*** END ***

O.P.Code: 20CS1003	R20	H.T.No.									

SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY:: PUTTUR
(AUTONOMOUS)
B.Tech III Year I Semester Supplementary Examinations July/August-2024
PRINCIPLES OF CYBER SECURITY
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	a	What is cybercrime? Explain the classification of cybercrimes.	CO1	L2	6M
	b	Distinguish between Information Security & Cyber security.	CO1	L4	6M
		OR			
2	a	List out few roles of Cyber Threats.	CO1	L3	6M
	b	Inference Cybercrimes Cases of Various Categories under ITA 2000.	CO1	L3	6M
		UNIT-II			
3	a	Explain the Operational Threat Environment.	CO2	L3	6M
	b	What is Vulnerability? Explain it in detail.	CO2	L2	6M
		OR			
4	a	Explain Reconnaissance attacks.	CO2	L3	6M
	b	Discus the Risk management in Cyber Security.	CO2	L2	6M
		UNIT-III			
5	a	Explain Identity and access Management in Cyber security.	CO3	L4	6M
	b	Discuss the ports and Protocols in Cyber security.	CO3	L3	6M
		OR			
6	a	Why is digital data security important? Explain.	CO3	L3	6M
	b	What is Incident Recovery? Explain.	CO3	L4	6M
		UNIT-IV			
7	a	Explain the classification of Cyber Threats.	CO4	L3	6M
	b	Difference between vulnerability management and vulnerability assessment.	CO4	L4	6M
		OR			
8	a	Explain the Vulnerability assessment.	CO4	L3	6M
	b	Give a brief note on security Logs.	CO4	L4	6M
		UNIT-V			
9	a	Explain Dual Firewall.	CO5	L3	6M
	b	Discuss the Hardening of operating system.	CO5	L2	6M
		OR			
10	a	How to protect your device from Backdoor Attacks? Explain.	CO5	L3	6M
	b	Explain single Firewall.	CO5	L4	6M

***** END *****

O.P.Code: 20CS0904	R20	H.T.No.									

SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY:: PUTTUR

(AUTONOMOUS)

B.Tech III Year I Semester Supplementary Examinations July/August-2024

INTRODUCTION TO 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		Discuss the Machine Learning techniques.	CO2	L2	12M
		OR			
2	a	Explain the Supervised Learning techniques.	CO2	L2	6M
	b	Differentiate the Bias and Variance tradeoff in Machine Learning.	CO1	L4	6M

UNIT-II

3	a	Describe about Multivariant Tree prediction.	CO1	L1	6M
	b	List out to possible for find the best fit line using Linear regression.	CO1	L1	6M
		OR			
4		Define how decision tree plays vital role in real life.	CO1	L1	12M

UNIT-III

5	a	List out the features of logistic regression.	CO3	L1	6M
	b	What are the features of back propagation algorithm?	CO4	L1	6M
		OR			
6		Explain Bayesian logistic regression in detail.	C04	L2	12M

UNIT-IV

7		Explain Bayesian decision theory in detail.	CO4	L2	12M
		OR			
8		Write about bias and variance.	CO5	L3	12M

UNIT-V

9		State and explain tuning complexity.	CO5	L1	12M
		OR			
10	a	List few parameter estimation techniques.	C03	L1	6M
	b	Write the applications of multivariate normal distribution.	CO4	L3	6M

*** END ***

O.P.Code: 20CS1202	R20	H.T.No.									

SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY:: PUTTUR
(AUTONOMOUS)
B.Tech III Year I Semester Supplementary Examinations July/August-2024
MOBILE APP DEVELOPMENT
(CSE with Specialization in Cloud Computing)

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

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

UNIT-I

1		Briefly explain versions of Android and the features of Android.	CO1	L2	12M
		OR			
2		Briefly explain about mobile technologies.	CO1	L2	12M
		UNIT-II			
3	a	Explain the following layouts Relative Layout	CO2	L2	6M
	b	Explain the following layouts Frame Layout.	CO2	L2	6M
		OR			
4		Discuss in detail action bar with example program.	CO2	L3	12M
		UNIT-III			
5		Write a code to store online in file which resides in sd-card.	CO4	L3	12M
		OR			
6		Demonstrate use of Toggle Button class with example. Play Music on toggle on and music off on toggle off.	CO2	L4	12M
		UNIT-IV			
7		How can we send SMS messages in your Android application.	CO1	L1	12M
		OR			
8		How do you notify an activity from a Broadcast Receiver?	CO1	L1	12M
		UNIT-V			
9		Explain the UI Design Guidelines for Windows Phone 8.	CO1	L1	12M
		OR			
10		Explain Windows Phone events in detail.	CO1	L1	12M

***** END *****

O.P.Code: 20AG0707	R20	H.T.No.									

SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY:: PUTTUR
(AUTONOMOUS)
B.Tech III Year I Semester Supplementary Examinations July-August-2024
FARM MACHINERY & EQUIPMENT - II
(Agricultural Engineering)

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

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

UNIT-I

1	a	What is harvesting? Explain principle of cutting of a crop.	CO1	L1	6M
	b	Explain in briefly about cutter bar of mower with neat sketch.	CO1	L2	6M
		OR			
2	a	Discuss about different methods of windrowing.	CO1	L6	6M
	b	Distinguish between registration and alignment in mower.	CO1	L4	6M

UNIT-II

3	a	Explain working principle of self-propelled type combine with neat sketch.	CO2	L2	6M
	b	Calculate the total time required to harvest 2.5 ha of grass by means of a 2 m mower being operated at 4 km/h. Take field efficiency of mower as 80%.	CO2	L3	6M
		OR			
4	a	Discuss about functional components of corn harvester.	CO2	L6	6M
	b	Illustrate about combine losses.	CO2	L2	6M

UNIT-III

5	a	Distinguish between groundnut digger shaker and potato harvester.	CO3	L4	6M
	b	Explain in briefly about different methods of fruit harvesting.	CO3	L2	6M
		OR			
6	a	Discuss about two row potato harvester.	CO3	L6	6M
	b	Explain in briefly about different types of manual fruit harvesters	CO3	L2	6M

UNIT-IV

7	a	What are the various parts of Corn picker? Explain in briefly about spindles.	CO4	L1	6M
	b	What are the factors affecting the performance of cotton pickers.	CO4	L1	6M
		OR			
8	a	Explain in briefly about cotton pickers with drum type spindle arrangement with neat sketch.	CO4	L2	6M
	b	Discuss about different types of stripper.	CO4	L6	6M

UNIT-V

9	a	What is power thresher? Explain about multi crop thresher.	CO5	L1	6M
	b	Write short notes on i) Cleaning unit ii) Seed damage iii) Aspirator & Blower.	CO5	L1	6M
		OR			
10	a	What are the different types of threshing cylinders? Explain them with neat Sketch.	CO5	L2	6M
	b	Explain about calculation for testing of thresher.	CO5	L2	6M

***** END *****

O.P.Code: 20EE0215	R20	H.T.No.									

SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY:: PUTTUR
(AUTONOMOUS)
B.Tech III Year I Semester Supplementary Examinations July-August-2024
ELECTRICAL MACHINES-III
(Electrical & Electronics Engineering)

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

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

UNIT-I

1	a	Derive the generalized EMF equation of an Alternator from fundamentals.	CO1	L3	6M
	b	What are the effect of harmonics on induced EMF and winding factors and how they are suppressed?	CO1	L1	6M
		OR			
2		What are the various types of armature windings? Explain each of them with their importance.	CO1	L2	12M

UNIT-II

3	a	Define the voltage regulation of an alternator. Explain the various factors, which may affect the regulation of an alternator.	CO2	L2	6M
	b	xplain the procedure for calculation voltage regulation by synchronous impedance method with phasor diagram.	CO2	L2	6M
		OR			
4		Explain the procedure for the construction of the Potier triangle by ZPF method and How do you calculate the no-load voltage and voltage regulation with a phasor diagram?	CO2	L2	12M

UNIT-III

5	a	Explain the effect of change in excitation and mechanical power input of an alternator.	CO3	L2	4M
	b	Derive the expression for synchronizing current, synchronizing power and synchronizing torque.	CO3	L3	8M
		OR			
6		What is meant by synchronization of alternators? Discuss any two methods of synchronization of alternator.	CO3	L2	12M

UNIT-IV

7	a	What is a synchronous condenser? What is the use of a synchronous condenser with a neat phasor diagram?	CO4	L1	6M
	b	What are the advantages and disadvantages of synchronous motors?	CO4	L1	6M
		OR			
8		Explain the laboratory setup to obtain V and inverted V curves.	CO4	L2	12M

UNIT-V

9	a	Explain the construction and operation of a synchronous induction motor.	CO5	L2	8M
	b	Discuss the advantages and disadvantages of a synchronous induction motor.	CO5	L2	4M
		OR			
10		Explain the constant excitation circles and constant power circles for a synchronous motor.	CO5	L2	12M

***** END ****

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

SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY:: PUTTUR
(AUTONOMOUS)
B.Tech III Year I Semester Supplementary Examinations July-August-2024
DATAWAREHOUSING AND DATAMINIING
(Common to CSIT, CSE & CAD)

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

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

		UNIT-I			
1		Illustrate Data Mining Functionalities with example.	CO1	L2	12M
		OR			
2	a	Compare Data Warehousing and Data Mining.	CO1	L2	6M
	b	List out Dimensionality reduction methods and Explain.	CO1	L2	6M
		UNIT-II			
3		Demonstrate the Three-tier data warehouse architecture with a neat Diagram.	CO1	L2	12M
		OR			
4	a	Classify a Starnet Query Model. How will involve in Multidimensional Databases.	CO2	L2	6M
	b	Distinguish between OLTP and OLAP.	CO2	L2	6M
		UNIT-III			
5		State the Apriori algorithm for finding frequent item sets with an example.	CO3	L3	12M
		OR			
6	a	Explauin about Multidimensional association rules for mining data.	CO3	L2	6M
	b	Compute measure from Association Analysis to Correlation Analysis.	CO3	L2	6M
		UNIT-IV			
7	a	What are the Issues regarding Classification and Prediction? Explain.	CO4	L2	6M
	b	Summarize the Rule based Classification method.	CO4	L2	6M
		OR			
8	a	Outline the concept of Classification by Decision Tree Induction.	CO4	L2	6M
	b	Discuss about Accuracy and Error measures.	CO4	L2	6M
		UNIT-V			
9	a	Demonstrate the working of k-means clustering.	CO5	L3	6M
	b	Explain about Model based Clustering Methods.	CO5	L2	6M
		OR			
10	a	Compare Agglomerative and Divisive hierarchical clustering.	CO5	L3	6M
	b	Illustrate DBSCAN clustering with a suitable diagram.	CO5	L2	6M

***** END *****

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

SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY:: PUTTUR

(AUTONOMOUS)

B.Tech III Year I Semester Supplementary Examinations July-August-2024

MICROPROCESSORS AND MICROCONTROLLERS

(Elrectronics and Communication Engineering)

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

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

UNIT-I

1	a	Draw the block diagram of output section of Microcomputer . Describe the role of tristate bus driver, decoder and latch.	CO1	L2	6M
	b	List different computer languages and explain them.	CO1	L4	6M
		OR			
2		Explain the difference between the peripheral I/O and memory mapped I/O.	CO1	L4	12M

UNIT-II

3	a	Discuss conditional jump and un conditional jump instruction with an example.	CO2	L2	6M
	b	Explain the Arithmetic instructions. instructions of the 8085 microprocessor.	CO2	L4	6M
		OR			
4		Sketch neat the block diagram of 8085 Architecture and explain the function of each block and discuss the different types of registers used in the 8085 microprocessors.	CO2	L4	12M

UNIT-III

5	a	Draw and explain a special function of the interrupt enable (IE) register. 8051μC.	CO3	L4	6M
	b	Discuss about flags and program status world in 8051 MC.	CO3	L2	6M
		OR			
6		Draw the internal architecture of 8051 microcontroller and explain the function of each block present in it. Explain the external memory in microcontroller.	CO3	L4	12M

UNIT-IV

7	a	Develop and write an assembly program of 8051microcontroller to divide and multiplication two 8-bit numbers and store the result in a 2055&2057 memory location.	CO4	L6	6M
	b	Discuss RR, RL, RLC, RRC and swap instructions with suitable example.	CO4	L2	6M
		OR			
8	a	Explain the following terms i) Call and stack ii) calls and returns iii) interrupts and returns	CO4	L4	6M
	b	Write and explain an ALP program of and ,OR AND XROR operation in 8051.	CO4	L4	6M

UNIT-V

9	a	Illustrate the multiple source interrupt circuit used in Lopri and Hipri program.	CO5	L4	6M
	b	Design and explain the large matrix keyboard.	CO5	L6	6M
		OR			
10	a	Define the D/A and A/D conversions and write any five advantages.	CO5	L1	6M
	b	Discuss about interrupt driven program for small keyboards.	CO5	L2	6M

***** END *****

O.P.Code: 20CI0605	R20	H.T.No.									

SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY:: PUTTUR

(AUTONOMOUS)

B.Tech III Year I Semester Supplementary Examinations July/August-2024

SOFTWARE ENGINEERING & TESTING

(Computer Science & Information Technology)

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

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

		UNIT-I			
1	**a**	What do you mean by software crisis? Identify the reasons for software crisis.	**CO1**	**L3**	**6M**
	b	Write a factorial program in C language. List out the operators and operands and also calculate the values of software science measures like η, N, V, E, and λ?	**CO1**	**L5**	**6M**
		OR			
2	**a**	Describe the rapid application development (RAD) model. Discuss each phase in detail	**CO1**	**L5**	**6M**
	b	Is software metrics required in software engineering? Why do we really need metrics in software.	**CO1**	**L1**	**6M**
		UNIT-II			
3	**a**	Explain the cost estimation models	**CO2**	**L1**	**6M**
	b	Suppose that a project was estimated to be 400 KLOC. Calculate the effort , development time for each of the three modes (i.e., organic, semidetached and embedded and analyze.	**CO2**	**L6**	**6M**
		OR			
4	**a**	Differentiate functional and non-functional requirements.	**CO2**	**L2**	**6M**
	b	Write short notes on Data dictionary	**CO2**	**L2**	**6M**
		UNIT-III			
5	**a**	What is modularity? List the important properties of a modular system	**CO3**	**L1**	**6M**
	b	Demonstrate relationship between module cohesion and module coupling for process of good software design.	**CO3**	**L1**	**6M**
		OR			
6	**a**	If a module has logical cohesion, what kind of coupling is this module likely to have with others?	**CO3**	**L2**	**6M**
	b	Discuss the difference between object oriented designs and function oriented design.	**CO3**	**L6**	**6M**
		UNIT-IV			
7	**a**	What is software testing? What is the deference between verification and validation.	**CO4**	**L1**	**6M**
	b	Explain decision table based testing technique.	**CO4**	**L5**	**6M**
		OR			
8	**a**	Elaborate various types of structural testing technique.	**CO4**	**L5**	**6M**
	b	Summarize an effect graphing testing technique.	**CO4**	**L2**	**6M**
		UNIT-V			
9	**a**	What is regression testing? Differentiate between regression and development testing.	**CO5**	**L2**	**6M**
	b	Classify different categories of software documentation.	**CO5**	**L1**	**6M**
		OR			
10	**a**	Identify various software maintenance models and explain in details.	**CO5**	**L2**	**6M**
	b	Explain the phases of software maintenance with help of a diagram.	**CO5**	**L5**	**6M**

***** END *****

O.P.Code: 20CS0518	R20	H.T.No.									

SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY:: PUTTUR
(AUTONOMOUS)
B.Tech III Year I Semester Supplementary Examinations July/August-2024
SOFTWARE ENGINEERING
(CSE, CSM, CIC,CAD & CCC)

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

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

UNIT-I

1	a	Define Software and describe the characteristics of software	CO1	L3	6M
	b	What is Software Process? Distinguish any two Process Models.	CO1	L4	6M
		OR			
2	a	What is SDLC? How it is used in Software Development Process?	CO1	L3	6M
	b	What is Agile Process? How Extreme Programming (XP) is an effective agile Model? Explain with neat sketch.	CO1	L4	6M

UNIT-II

3	a	How to establish the groundwork for understanding of software requirements. Explain the steps in it.	CO2	L3	6M
	b	What is Functional and Non-Functional Requirements? How is collected and differentiated. Explain	CO2	L2	6M
		OR			
4	a	Discuss Domain analysis in detail with a neat sketch	CO2	L4	6M
	b	Differentiate Behavioral Model Vs Structural Model.	CO2	L2	6M

UNIT-III

5	a	Explain common characteristics in the evolution of software design.	CO3	L3	6M
	b	Describe a Design model with various kinds of elements.	CO3	L2	6M
		OR			
6	a	How Software Quality Guidelines is framed? List out the guidelines.	CO3	L4	6M
	b	Distinguish between Analysis Model and Design Model.	CO3	L2	6M

UNIT-IV

7	a	Briefly explain about User Interface Design Process	CO4	L3	6M
	b	Briefly explain about golden rules in the user interface design	CO4	L2	6M
		OR			
8	a	Examine the elements of component level design.	CO4	L3	6M
	b	Give detailed notes on architecture design.	CO4	L2	6M

UNIT-V

9	a	Distinguish between Verification and Validation with example.	CO5	L4	6M
	b	What is Software Testing? Why it is important before deploying the software	CO5	L2	6M
		OR			
10	a	Discriminate the strategic approach to software testing.	CO5	L2	6M
	b	Describe interclass test case design.	CO5	L4	6M

***** END *****

O.P.Code: 20EE0216	R20	H.T.No.

SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY:: PUTTUR
(AUTONOMOUS)
B.Tech III Year I Semester Supplementary Examinations July/August-2024
ELECTRICAL MEASUREMENTS AND INSTRUMENTATION
(Electrical and Electronics Engineering)

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

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

UNIT-I

1	a	Define the terms "Indicating instruments", "Recording instruments" and integrating Instruments". Give examples of each.	CO1	L1	8M
	b	What are the different types of Ammeters and Voltmeters?	CO1	L1	4M
		OR			
2	a	Explain Dynamometer type instruments with neat sketch.	CO1	L2	6M
	b	Derive torque equations of Dynamometer type instruments.	CO1	L3	6M

UNIT-II

3	a	Draw the circuit of a Kelvin"s double bridge used for measurement of low resistances. Derive the condition for balance.	CO2	L4	8M
	b	Explain how insulation resistance of a cable can be measured with a help of Loss of charge method?	CO2	L5	4M
		OR			
4	a	Justify how the inductance is measured in terms of known capacitance using Maxwell"s bridge.	CO2	L1	8M
	b	List the advantages and disadvantages of Maxwell"s Bridge.	CO2	L1	4M

UNIT-III

5	a	Derive the torque equation for single phase induction type energy meter.	CO2	L3	6M
	b	Explain driving system, moving system and braking system in a single phase induction.	CO2	L2	6M
		OR			
6	a	Explain with a neat sketch the construction and working of a Three phase energy meter.	CO2	L5	6M
	b	Explain the working of 2 element energy meter with a neat diagram.	CO2	L2	6M

UNIT-IV

7	a	Describe the construction and working of LVDT with a neat schematic.	CO2	L3	6M
	b	Explain the principle of operation of strain gauge and gauge factor.	CO2	L5	6M
		OR			
8	a	Discuss in detail about Thermistors.	CO2	L4	6M
	b	Describe the working principle of thermocouples.	CO2	L4	6M

UNIT-V

9	a	What are the uses of Ballistic Galvanometer?	CO2	L1	6M
	b	Describe the functions of attenuators in CRO.	CO2	L3	6M
		OR			
10		Explain the internal structure of CRT with a neat diagram.	CO2	L5	12M

*** END ***

O.P.Code: 20EC0417	R20	H.T.No.									

SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY:: PUTTUR

(AUTONOMOUS)

B.Tech III Year I Semester Supplementary Examinations July/August-2024

DIGITAL SIGNAL PROCESSING

(Electronics and Communications Engineering)

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

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

UNIT-I

1	a	Determine the 8 point DFT of the sequence $x(n) = \{1,1,1,1,1,1,1,0\}$.	CO1	L3	6M
	b	Explain the relationship between DFT with other transforms.	CO1	L2	6M
		OR			
2		Compute DFT of the sequence $x(n) = \{1,1,1,1,1,1,1,0\}$ using Radix-2 DIT FFT algorithm.	CO1	L3	12M

UNIT-II

3		Design a digital Butterworth IIR filter satisfying the following constraints. Let T=1s, apply Impulse Invariant Transformation. $0.8 \leq \lvert H(w)\rvert \leq 1 \quad ; 0 \leq w \leq 0.2\pi$ $\lvert H(w)\rvert \leq 0.2 \quad ; 0.32\pi \leq w \leq \pi$	CO2	L3	12M
		OR			
4	a	Explain the steps in the design of an analog Chebyshev low pass filter.	CO2	L2	8M
	b	Compare the Analog and Digital filters.	CO2	L2	4M

UNIT-III

5		Design an ideal High pass filter using Hanning window with the frequency response $H_d(e^{jw}) = 1 \quad for \ \frac{\pi}{4} \leq \lvert\omega\rvert \leq \pi$ $= 0 \qquad \lvert\omega\rvert \leq \frac{\pi}{4}$ Find the values of h (n) for N=11 and find H(z).	CO3	L3	12M
		OR			
6	a	Give the equations for Rectangular, Hanning and Hamming window and explain its significance	CO2	L2	6M
	b	Construct the cascade realization of the system function. $H(Z) = 1 + \frac{5}{2}Z^{-1} + 2\,Z^{-2} + 2Z^{-3}$	CO3	L3	6M

UNIT-IV

7	a	What is coefficient quantization error? Explain its effects with suitable examples.	CO4	L2	6M
	b	Explain the characteristics of limit cycle oscillation with respect to the system described by the difference equation $y(n) = \alpha y(n-1) + x(n)$. Assume $\alpha = \frac{1}{2}$ data register length is 3 bits, the system is excited by an input $x(n) = \begin{cases} 0.875 \ for \ n = 0 \\ 0 \ for \ otherwise \end{cases}$. Also, determine the dead band of the filter.	CO5	L3	6M
		OR			
8	a	Explain Signal scaling for second order IIR filter with necessary mathematical expressions	CO4	L2	6M
	b	What is meant by Overflow limit cycle oscillations? Explain with example.	CO4	L2	6M

UNIT-V

9	a	Explain the concept of overflow handling in TMS320C54x architecture.	CO6	L2	6M
	b	Explain the two categories of DSP's in detail.	CO6	L2	6M
		OR			
10		Draw the architecture of TMS320C50 and explain its important blocks.	CO6	L2	12M

O.P.Code: 20ME0316	R20	H.T.No.									

SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY:: PUTTUR

(AUTONOMOUS)

.Tech III Year I Semester Regular & Supplementary Examinations July/August-2024

METAL CUTTING AND MACHINE TOOLS

(Mechanical Engineering)

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

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

		UNIT-I			
1	**a**	Describe the basic elements in metal cutting with a neat sketch.	**CO1**	**L4**	**6M**
	b	Discuss about machining of metals.	**CO1**	**L2**	**6M**
		OR			
2		llustrate the formation of chip. Discuss the types of chips with neat sketches.	**CO1**	**L3**	**12M**
		UNIT-II			
3	**a**	Discuss about Merchant theory and derive the equation for minimum cutting force	**CO2**	**L3**	**6M**
	b	In orthogonal turning of a 60 mm diameter MS bar on a lathe, the following data were obtained: Rake angle 10°, cutting speed 120 m/min, feed 0.3mm/rev, cutting force 170 kg, feed force 65kg. Calculate the shear plane angle, coefficient of friction, cutting power, chip flow velocity and shear force, if chip thickness is 0.4mm.	**CO2**	**L4**	**6M**
		OR			
4		Describe the factors affecting tool life and give Taylor" tool life equation.	**CO2**	**L4**	**12M**
		UNIT-III			
5	**a**	Identify the common tools and attachments used on Turret and Capstan lathes.	**CO3**	**L3**	**6M**
	b	List the Turret lathe operations and explain any one operation with neat sketch.	**CO3**	**L2**	**6M**
		OR			
6		Name the different types of the lathes? Discuss the importance of the each lathe.	**CO3**	**L2**	**12M**
		UNIT-IV			
7		Draw the block diagram of a horizontal milling machine and explain various parts of it.	**CO4**	**L3**	**12M**
		OR			
8	**a**	List out various types of cutters, work holding and tool holding devices used in drilling machine	**CO4**	**L2**	**6M**
	b	Discuss about any four of the drilling operations with neat sketches.	**CO4**	**L3**	**6M**
		UNIT-V			
9		With a neat sketch, explain construction and working of tool and cutter grinding machine.	**CO5**	**L3**	**12M**
		OR			
10	**a**	What is grinding and types of grinding?	**CO5**	**L2**	**6M**
	b	Define the terms i) Grinding ii) Rough grinding and iii) Precision grinding.	**CO5**	**L1**	**6M**

***** END *****

O.P.Code: 20HS0813	R20	H.T.No.									

SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY:: PUTTUR

(AUTONOMOUS)

B.Tech III Year I Semester Supplementary Examinations July/August-2024

MANAGEMENT SCIENCE

(Open Elective-I)

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

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

UNIT-I

1		Elucidate the functions of anagement.	CO1	L2	12M
		OR			
2		What is scientific management and explain the contribution F.W Taylor in scientific Management?	CO1	L1	12M

UNIT-II

3		Define production and what are the different methods of production?	CO2	L3	12M
		OR			
4	a	Analyze the importance of marketing management.	CO2	L4	6M
	b	Discuss short notes on: i) Marketing mix. ii) Types of advertising.	CO2	L2	6M

UNIT-III

5		Explain the various On-the-Job and Off-the-Job training methods.	CO3	L2	12M
		OR			
6	a	Explain about recruitment. What are the various internal and external sources of recruitment?	CO3	L2	6M
	b	What are the steps involved in setting up grievance redressal mechanism?	CO3	L1	6M

UNIT-IV

7	a	What is environmental scanning? Explain Internal environment by taking an example?	CO4	L1	6M
	b	Express the process of strategy formulation and implementation.	CO4	L2	6M
		OR			
8		From the following data: i) Draw the network ii) Identify critical path iii) Find out the duration of the project.	CO4	L6	12M

Activity	1-2	2-3	2-4	3-5	4-5	5-6
Duration (in days)	3	5	6	5	6	4

UNIT-V

9	a	How does Just-InTime (JIT) help in reducing costs?	CO5	L2	6M
	b	Evaluate the importance of Total Quality Management(TQM).	CO5	L4	6M
		OR			
10		Justify the statement "Performance management is a tool to develop management efficiency"	CO5	L5	12M

***** END *****

O.P.Code: 20EC0451	R20	H.T.No.									

SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY:: PUTTUR

(AUTONOMOUS)

B.Tech III Year I Semester Supplementary Examinations July/August-2024

INTRODUCTION TO COMMUNICATION SYSTEMS

(Open Elective – I)

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

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

		UNIT-I			
1	**a**	Define Communication and draw the basic block diagram of Communication system.	**CO1**	**L1**	**4M**
	b	Explain the function of each block of communication system.	**CO1**	**L2**	**8M**
		OR			
2	**a**	Explain shortly about i) Sidebands ii) Justify the reason for selecting the DSB-SC over DSB FC.	**CO3**	**L3**	**4M**
	b	A modulating signal 10 cos $(2\pi \times 10^3 t)$ is used to modulate a carrier signal 20 cos $(2\pi \times 10^4 t)$. Compute the modulation index, % of modulation index, frequency of side band components and their amplitudes. What will be the band width of modulated signal?	**CO3**	**L3**	**8M**
		UNIT-II			
3	**a**	Explain the generation of NBFM and WBFM.	**CO2**	**L2**	**6M**
	b	What are the advantages, disadvantages, and applications of FM.	**CO2**	**L1**	**6M**
		OR			
4	**a**	Explain briefly about Phase Modulation with necessary waveforms.	**CO2**	**L2**	**6M**
	b	Derive the expression of modulation index of Phase modulation.	**CO2**	**L3**	**6M**
		UNIT-III			
5	**a**	Explain briefly about Signal to Noise Ratio.	**CO1**	**L2**	**6M**
	b	Calculate the input signal to noise ratio for an amplifier with an output signal to noise ratio of 16 dB and a noise figure of 5.4 dB.	**CO1**	**L4**	**6M**
		OR			
6	**a**	Define pulse modulation and different types of pulse modulation in analog and digital communication.	**CO4**	**L4**	**6M**
	b	Compare PAM, PWM and PPM techniques.	**CO4**	**L4**	**6M**
		UNIT-IV			
7	**a**	Explain DPCM system with neat diagram.	**CO4**	**L2**	**6M**
	b	What are the advantages & disadvantages of DPCM.	**CO4**	**L1**	**6M**
		OR			
8	**a**	Draw the block diagram of ASK modulator and demodulator and Explain the operation.	**CO6**	**L1**	**6M**
	b	Explain with suitable wave forms Amplitude Shift Keying.	**CO6**	**L2**	**6M**
		UNIT-V			
9	**a**	Explain cellular telephone system.	**CO5**	**L2**	**6M**
	b	Discuss about frequency division duplexing in wireless communication.	**CO6**	**L2**	**6M**
		OR			
10	**a**	Explain the multiple access schemes for wide band systems.	**CO6**	**L2**	**6M**
	b	Draw the TDMA frame structure and briefly explain the fields.	**CO6**	**L1**	**6M**

***** END *****

O.P.Code: 20EE0227	R20	H.T.No.									

SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY:: PUTTUR
(AUTONOMOUS)
B.Tech III Year I Semester Supplementary Examinations July/August-2024
GENERATION OF ENERGY FROM WASTE
(Open Elective – I)

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

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

UNIT-I

1	a	What is agro based waste?	CO1	L3	2M
	b	Discuss the agro based waste briefly.	CO1	L3	10M

OR

2		What is industrial waste? What are the effects of industrial waste? What are the management of industrial waste?	CO1	L2	12M

UNIT-II

3		Explain the following types of charcoal production process. (i) Earth kiln (ii) Brick kiln (iii) Steel kiln	CO3	L2	12M

OR

4		Discuss various applications and yields of pyrolytic oils in detail.	CO2	L2	12M

UNIT-III

5		Explain the design, construction and operation of updraft gasifier.	CO4	L3	12M

OR

6		Draw the gasifier engine arrangement for production of Electric power and explain the methodology.	CO4	L3	12M

UNIT-IV

7		Explain the desig, construction and operation of fixed bed combustor	CO5	L2	12M

OR

8		What is meant by exotic design of biomass stove? Explain in detail	CO5	L2	12M

UNIT-V

9		Explain the design, constructional features of biogas plant technology.	CO6	L2	12M

OR

10		Write short notes on (i) Urban waste to Energy conversion (ii) Biomass energy programme	CO6	L2	12M

*** END ***

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

SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY:: PUTTUR
(AUTONOMOUS)
B.Tech III Year I Semester Supplementary Examinations July/August-2024
NON-CONVENTIONAL ENERGY RESOURCES
(Open Elective – I)

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

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

UNIT-I

1	a	Define Conventional and Non-Conventional energy with examples.	CO1	L1	6M
	b	Outline the merits and demerits of Conventional energy sources?	CO1	L2	6M
		OR			
2	a	Identify the environmental consequences of oil fuel usage.	CO1	L3	6M
	b	Define direct radiation and diffused radiation with a neat sketch.	CO1	L1	6M

UNIT-II

3	a	Explain Solar Radiation.	CO2	L2	6M
	b	Outline the challenges and remedies associated in the use of solar energy.	CO2	L2	6M
		OR			
4	a	List out the major functions ofsolar thermal conversion systems.	CO2	L1	6M
	b	Classify the solar collectors and explain them.	CO2	L4	6M

UNIT-III

5	a	Differentiate between HAWT and VAWT.	CO3	L4	6M
	b	Discuss about Savonius wind turbine with neat sketch.	CO3	L2	6M
		OR			
6		Describe the factors to be considered in the selection of site for wind turbines.	CO3	L2	12M

UNIT-IV

7	a	Explain about biomass direct combustion.	CO4	L2	6M
	b	Name various strokers used for the combustion of biomass and explain anyone with a neat figure.	CO4	L1	6M
		OR			
8	a	Describe the working of Spreader stroker with a neat sketch.	CO4	L1	6M
	b	Evaluate the need of Fluidized Bed Combustion and explain it with a neat diagram.	CO4	L5	6M

UNIT-V

9	a	List out the merits and demerits of hydrogen energy.	CO5	L4	6M
	b	Explain the hydrogen production through Electrolysis process.	CO5	L2	6M
		OR			
10		Explain the working of a fuel cell and their applications.	CO5	L2	12M

*** END ***

O.P.Code: 20CS1201	R20	H.T.No.									

23.07.24 (FN)

SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY:: PUTTUR
(AUTONOMOUS)
B.Tech III Year I Semester Supplementary Examinations July/August-2024
INTRODUCTION TO CLOUD COMPUTING
(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	Define Cloud Computing.	CO1	L1	2M
	b	Draw and explain the cloud architecture.	CO1	L2	10M
		OR			
2	a	What is SOA? Describe with its architecture.	CO1	L2	6M
	b	Explain the Cloud Computing Stack.	CO1	L2	6M

UNIT-II

3		Define service model. Determine the service models in cloud computing.	CO2	L3	12M
		OR			
4		Illustrate the Life Cycle of Service Level Agreement with neat diagram.	CO2	L3	12M

UNIT-III

5	a	What do you understand by Virtualization.	CO3	L1	4M
	b	Explain in detail different implementation level of virtualization.	CO3	L2	8M
		OR			
6	a	Describe virtual clusters with its advantages.	CO3	L2	6M
	b	Explain the resource management in virtual clusters.	CO3	L2	6M

UNIT-IV

7		Explain Multi-tenancy using cloud.	CO4	L4	12M
		OR			
8	a	Explain the concept Bigtable.	CO4	L4	6M
	b	Explain the concept HBase.	CO4	L4	6M

UNIT-V

9	a	Analyze the aspects of data security.	CO5	L4	6M
	b	Explain about provider data and its security.	CO5	L2	6M
		OR			
10		Explain the key issues in the cloud.	CO5	L2	12M

***** END *****

O.P.Code: 20EC0415	R20	H.T.No.									

SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY:: PUTTUR
(AUTONOMOUS)
B.Tech III Year I Semester Supplementary Examinations July/August-2024
ELECTROMAGNETIC THEORY AND TRANSMISSION LINES
(Electronics & Communications Engineering)

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

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

UNIT-I

1	a	Define Electric field intensity and write the properties electric flux.	CO1	L3	6M
	b	A Point charge of 20nC is located at the origin. Determine the magnitude and direction of the electric field intensity at point (1,3,-4).	CO1	L3	6M
		OR			
2	a	Determine the Electric flux density at a point P due to infinite line charge of uniform Charge density ρ_L C/m using Gauss law.	CO2	L3	6M
	b	Determine the Electric flux density at a point P due to infinite sheet of Charge using Gauss law.	CO2	L3	6M

UNIT-II

3	a	Explain Biot-Savart's Law.	CO1	L2	6M
	b	A Positive Y-axis (Semi Infinite Line with respect to the Origin) Carries a Filamentary Current of 2 A in the $-a_y$ Direction. Assume it is part of a large circuit. Find H at (i) A(2,3,0). (ii) B(3,12,-4).	CO2	L3	6M
		OR			
4	a	Explain about Non-Existence of Magnetic Mono pole.	CO2	L2	6M
	b	Determine Maxwell's Equations for static EM Fields.	CO2	L3	6M

UNIT-III

5	a	Determine the Transformer EMF for the time varying fields.	CO4	L3	6M
	b	Explain the motional EMF and derive the expression for the maxwell equation.	CO4	L3	6M
		OR			
6	a	Prove that the Maxwell's equation is $\nabla \times E = -dB/dt$.	CO5	L5	6M
	b	In free space, H= 10 sin(ωt-100x)ay A/m. Calculate E.	CO4	L3	6M

UNIT-IV

7	a	Evaluate the wave equation in lossy dielectric medium for sinusoidal time variations.	CO5	L4	6M
	b	Evaluate the wave characteristics of plane wave in lossless dielectric medium.	CO5	L4	6M
		OR			
8		Evaluate the expressions for reflection coefficient and transmission coefficient by a normal incident wave for a dielectric medium.	CO5	L4	12M

UNIT-V

9	a	A distortion less line has Z0=60 Ω Attenuation constant = 20 mNp/m and u=0.6c (c is velocity of light) Find the primary parameters of the transmission line (R L C G and λ) at 100MHz.	CO6	L3	6M
	b	A telephone line has the following parameters: R=30Ω/km, G =0 L = 100mH/km, C = 20μF/m. At 1kHz, Find the characteristic impedance, propagation constant and velocity of the signal.	CO6	L3	6M
		OR			
10		A low loss transmission line of 100 Ω characteristics impedance is connected to a load of 200 Ω. Compute the voltage reflection coefficient and the standing wave ratio.	CO6	L3	6M
	b	Explain about S-Circle, r-Circle and x-Circle in smith chart.	CO6	L2	6M

***** END *****

O.P.Code: 20CS1011 | R20 | H.T.No.

SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY:: PUTTUR
(AUTONOMOUS)
B.Tech III Year I Semester Supplementary Examinations July/August-2024
CRYPTO CURRENCY& INTRODUCTION TO BLOCKCHAIN TECHNOLOGY
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 about Zero Knowledge Proof.	CO1	L5	12M
		OR			
2	a	Explain about Byzantine General Problem.	CO1	L5	6M
	b	Write about ASIC resistance.	CO1	L3	6M

UNIT-II

3	a	Compare public and private blockchain?	CO2	L3	6M
	b	Describe the benefits of blockchain.	CO2	L6	6M
		OR			
4	a	How does Blockchain differ from relational databases?	CO2	L1	6M
	b	Compare public and private blockchain?	CO2	L3	6M

UNIT-III

5	a	Explain Consensus algorithm?	CO3	L2	6M
	b	Explain the model used in the Sybil Attack.	CO3	L2	6M
		OR			
6		Explain Proof-of-Burn in detail.	CO3	L2	12M

UNIT-IV

7	a	How can you choose a Bitcoin wallet?	CO4	L5	7M
	b	What is a Bitcoin wallet?	CO4	L1	5M
		OR			
8		Explain the construction of Ethereum.	CO4	L2	12M

UNIT-V

9		Write in detail about Cryptocurrency Regulation	CO5	L3	12M
		OR			
10		Explain Black Market and Global Economy in detail.	CO5	L2	12M

***** END *****

O.P.Code: 20CS0533	R20	H.T.No.									

SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY:: PUTTUR

(AUTONOMOUS)

B.Tech III Year I Semester Supplementary Examinations July/August-2024

CYBER SECURITY

(Computer Science & Information Technology)

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

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

		UNIT-I			
1	a	Define cybercrime.List out various cyber crimes.	CO1	L1	6M
	b	Explain the objectives of Information Security Management in brief.	CO1	L2	6M
		OR			
2	a	Illustrate Cybercrimes Cases of Various Categories under IPC Section.	CO1	L3	6M
	b	Classify global perspectives on cybercrimes.	CO1	L4	6M
		UNIT-II			
3	a	Explain how Cyber Criminals plan the attacks.	CO2	L2	6M
	b	Differentiate Human based social engineering with Computer based social engineering.	CO2	L3	6M
		OR			
4	a	Discuss about how the BOTNETS acts as Fuel for Cybercrime in detail.	CO2	L2	6M
	b	Describe the security challenges and security measures in Cloud Computing.	CO2	L2	6M
		UNIT-III			
5	a	Summarize the Proliferation of Mobile and Wireless Devices.	CO3	L2	6M
	b	Distinguish Malwares, viruses and worms.	CO3	L4	6M
		OR			
6	a	Explain the steps used in authentication service security.	CO3	L2	6M
	b	Discuss various threats on mobile or cell phones.	CO3	L2	6M
		UNIT-IV			
7	a	Outline the purpose of proxy Server in detail.	CO4	L2	6M
	b	What is a key logger? Explain how it is harmful to the users.	CO4	L2	6M
		OR			
8	a	What is Phishing attack? Justify Phishing attacks with an example	CO4	L5	6M
	b	Apply the concept of Denial of Service with an example and Explain.	CO4	L6	6M
		UNIT-V			
9	a	List out the security and privacy implications in detail.	CO5	L1	6M
	b	What is IPR? Describe various issues in IPR.	CO5	L2	6M
		OR			
10	a	Illutrate the security risks in cyber security .	CO5	L3	6M
	b	Demonstrate the social computing for organizations.	CO5	L2	6M

***** END *****

O.P.Code:20EE0219	R20	H.T.No.									

SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY:: PUTTUR

(AUTONOMOUS)

B.Tech III Year I Semester Supplementary Examinations July/August-2024

ELECTRICAL DISTRIBUTION AND AUTOMATION

(Electrical & Electronics Engineering)

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

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

UNIT-I

1		Draw a schematic single line diagram of an electrical distribution system and Explain its typical parts in detail.	CO1	L1	12M
		OR			
2		Classify different types of loads present in distribution system and explain their characteristics?	CO1	L2	12M
		UNIT-II			
3		A single phase distributor 2 kilometers long supplies a load of 120 A at 0.8 p.f. lagging at its far end and a load of 80 A at 0.9 p.f. lagging at its mid-point. Both power factors are referred to the voltage at the far end. The resistance and reactance per km (go and return) are 0.05 Ω and 0.1 Ω respectively. If the voltage at the far end is maintained at 230 V, calculate:(i) Voltage at the sending end (ii) Phase angle between voltages at the two ends.	CO2	L4	12M
		OR			
4	a	Explain connection schemes of distribution system and give the advantages disadvantages.	CO2	L3	6M
	b	Explain about Primary distribution systems.	CO1	L2	6M
		UNIT-III			
5	a	What is solid grounding. List out its advantages and disadvantages	CO3	L1	6M
	b	What is resistance grounding. List out its advantages and disadvantages.	CO3	L1	6M
		OR			
6		Explain different types of bus bar arrangements with neat sketch? And give the advantages Disadvantages.	CO3	L1	12M
		UNIT-IV			
7	a	Define power factor ? explain voltage and current relationship for different loads.	CO4	L1	6M
	b	List the various causes of low power factor and explain in brief.	CO4	L1	6M
		OR			
8	a	Explain the effect of shunt compensation on distribution system?	CO4	L1	6M
	b	How do you justify economically the connection of capacitors for the improvement of P.F.	CO4	L4	6M
		UNIT-V			
9		Explain the distribution system Project planning with diagram.	CO5	L3	12M
		OR			
10		Explain about Supervisory Control and Data Acquisition?	CO6	L1	12M

***** END *****

O.P.Code: 20CS0537	R20	H.T.No.									

SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY:: PUTTUR
(AUTONOMOUS)
B.Tech III Year I Semester Supplementary Examinations July/August-2024
CLOUD COMPUTING
CSE(Artificial Intelligence & DataScience)

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

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

UNIT-I

1	a	Explain in detail evolution of distributed computing.	CO1	L3	6M
	b	Differentiate between parallel and distributed computing Paradigms.	CO1	L2	6M
		OR			
2	a	Illustrate the evolution of scalable computing technology.	CO1	L4	6M
	b	List and discuss the technology for network based system.	CO1	L2	6M

UNIT-II

3	a	Define service model. Determine the service models in cloud computing.	CO2	L3	6M
	b	Illustrate in detail Infrastructure as a Service.	CO2	L2	6M
		OR			
4	a	Compare the Iaas and Pass and Saas.	CO2	L4	6M
	b	Why SLA is important in cloud computing. Express your opinion.	CO2	L2	6M

UNIT-III

5	a	Explain in detail different implementation level of virtualization.	CO3	L2	6M
	b	Illustrate the virtualization structures available with neat diagram.	CO3	L2	6M
		OR			
6	a	List out the benefits of Virtualization.	CO3	L3	6M
	b	Compare and explain full virtualization and para virtualization.	CO3	L2	6M

UNIT-IV

7	a	Explain about Authentication Methods.	CO4	L4	6M
	b	Compare the Network, Host and Application Level of security.	CO4	L2	6M
		OR			
8	a	List and describe the common types of attacks happen in Network, Host and Application Levels.	CO4	L4	6M
	b	Describe in detail about the IAM architecture with neat diagram.	CO4	L2	6M

UNIT-V

9	a	State the mobile cloud computing definitions by MCC Forum and NIST.	CO5	L3	6M
	b	Illustrate a typical mobile cloud computing environment.	CO5	L2	6M
		OR			
10	a	Differentiate Cloud computing and Mobile cloud computing.	CO5	L4	6M
	b	List and describe Benefits of mobile cloud computing.	CO5	L2	6M

***** END *****

O.P.Code: 20CS0531 | R20 | H.T.No.

SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY:: PUTTUR
(AUTONOMOUS)
B.Tech III Year I Semester Supplementary Examinations July/August-2024
SOFT COMPUTING
(Common to CSE & CSM)

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

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

UNIT-I

1	a	Explain McCulloch and Pitts Neuron Model.	CO1	L2	6M
	b	Demonstrate how ANDNOT function is implemented in M-P Neuron Model.	CO1	L3	6M
		OR			
2	a	List out the different Learning rules and terminology in ANN.	CO1	L2	4M
	b	Describe Hebbian Network in Artificial Neural Network.	CO1	L2	8M
		UNIT-II			
3	a	Generalize the Adaptive Resonance Theory Neural Network.	CO2	L6	8M
	b	Identify some applications of ART Model.	CO2	L2	4M
		OR			
4	a	Illustrate the Support Vector Machine.	CO2	L3	8M
	b	List out the Applications of SVM.	CO2	L1	4M
		UNIT-III			
5	a	Describe the various fuzzy composition relations with suitable examples.	CO3	L2	8M
	b	Differentiate classical relations and Fuzzy relations.	CO3	L4	4M
		OR			
6	a	Demonstrate the membership functions in fuzzy logic.	CO4	L3	6M
	b	Define Fuzzification and explain membership value assignment in fuzzy logic.	CO4	L2	6M
		UNIT-IV			
7	a	How Fitness Function can be evaluated in Genetic Algorithm?	CO5	L1	4M
	b	Describe various Encoding Techniques of Genetic algorithm.	CO5	L2	8M
		OR			
8	a	List out the different reproduction and inheritance operators in GA.	CO5	L2	6M
	b	Identify the Advantages and Disadvantages of Genetic Algorithm.	CO5	L2	6M
		UNIT-V			
9	a	Illustrate Neuro-Genetic hybrid systems with neat diagram.	CO6	L3	8M
	b	Explain the advantages and disadvantages of Neuro-genetic hybrid Systems.	CO6	L2	4M
		OR			
10	a	Draw the Architecture of Fuzzy Back propagation. Explain it.	CO6	L2	6M
	b	Describe LR Type Fuzzy numbers.	CO6	L2	6M

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O.P.Code: 20ME0329	R20	H.T.No.									

SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY:: PUTTUR
(AUTONOMOUS)
B.Tech III Year I Semester Supplementary Examinations July/August-2024
INDUSTRIAL ENGINEERING AND MANAGEMENT
(Mechanical Engineering)

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

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

		UNIT-I			
1	a	Summarize the important characteristics of management.	CO1	L2	6M
	b	Compare Douglas McGregor's Theory X and Theory Y.	CO1	L2	6M
		OR			
2	a	How do you classify the organizational structures? List out its characteristics.	CO1	L1	6M
	b	Define Management and Administratio.	CO1	L1	6M
		UNIT-II			
3		How do you classify the plant layouts? Give a critical appraisal for each of them.	CO2	L1	12M
		OR			
4		Explain with neat sketch about the process layout and product layout along its merits and demerits.	CO2	L2	12M
		UNIT-III			
5	a	Define Work Study and also state its objectives.	CO3	L1	6M
	b	Compare Method Study and Work Measurement.	CO3	L2	6M
		OR			
6		What is performance rating? Discuss about various methods of performance rating with an example.	CO3	L6	12M
		UNIT-IV			
7	a	Explain briefly the following opinion survey methods of forecasting: (i) Sales force opinion survey method (ii) End-use method.	CO4	L2	6M
	b	What are the exceptions to the law of Demand?	CO4	L1	6M
		OR			
8		Discuss in detail about the pricing strategies.	CO4	L6	12M
		UNIT-V			
9		Describe the scope, merits and demerits of Supply Chain management.	CO5	L2	12M
		OR			
10		Classify the supply chain models adopted in business and explain them in detail.	CO5	L4	12M

***** END *****

O.P.Code: 20CE0136	R20	H.T.No.									

SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY:: PUTTUR

(AUTONOMOUS)

B.Tech III Year I Semester Supplementary Examinations July/August-2024

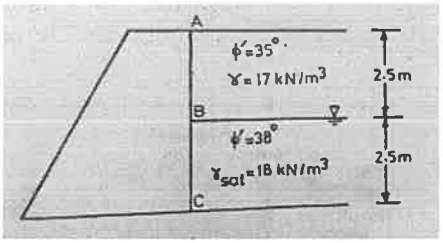
FOUNDATION ENGINEERING

(Civil Engineering)

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

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

UNIT-I

1		Determine the active pressure on the retaining wall as shown in fig. Take γ_w=10kN/m^3. 	CO1	L3	12M
		OR			
2		Derive expression for Rehbann's method for the determination of active earthpressure with neat sketch.	CO1	L3	12M

UNIT-II

3	a	List out various parameters for choice of type of foundation.	CO2	L1	6M
	b	Write various points to consider for fixing depth of foundation.	CO2	L1	6M
		OR			
4		A strip footing of 2m width is founded at a depth of 4m below the ground surface. Determine the net ultimate bearing capacity, using a)Terzaghi'sequation (N_c=5.7, Nγ=1.0, Nq=0.0) b) Skempton'sequation c) IS Code (N_c=5.14). The soil is clay (φ=0^0, C-10kN/m^2). The unit weight of soil is 20kN/m^3.	CO2	L3	12M

UNIT-III

5		How would you estimate the load carrying capacity of a pile in (a) cohesionlesssoils (b) Cohesivesoils by using static methods?	CO3	L2	12M
		OR			
6		Explain in detail In-situ penetration tests for pile capacity.	CO4	L1	12M

UNIT-IV

7		Explain various steps involved in sinking operation of wells with neat sketch.	CO5	L2	12M
		OR			
8		What are the advantages and disadvantages of pneumatic caisson over open caisson?	CO5	L1	12M

UNIT-V

9		Explain in detail Rowe's moment reduction curves.	CO6	L2	12M
		OR			
10		What are different anchors used in sheet pile walls? Explain the design of anchor pates and beams with neat sketch.	CO6	L2	12M

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O.P.Code: 20CS0901	R20	H.T.No.									

SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY:: PUTTUR
(AUTONOMOUS)
B.Tech III Year I Semester Supplementary Examinations July/August-2024
FUNDAMENTALS OF ARTIFICIAL INTELLIGENCE
(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 the role of AI in Education and Finance.	CO1	L1	6M
	b	Explain the role of AI in Online and telephone customer service.	CO1	L2	6M
		OR			
2	a	Outline the current trends in Artificial Intelligence.	CO1	L2	6M
	b	How AI evolve over Tic – Tac – Toe Game Playing? Deduce with an example.	CO1	L4	6M
		UNIT-II			
3	a	What are the general steps in Problem Solving? Explain in detail why it is used in Artificial Intelligence.	CO2	L4	6M
	b	Explain in detail about the Process in Control Strategies.	CO2	L2	6M
		OR			
4	a	Write a short note on Problem Reduction "AND-OR" graphs with an example.	CO3	L1	6M
	b	Prepare a Graph tree for Minimax Search Procedure and explain it in detail with an example.	CO3	L3	6M
		UNIT-III			
5	a	How representation of Simple Facts in Logic is done? Explain.	CO4	L2	6M
	b	What are the Uses of predicate logic? Make use of it and analyze the how it can create Resolution for it.	CO4	L3	6M
		OR			
6		Explain in detail about Natural Deduction system with an example.	CO4	L2	12M
		UNIT-IV			
7	a	Distinguish Inferential Knowledge Vs Procedural Knowledge	CO5	L4	6M
	b	How non binary predicates are represented using semantic net. Explain with suitable example.	CO5	L2	6M
		OR			
8	a	Why Case Grammars are used in Knowledge Representation? Explain	CO5	L4	6M
	b	Why Semantic Web is used in Knowledge Representation? Explain.	CO5	L4	6M
		UNIT-V			
9	a	Describe the phases of developing an Expert system.	CO6	L2	6M
	b	Distinguish Expert system and Traditional system.	CO6	L2	6M
		OR			
10	a	What is Dempster Shafer Theory? List out its Characteristics, Advantages and Disadvantages.	CO6	L1	6M
	b	What is Blackboard System Approach in AI. Why it is considered as Expert System Model?	CO6	L4	6M

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O.P.Code: 20EC0430	R20	H.T.No.									

SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY:: PUTTUR
(AUTONOMOUS)
B.Tech III Year I Semester Supplementary Examinations July/August-2024
ELECTRONIC MEASUREMENTS AND INSTRUMENTATION
(Electronics & Communications Engineering)

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

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

		UNIT-I			
1	a	Describe in brief about the Dynamic characteristics of an instrument.	CO2	L2	6M
	b	For the following measured data $X_1 = 49.7$; $X_2 = 50.1$; $X_3 = 50.2$; $X_4 = 49.6$; $X_5 = 49.7$, calculate (i) Arithmetic mean (ii) Deviation of each value (iii) Algebraic sum of the Deviations.	CO1	L3	6M
		OR			
2	a	Explain how a multimeter can be used as (i) DC voltmeter and (ii) AC voltmeter	CO2	L2	6M
	b	Describe the construction and working of a Multimeter using a neat circuit diagram.	CO2	L1	6M
		UNIT-II			
3	a	With neat sketch, explain in detail about Horizontal amplifier.	CO2	L2	6M
	b	Draw the block diagram of Delay line circuit and explain its working.	CO1	L2	6M
		OR			
4		With the neat sketch, explain the working principle of Dual beam oscilloscope.	CO1	L2	12M
		UNIT-III			
5	a	Define Oscillator and Explain in detail about fixed and variable AF oscillators.	CO4	L2	6M
	b	List the Specifications of function generator.	CO3	L1	6M
		OR			
6	a	Explain the working principle of Harmonic distortion analyzer.	CO3	L2	6M
	b	Write a short note on distortions caused by Amplifiers.	CO3	L2	6M
		UNIT-IV			
7	a	Derive an expression of frequency measurement using Wein's Bridge.	CO3	L3	6M
	b	A Wein bridge circuit consists of the following: R_1=4.7KΩ, C_1=5nf, R_2=20KΩ, C_3=10nf, R_3=10KΩ, R_4=100KΩ. Determine the frequency of the circuit.	CO4	L3	6M
		OR			
8	a	Derive the expression of unknown resistance of a Schering bridge circuit.	CO4	L3	6M
	b	An A.C bridge has Arm AB-capacitor of 0.2μF in parallel with 3kΩ resistor, Arm AD-resistance of 5kΩ, Arm BC capacitor of 0.15 μF, Arm CD-unknown capacitor Cx and Rx in series f-3KHz.Determine the unknown capacitance.	CO4	L3	6M
		UNIT-V			
9	a	Write a short notes on Measurement of Displacement using Resistive transducers.	CO5	L2	6M
	b	Discuss in brief about Sensors and Transducers.	CO1	L2	6M
		OR			
10	a	Explain about thermocouple. List its advantages and applications.	CO3	L2	6M
	b	Discuss in brief about Moving Coil type Velocity transducers.	CO1	L2	6M

***** END *****