O.P.Code: 20CS0516	R20	H.T.No.									

SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY:: PUTTUR

(AUTONOMOUS)

B.Tech. III Year I Semester Supplementary Examinations June/July-2025

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	Describe about different language processors used in compiler design.	CO1	L2	6M
	b	Give the differences between compiler and interpreter.	CO1	L4	6M

OR

2	a	Discuss the compiler construction tools.	CO3	L2	6M
	b	Differentiate tokens, patterns, and lexemes.	CO1	L4	6M

UNIT-II

3	a	Define Ambiguity.	CO1	L1	6M
	b	Interpret how to eliminate ambiguity for the given ambiguous grammar.	CO1	L3	6M

OR

4	a	Discuss the types of errors.	CO2	L2	6M
	b	Explain Error recovery in predictive parsing with an Example.	CO2	L2	6M

UNIT-III

5	a	Explain about handle pruning.	CO1	L2	6M
	b	Summarize SLR parsing.	CO1	L2	6M

OR

6	a	Give the evaluation order of SDD with an example.	CO2	L5	6M
	b	Discuss type checking with suitable examples.	CO4	L2	6M

UNIT-IV

7		Analyse different types of intermediate code with an example.	CO5	L4	12M

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		Interpret optimization techniques on basic blocks with simple example.	CO5	L3	12M

OR

10	a	Analyze simple code generator.	CO6	L4	6M
	b	Evaluate register allocation and register assignment techniques.	CO6	L5	6M

***** END *****

O.P.Code: 20CS1101	R20	H.T.No.									

SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY:: PUTTUR

(AUTONOMOUS)

B.Tech. III Year I Semester Supplementary Examinations June/July-2025

INTRODUCTION TO 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**	Define Data Science and discuss Benefits and uses of data science.	**CO1**	**L1**	**6M**
	b	Discuss the Various Processing Steps in Data Science.	**CO1**	**L2**	**6M**
		OR			
2		Discuss in detailed Data Cleaning operation in data science.	**CO1**	**L2**	**12M**
		UNIT-II			
3	**a**	Differentiate Null Hypotheses and Alternative Hypotheses.	**CO2**	**L4**	**6M**
	b	Examine the application property of Wilcoxon rank-sum test.	**CO2**	**L3**	**6M**
		OR			
4	**a**	List and discuss the four measures of significance of Association rules.	**CO2**	**L1**	**6M**
	b	Give the Applications of Association Rules.	**CO2**	**L1**	**6M**
		UNIT-III			
5	**a**	Justify the usage of linear regression and logistic regression.	**CO3**	**L6**	**4M**
	b	Illustrate Logistic Regression Model.	**CO3**	**L3**	**8M**
		OR			
6	**a**	Compare the C4.5 and CART algorithm of decision tree.	**CO4**	**L4**	**4M**
	b	Discriminate the way show the evaluation of decision tree is done	**CO4**	**L5**	**4M**
	c	Give the two approaches that help avoid over fitting in decision tree learning.	**CO4**	**L2**	**4M**
		UNIT-IV			
7	**a**	What is clustering?	**CO5**	**L1**	**6M**
	b	State the advantage of using PAM.	**CO5**	**L1**	**6M**
		OR			
8	**a**	What is meant by k-means.	**CO5**	**L1**	**4M**
	b	Describe k-means algorithm to find k clusters.	**CO5**	**L2**	**8M**
		UNIT-V			
9		Explain how the data science team will categorize the reviews by topics.	**CO6**	**L2**	**12M**
		OR			
10	**a**	What is meant by sentiment analysis.	**CO6**	**L1**	**4M**
	b	Discriminate the methods used for sentiment analysis.	**CO6**	**L5**	**8M**

***** END *****

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

SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY:: PUTTUR

(AUTONOMOUS)

B.Tech. III Year I Semester Supplementary Examinations June/July-2025

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**	Differentiate between parallel and distributed computing Paradigms.	**CO1**	**L2**	**6M**
	b	Illustrate the evolution of scalable computing technology.	**CO1**	**L2**	**6M**
		OR			
2	**a**	Define cluster computing.	**CO1**	**L1**	**6M**
	b	Discuss in detail about clusters of cooperative computers with neat diagram.	**CO1**	**L2**	**6M**
		UNIT-II			
3	**a**	Analyze the Public Cloud and Private Cloud.	**CO2**	**L4**	**6M**
	b	Write Short note on Hybrid Cloud.	**CO2**	**L1**	**6M**
		OR			
4	**a**	Express Pros in Cloud Computing.	**CO2**	**L2**	**6M**
	b	Analyze Cons in Cloud Computing.	**CO2**	**L4**	**6M**
		UNIT-III			
5	**a**	Describe virtual clusters with its advantages.	**CO3**	**L2**	**6M**
	b	Explain the resource management in virtual clusters.	**CO3**	**L2**	**6M**
		OR			
6		Analyse the virtualization for data center automation.	**CO3**	**L4**	**12M**
		UNIT-IV			
7	**a**	Explain the concept Bigtable.	**CO4**	**L2**	**6M**
	b	Explain the concept HBase.	**CO4**	**L2**	**6M**
		OR			
8		Explain GFS in Cloud based system.	**CO4**	**L2**	**12M**
		UNIT-V			
9	**a**	Explain about Authentication Methods.	**CO5**	**L2**	**6M**
	b	Interpret the various Authorization Methods.	**CO5**	**L3**	**6M**
		OR			
10	**a**	Analyze the aspects of data security.	**CO5**	**L4**	**6M**
	b	Explain about provider data and its security.	**CO5**	**L5**	**6M**

***** END *****

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

SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY:: PUTTUR

(AUTONOMOUS)

B.Tech. III Year I Semester Supplementary Examinations June/July-2025

ELECTROMAGNETIC THEORY AND TRANSMISSION LINES

(Electronics and Communications Engineering)

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

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

		UNIT-I			
1	a	Estimate the electric field Intensity due to Surface charge	CO1	L4	6M
	b	Apply Gauss Law to evaluate the electric flux density at a point P due to the point charge located at the origin.	CO2	L3	6M
		OR			
2	a	Determine the Relationship between E and V.	CO2	L3	6M
	b	A point charge Q= 30 nC is located at the origin in Cartesian co-ordinates. Find the electric flux density D at (1,3,-4).	CO3	L2	6M
		UNIT-II			
3		Find the Magnetic field Intensity Due to a Straight current carrying filamentary conductor of finite length.	CO2	L3	12M
		OR			
4	a	Explain about Non-Existence of Magnetic Mono pole.	CO2	L2	6M
	b	Determine the Magnetic Field Density due to Infinite line Current by applying Ampere's Circuit law.	CO2	L3	6M
		UNIT-III			
5	a	Determine the Transformer EMF for the time varying fields.	CO3	L3	6M
	b	Prove that one of the Maxwell's equations is $\nabla \times H = Jd + J$.	CO3	L5	6M
		OR			
6	a	Analyse Why ampere's Law is In-consistent.	CO4	L4	6M
	b	Demonstrate the motional EMF and derive the expression for the maxwell equation.	CO4	L2	6M
		UNIT-IV			
7		Discuss about power and Poynting vector related to electromagnetic fields.	CO5	L4	12M
		OR			
8	a	Derive the expression for intrinsic impendence and propagation constant in a good conductor.	CO5	L3	6M
	b	Derive the characteristics of plane wave in free space.	CO5	L3	6M
		UNIT-V			
9	a	Explain about S-Circle, r-Circle and x-Circle in smith chart.	CO6	L2	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	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	Discuss about Microstrip transmission lines.	CO6	L2	6M

***** END *****

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

SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY:: PUTTUR
(AUTONOMOUS)
B.Tech. III Year I Semester Supplementary Examinations June/July-2025
DATA WAREHOUSING AND DATA MINING
(Common to CSIT, CAD & CSE)

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

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

		UNIT-I			
1	**a**	Define Data mining? What are all points to be discussed to motivated at a mining?	**CO1**	**L1**	**6M**
	b	Explain Data mining as a step in the process of knowledge discovery.	**CO1**	**L2**	**6M**
		OR			
2	**a**	Explain about Data Transformation in data Mining.	**CO2**	**L2**	**6M**
	b	What is Data Reduction? Discuss in brief.	**CO1**	**L1**	**6M**
		UNIT-II			
3	**a**	Discuss in detail about different types of Data Warehousing.	**CO2**	**L6**	**6M**
	b	Distinguish between OLTP and OLAP.	**CO2**	**L2**	**6M**
		OR			
4		Explain about the Three - tier data warehouse architecture with a neat diagram.	**CO2**	**L2**	**12M**
		UNIT-III			
5	**a**	Discuss about basic concepts of Frequent Itemset mining.	**CO3**	**L2**	**6M**
	b	What are the advantages of FP-Growth algorithm?	**CO3**	**L1**	**6M**
		OR			
6	**a**	Outline FP growth algorithm with an example.	**CO4**	**L2**	**6M**
	b	How will measure from Association Analysis to Correlation Analysis.	**CO4**	**L2**	**6M**
		UNIT-IV			
7	**a**	Distinguish between supervised and unsupervised learning.	**CO5**	**L2**	**6M**
	b	What are the Issues regarding Classification and Prediction? Explain.	**CO5**	**L1**	**6M**
		OR			
8		Explain about Bayesian belief networks with an example.	**CO5**	**L2**	**12M**
		UNIT-V			
9		Discuss in detail about Partitioning methods in clustering with Examples.	**CO6**	**L2**	**12M**
		OR			
10		Discuss in detail about the Applications and trends in Data Mining.	**CO6**	**L2**	**12M**

***** END *****

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

SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY:: PUTTUR
(AUTONOMOUS)
B.Tech. III Year I Semester Supplementary Examinations June/July-2025
MOBILE APPLICATION 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	a	Define Android. Create an android application to display "Hello World".	CO1	L1	6M
	b	Define MAD. Explain mobile devices with its pros and cons.	CO1	L1	6M
		OR			
2	a	Explain UI widgets in android.	CO1	L1	6M
	b	Explain Dalvik Virtual Machine.	CO1	L1	6M

UNIT-II

3		Briefly explain the basic views with Example.	CO2	L2	12M
		OR			
4		Explain a)Progress Bar b) Spinner	CO2	L2	12M

UNIT-III

5		Write a code to store online in file which resides in sd-card.	CO4	L3	12M
		OR			
6		Write an android application for login & registration using SQLite database connectivity.	CO4	L3	12M

UNIT-IV

7	a	Define i) Broadcast Receiver ii)SMS	CO2	L3	6M
	b	What is the purpose of the Image Switcher?	CO2	L3	6M
		OR			
8		Create a Simple Own Service to start and stop the service in Android.	CO2	L3	12M

UNIT-V

9		Explain the UI Design Guidelines for Windows Phone 8.	CO1	L1	12M
		OR			
10		Explain about push notification.	CO1	L1	12M

***** END *****

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

SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY:: PUTTUR
(AUTONOMOUS)
B.Tech. III Year I Semester Supplementary Examinations June/July-2025
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	a	Explain data processing and techniques used for data preprocessing.	CO1	L2	6M
	b	Analyze the real world applications of ML.	CO1	L4	6M
		OR			
2		Discuss the Machine Learning techniques with neat diagrams.	CO2	L2	12M

UNIT-II

3	a	Explain in detail about polynomial regression technique.	CO2	L2	6M
	b	Differentiate between classification and regression.	CO2	L4	6M
		OR			
4		Explain Decision Tree Classification technique with an example.	CO1	L2	12M

UNIT-III

5	a	Describe Artificial Neural Networks.	CO3	L1	4M
	b	Sketch the types of architectures of neural networks.	CO3	L2	8M
		OR			
6		Explain linear discriminant analysis with an example.	CO4	L2	12M

UNIT-IV

7	a	Write about bias and variance.	CO4	L3	6M
	b	Describe the Bernoulli density. Give an example.	CO3	L1	6M
		OR			
8		Explain various model selection procedures.	CO4	L2	12M

UNIT-V

9	a	List the features of multivariate normal distribution.	CO6	L1	6M
	b	Write the applications of multivariate normal distribution.	CO4	L3	6M
		OR			
10		State and explain tuning complexity.	CO5	L1	12M

***** END *****

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

SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY:: PUTTUR
(AUTONOMOUS)
B.Tech. III Year I Semester Supplementary Examinations June/July-2025
MICROPROCESSORS AND MICROCONTROLLERS
(Electronics & Communications 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		Draw a block diagram of Microprocessor based system and explain the functions of each component: Microprocessor, Memory and I/O and their line communication.	CO1	L4	12M

UNIT-II

3	a	Draw the pin diagram of the 8085 microprocessor and categorize the pins based on function.	CO2	L4	8M
	b	Outline the role of the following pins in the8085 microprocessor i) RESET OUT ii) ALE iii) HOLD & HLDA iv) TRAP	CO2	L2	4M
		OR			
4	a	Discuss conditional jump and un conditional jump instruction with an example.	CO3	L2	6M
	b	Discuss the data format and storage with an example.	CO2	L2	6M

UNIT-III

5	a	Draw the internal architecture of 8051 microcontroller and explain the function of each block present in it.	CO3	L2	8M
	b	List the features of 8051 microcontroller.	CO2	L1	4M
		OR			
6	a	Draw and explain a special function of the interrupt enable (IE) register. 8051μC	CO3	L2	6M
	b	Explain about program counter and data pointer	CO4	L2	6M

UNIT-IV

7	a	Describe the different types of addressing mode supported by 8051 with suitable examples.	CO4	L2	6M
	b	List out the any five instructions for immediate addressing modes and indirect addressing modes with suitable example.	CO4	L1	6M
		OR			
8	a	List various arithmetic operations performed in 8051 microcontroller	CO4	L1	2M
	b	Explain any Five arithmetic operations Instructions of 8051 microcontroller with an example.	CO4	L2	10M

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	Explain and design the 2*4 coded keyboard.	CO5	L2	6M
	b	Illustrate the seven-segment numeric led Display and explain the operation seven segment.	CO5	L3	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 June-2025

SOFTWARE ENGINEERING

(Computer Sceince and Engineering)

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

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

		UNIT-I			
1	**a**	What is Software Process? Distinguish any two Process Models.	**CO2**	**L4**	**6M**
	b	How Process framework is created for software? Explain.	**CO1**	**L2**	**6M**
		OR			
2	**a**	What is Agility? Illustrate any four Agile Process Models	**CO2**	**L2**	**6M**
	b	Explain in detail about Agile Unified Process	**CO2**	**L2**	**6M**
		UNIT-II			
3	**a**	Who is a stakeholder? In what way he/she is being used in Software Development Process .	**CO2**	**L1**	**6M**
	b	How to establish the ground work for understanding of software requirements. Explain the steps in it.	**CO2**	**L2**	**6M**
		OR			
4	**a**	What are all the UML Models that supplement the Use-case diagram? Explain.	**CO3**	**L2**	**6M**
	b	Explain in detail about Data Modeling Concepts.	**CO3**	**L2**	**6M**
		UNIT-III			
5	**a**	What is the Design process? Discuss software quality guidelines and attributes	**CO3**	**L2**	**6M**
	b	Explain common characteristics in the evolution of software design.	**CO1**	**L2**	**6M**
		OR			
6	**a**	Discuss briefly about Architectural design and their tasks.	**CO4**	**L2**	**6M**
	b	Justify the Assessing of Alternative Architectural Designs for Software.	**CO4**	**L5**	**6M**
		UNIT-IV			
7	**a**	Briefly explain about User Interface Design Process.	**CO4**	**L2**	**6M**
	b	Express the rules of User Interface Design.	**CO4**	**L2**	**6M**
		OR			
8	**a**	Define five quality attributes of WebApp Design .	**CO5**	**L1**	**6M**
	b	Explain in detail about Aesthetic design	**CO5**	**L2**	**6M**
		UNIT-V			
9	**a**	Distinguish between Verification and Validation with example	**CO4**	**L4**	**6M**
	b	What is Software Testing? Why it is important before deploying the software.	**CO5**	**L1**	**6M**
		OR			
10	**a**	What are the Testing Methods applicable at the Class Level? Explain.	**CO6**	**L1**	**6M**
	b	Illustrate Testing Strategies for Object Oriented software .	**CO6**	**L2**	**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 June-2025

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**	Explain the construction and working of permanent magnet moving coil instruments.	**CO1**	**L1**	**8M**
	b	A moving coil instrument gives a full -scale deflection of 10mA when the potential across its terminals is 100mV. Calculate shunt resistance for a full - scale deflection corresponding to 100 A	**CO1**	**L2**	**4M**
		OR			
2	**a**	Describe the construction and working of attraction type MI instrument?	**CO1**	**L2**	**6M**
	b	List the advantages & disadvantages of MI type instruments	**CO1**	**L1**	**6M**
		UNIT-II			
3	**a**	Explain classification of resistances. What are the different types of methods used for measurement of low, medium and high resistance?	**CO2**	**L2**	**6M**
	b	Draw the circuit diagram of a Wheatstone bridge and derive the condition for balance.	**CO2**	**L3**	**6M**
		OR			
4		An ac bridge circuit working at 1 KHz has its arms as follows: Arm AB: 0.2 µf capacitance Arm BC: 500 ohm resistor Arm CD: unknown impedance Arm DA: 300 ohm resistor in parallel with 0.1µf capacitor Find R and L or C constants of the Arm CD considering it as a series circuit.	**CO2**	**L3**	**12M**
		UNIT-III			
5	**a**	Explain the constructional details of electro dynamometer type wattmeter with a neat sketch.	**CO3**	**L2**	**6M**
	b	Explain the advantages and disadvantages of single phase Induction type Energy meter.	**CO3**	**L2**	**6M**
		OR			
6	**a**	Correlate how the measurements are made using LPF and UPF wattmeters.	**CO3**	**L5**	**6M**
	b	Explain errors caused by vibration of moving system electro dynamometer type wattmeter.	**CO3**	**L2**	**6M**
		UNIT-IV			
7		Explain the construction of (i) Current transformer (ii) Potential transformer ratio and phase angle errors.	**CO4**	**L2**	**12M**
		OR			
8	**a**	What are the parameters to be considered in selecting a transducer for a particular application?	**CO4**	**L1**	**6M**
	b	Illustrate the method for measurement of temperature with use of a) RTD b) IC Sensor	**CO4**	**L2**	**6M**
		UNIT-V			
9	**a**	Describe the construction and working of Flux meter.	**CO5**	**L2**	**6M**
	b	Determine leakage factor with flux meter.	**CO5**	**L3**	**6M**
		OR			
10		Describe briefly how the following measurements can be made with the use of CRO (i) Frequency. (ii) Phase angle. (iii) Voltage.	**CO5**	**L2**	**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 June-2025

DIGITAL SIGNAL PROCESSING

(Electronics and Communication Engineering)

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

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

UNIT-I

1	a	Compute the 4-point DFT for the sequence $x(n)=\begin{cases}1; & 0\le n\le 2\\ 0, & otherwise\end{cases}$	CO1	L1	7M
	b	State and prove any three properties of DFT.	CO1	L2	5M
		OR			
2		Compute an 8-point DFT of the sequence x[n] = {0, 1, 2, 3, 4, 5, 6, 7} using Radix-2 DIF FFT algorithm.	CO1	L3	12M

UNIT-II

3	a	Construct the direct form I and direct form II of the LTI system describe the equation $y(n)=-\frac{3}{8}y(n-1)+\frac{3}{32}y(n-2)+\frac{1}{64}y(n-3)+x(n)+3x(n-1)$	CO2	L3	6M
	b	Explain the steps in the design of analog Butter-worth low pass filters	CO2	L2	6M
		OR			
4		Design a digital Chebyshev IIR filter using using the following constraints: LET T=1sec, applying bi-linear transformation. $0.707\le\lvert H(w)\rvert\le 1 \quad ;0\le w\le 0.2n$ $\lvert H(w)\rvert\le 0.1 \quad ;05n\le w\le\pi$	CO3	L2	12M

UNIT-III

5	a	Construct the direct form realization of system function $H(z)=1+2z^{-1}-3z^{-2}-4z^{-3}+5z^{-4}$	CO3	L3	6M
	b	Explain the steps to be followed in the designing of FIR filters using fourier series method.	CO3	L2	6M
		OR			
6		Design of FIR filter using with the following data, using hamming window with N=7. $H_d(e^{jw})=\begin{cases}1; & -\frac{\pi}{4}\le w\le\frac{\pi}{4}\\ 0, & w\le\pi\end{cases}$	CO3	L3	12M

UNIT-IV

7	a	Discuss briefly about different types number representation with examples.	CO4	L3	6M
	b	Compare fixed point and floating point arithmetic.	CO4	L2	6M
		OR			
8		Find the steady state variance of the noise in the output due to quantization of input for the first order filter. $y(n)=ay(n-1)+x(n)$	CO5	L3	12M

UNIT-V

9	a	Explain two categories of DSP's in detail.	CO6	L2	6M
	b	What is VLIW architecture. Draw and explain in brief with diagram.	CO6	L2	6M
		OR			
10		Explain different applications of PDSPs in detail.	CO6	L2	12M

***** END ****

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

SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY:: PUTTUR
(AUTONOMOUS)
B.Tech III Year I Semester Supplementary Examinations June-2025
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	Explain briefly orthogonal and oblique cutting with neat sketch.	CO1	L1	6M
	b	Discuss about machining of metals.	CO1	L2	6M
		OR			
2	a	Define the single point cutting tool elements.	CO1	L1	6M
	b	Derive an equation for chip thickness ratio and shear plane angle.	CO1	L2	6M
		UNIT-II			
3	a	Define cutting speed, feed and depth of cut.	CO2	L1	6M
	b	Explain the stress and strain acting on a chip.	CO2	L2	6M
		OR			
4	a	Explain work done in metal cutting process.	CO2	L1	6M
	b	Give the broad classification of cutting fluids and explain them briefly.	CO2	L2	6M
		UNIT-III			
5		Draw the engine lathe and label the parts. Discuss the functions of the lathe parts.	CO3	L1	12M
		OR			
6		Explain lathe machine accessories with neat sketches.	CO3	L2	12M
		UNIT-IV			
7		Explain the working of any one drilling machine with neat sketch.	CO4	L2	12M
		OR			
8	a	Discuss about any four of the drilling operations with neat sketches.	CO4	L3	6M
	b	Discuss briefly with neat sketch, a horizontal boring machine.	CO4	L3	6M
		UNIT-V			
9		How grinding machines are classified? Explain plain cylindrical grinding machine with neat sketch.	CO5	L2	12M
		OR			
10		Distinguish between Grinding, lapping and honing.	CO5	L4	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 June/July-2025

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	Elaborate the Cybercrime and its related security measures.	CO1	L4	6M
	b	Explain various classification of cyber crimes with examples.	CO1	L3	6M
		OR			
2	a	Illustrate Cybercrimes Cases of Various Categories under IPC Section.	CO1	L3	6M
	b	Dissect the Incidence of Cybercrimes in Cities in detail.	CO1	L2	6M
		UNIT-II			
3	a	Explain various types of cyber Stalking attack.	CO2	L4	6M
	b	Define the cyber café. Analyze the challenges faced by Cyber café and Explain in detail.	CO2	L3	6M
		OR			
4	a	Discuss and Elaborate the Cyber cafe and how it infers the victims.	CO2	L3	6M
	b	Discuss about how the BOTNETS are acts as Fuel for Cybercrime in detail.	CO2	L4	6M
		UNIT-III			
5	a	Compare Mobile Computing Vs Wireless Computing.	CO3	L4	6M
	b	Distinguish Malwares, viruses and worms.	CO3	L3	6M
		OR			
6	a	List out few Tips to Secure your Cell/Mobile Phone from being Stolen/Lost.	CO3	L3	6M
	b	Discuss organizational measures for handling the mobile devices.	CO3	L2	6M
		UNIT-IV			
7	a	Classify different techniques used in cybercrime.	CO4	L4	6M
	b	Who are Anonymizers and how they get affected by scams in cybercrime? Explain.	CO4	L3	6M
		OR			
8	a	Apply the concept of Daniel of Service with an example and Explain	CO4	L3	6M
	b	How hacker use the SQL injections to hack the information. Summarize it.	CO4	L2	6M
		UNIT-V			
9	a	Discuss the various organizational implications with example.	CO5	L4	6M
	b	Describe the cost of cybercrimes with examples.	CO5	L3	6M
		OR			
10	a	List the security and privacy implications in detail.	CO5	L3	6M
	b	Distinguish proactive and reactive approach to security.	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 June/July-2025
SOFT COMPUTING
(Common to CSE, CSM & CAI)

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

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

		UNIT-I			
1	a	Distinguish between Supervised Learning and Unsupervised Learning.	CO1	L4	6M
	b	Describe the different activation functions in Neural Networks.	CO1	L2	6M
		OR			
2	a	List out the different Learning rules and terminology in ANN.	CO1	L2	6M
	b	Describe Hebb Network in Artificial Neural Network.	CO1	L2	6M
		UNIT-II			
3	a	Explain Hamming neural network with neat diagram.	CO2	L2	6M
	b	Explain Max network with architecture	CO2	L2	6M
		OR			
4	a	Illustrate the Support Vector Machine .	CO2	L3	6M
	b	List out the Applications of SVM.	CO2	L1	6M
		UNIT-III			
5	a	Discuss the various operations and properties on Classical Sets with simple examples.	CO3	L2	6M
	b	List out the various operations and composition operations on Classical relations explain it.	CO3	L1	6M
		OR			
6	a	Demonstrate the membership functions in fuzzy logic.	CO3	L3	6M
	b	Define Fuzzification and explain membership value assignment in fuzzy logic	CO3	L2	6M
		UNIT-IV			
7	a	Analyze Inversion and Deletion Operators in GA.	CO4	L4	6M
	b	Describe the applications of genetic algorithm.	CO4	L1	6M
		OR			
8	a	Draw the flow chart for the working principle of Genetic Algorithm. Explain it.	CO4	L2	6M
	b	Briefly explain Convergence of Genetic Algorithm.	CO4	L2	6M
		UNIT-V			
9	a	Explain the various components in Fuzzy Rule Base System.	CO5	L2	6M
	b	Compare Neuro processing and Fuzzy Processing .	CO5	L4	6M
		OR			
10	a	List out the various types of hybrid systems.	CO5	L1	6M
	b	Explain the basic categories of Hybrid system with neat architectures.	CO5	L3	6M

***** END *****

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

SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY:: PUTTUR
(AUTONOMOUS)
B.Tech. III Year I Semester Supplementary Examinations June/July-2025
CLOUD COMPUTING
CSE (Artificial Intelligence & Data Science)

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

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

UNIT-I

1	a	Discuss the following i) computational grid ii) data grid iii)network grid	CO1	L1	6M
	b	What is SOA? Describe with its architecture.	CO1	L2	6M
		OR			
2	a	Draw and explain the cloud architecture.	CO1	L2	6M
	b	Explain layered architecture of grid.	CO1	L2	6M

UNIT-II

3	a	Analyze the Public Cloud and Private Cloud.	CO2	L4	6M
	b	Analyze Cons in Cloud Computing.	CO2	L4	6M
		OR			
4	a	Recall a short note on SLA.	CO2	L1	6M
	b	Identify the Approaches in SLA Management.	CO2	L2	6M

UNIT-III

5	a	Illustrate the virtualization structures available with neat diagram.	CO3	L3	6M
	b	Illustrate I/O Virtualization with an example.	CO3	L3	6M
		OR			
6	a	Summarize the Memory Virtualization concept.	CO3	L2	6M
	b	Explain the resource management in virtual clusters.	CO3	L2	6M

UNIT-IV

7	a	Explain about Authentication Methods.	CO5	L2	6M
	b	Explain about provider data and its security.	CO5	L2	6M
		OR			
8	a	Analyze the aspects of data security.	CO5	L4	6M
	b	List and Explain the activities supported by IAM.	CO5	L1	6M

UNIT-V

9	a	Give the factors that promote the adoption of MCC.	CO6	L2	6M
	b	Discuss the context management architecture based on IRNA with neat diagram.	CO6	L2	6M
		OR			
10	a	What do Partitioning Strategies mean? How is ADPS implemented for Program partitioning?	CO6	L2	6M
	b	Explain about general security in mobile cloud computing.	CO6	L2	6M

***** END *****

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

SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY:: PUTTUR
(AUTONOMOUS)
B.Tech. III Year I Semester Supplementary Examinations June/July-2025
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		Discuss in detail about Intelligent System with examples.	CO1	L2	12M
		OR			
2	a	Explain the role of AI in Online Fraud Detection and Self-driving cars.	CO1	L2	6M
	b	What are the capabilities of a computer in terms of AI.	CO1	L1	6M
		UNIT-II			
3		Analyze the Blind Search and its Types? Explain any two in detail with Example.	CO2	L4	12M
		OR			
4	a	Discuss in detail A* Search and IDA* Search with an example.	CO2	L4	6M
	b	Justify why Greedy Best First Search in is not an optimal searching technique.	CO2	L5	6M
		UNIT-III			
5		Describe in brief about Resolution Refutation in Proportional Logic.	CO3	L2	12M
		OR			
6		Explain the concept of Predicate Logic with examples.	CO4	L2	12M
		UNIT-IV			
7		How KR using Semantic Network is done. Explain in detail.	CO5	L1	12M
		OR			
8		Represent the following facts using partitioned semantic nets: i) The dog bit the mail carrier. ii) Every dog has bitten a mail carrier. iii) Every dog in town has bitten the constable. iv) Every dog has bitten every mail carrier	CO5	L2	12M
		UNIT-V			
9		Explain Components of Expert Systems in detail.	CO6	L2	12M
		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

*** END ***

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

SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY:: PUTTUR

(AUTONOMOUS)

B.Tech. III Year I Semester Supplementary Examinations June/July-2025

CRYPTO CURRENCY AND 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 Hadoop Distributed File System.	CO1	L5	12M
		OR			
2		Write about ECDSA digital signature in detail.	CO1	L3	12M

UNIT-II

3	a	Explain about the need of block chain.	CO2	L5	6M
	b	What type of records can be kept in the Blockchain? Is there any restriction on the same?	CO2	L2	6M
		OR			
4	a	Compare public and private blockchain?	CO2	L3	6M
	b	Distinguish between Bitcoin blockchain and Ethereum blockchain.	CO2	L4	6M

UNIT-III

5		Compare Proof-of-work and Proof-of-stake.	CO3	L2	12M
		OR			
6		Explain Nakomoto consensus algorithm.	CO3	L5	12M

UNIT-IV

7		Define Cryptocurrency. Explain the features of crypto currency.	CO4	L1	12M
		OR			
8	a	Write in detail about GHOST.	CO4	L3	5M
	b	Examine Bitcoins protocols in detail.	CO4	L4	7M

UNIT-V

9		Explain about roots of Bitcoin.	CO5	L2	12M
		OR			
10		Explain Blockchain applications.	CO5	L5	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 June/July-2025
FOUNDATION ENGINEERING
(Civil Engineering)

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

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

UNIT-I

1	What are the assumptions of earth pressure theory and derive an expression for Rankines Earth pressure in cohesive soils?	CO1	L2	12M
	OR			
2	Explain various types of retaining walls with neat sketch.	CO1	L2	12M
	UNIT-II			
3	Discuss effect of water table on the bearing capacity of the soil with neat sketch.	CO2	L2	12M
	OR			
4	What are different types of settlements that occur in a foundation?	CO2	L2	12M
	UNIT-III			
5	How would you estimate the load carrying capacity of a pile by using dynamic formulae?	CO3	L2	12M
	OR			
6	Explain in detail In-situ penetration tests for pile capacity.	CO4	L1	12M
	UNIT-IV			
7	Explain various measures for rectification of Tilts and Shifts with neat sketch.	CO5	L2	12M
	OR			
8	Explain the construction of Floating caisson with the help of neat sketch.	CO5	L2	12M
	UNIT-V			
9	Explain the pressure distribution and stability of free cantilever sheet pile with neat sketch.	CO6	L3	12M
	OR			
10	Explain the procedure used in the analysis of the sheet pile with fixed earth support with neat sketch using equivalent beam method.	CO6	L2	12M

***** END *****

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

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

B.Tech. III Year I Semester Supplementary Examinations June/July-2025
ELECTRONIC MEASUREMENTS AND INSTRUMENTATION
(Electrinics and Communications Engineering)

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

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

		UNIT-I			
1	a	Describe the construction and working of a Multimeter using a neat circuit diagram.	CO2	L1	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	Write a short note on (i) Gross Errors (ii) Systematic errors (iii) Random errors.	CO1	L1	6M
	b	With a neat sketch, explain about thermocouple type RF ammeter.	CO1	L2	6M
		UNIT-II			
3	a	Explain in detail the important features of CRT.	CO1	L2	6M
	b	Describe in detail the construction and working of a Digital Storage Oscilloscope.	CO1	L2	6M
		OR			
4	a	With neat sketch, explain in detail about Horizontal amplifier.	CO2	L2	6M
	b	Write a short notes on CRO Probes.	CO1	L2	6M
		UNIT-III			
5	a	Draw the block diagram of logic analyzer and explain its working.	CO4	L2	6M
	b	List the Specifications of random noise generator	CO3	L2	6M
		OR			
6	a	With a neat sketch, explain the operation of arbitrary waveform generator.	CO5	L2	6M
	b	Explain the working principle of spectrum analyzer.	CO3	L2	6M
		UNIT-IV			
7		Describe the operation of the Wheatstone bridge and derive the expression for DC resistance.	CO3	L3	12M
		OR			
8	a	Derive the expression of an unknown resistance using Kelvin's bridge	CO4	L2	6M
	b	An A.C bridge has Arm AB-capacitor of 0.1μF in parallel with 2KΩ resistor, Arm AD-resistance of 5KΩ, Arm BC capacitor of 0.25 μF, Arm C_D-unknown capacitor C_X and R_X in series and frequency 2KHz. Determine the unknown capacitance.	CO4	L3	6M
		UNIT-V			
9		Describe the operation of i) Resistive transducers ii) Capacitive transducers iii) Inductive transducers	CO5	L2	12M
		OR			
10	a	Explain in detail about Vibration Transducer.	CO6	L2	6M
	b	Write the advantages & disadvantages of LVDT.	CO6	L2	6M

***** END *****

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

SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY:: PUTTUR
(AUTONOMOUS)
B.Tech. III Year I Semester Supplementary Examinations June/July-2025
NON-CONVENTIONAL ENERGY RESOURCES
(Open Elective (OE) - 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	Explain the working of the Pyranometer with a neat sketch.	CO1	L2	6M
	b	Illustrate the working of the Pyrheliometer with a neat sketch.	CO1	L2	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	Differentiate flat plate collector with concentrating type collector.	CO2	L2	6M
	b	Describe the process of space heating with solar energy.	CO2	L2	6M
		UNIT-III			
5	a	Explain the process of wind formation.	CO3	L5	6M
	b	Differentiate between HAWT and VAWT.	CO3	L4	6M
		OR			
6	a	Discuss the importance of measuring wind speed and name its measuring instruments.	CO3	L2	6M
	b	List the merits and demerits of wind energy.	CO3	L1	6M
		UNIT-IV			
7	a	Define biomass and why is it called renewable energy?	CO4	L1	6M
	b	What are the different forms of bio-energy?	CO4	L1	6M
		OR			
8	a	Classify the Biomass energy conversion systems and explain them in brief.	CO4	L2	6M
	b	Discuss the fermentation, aerobic and anaerobic digestion processes.	CO4	L2	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
10	a	What is the geothermal energy? Explain its extraction process.	CO5	L1	6M
	b	Explain Geothermal binary cycle power plant with neat diagram.	CO5	L2	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 June/July-2025

GENERATION OF ENERGY FROM WASTE

(Open Elective (OE) - I)

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

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

UNIT-I

1	Explain the following gasifies with neat sketches. i) Updraft ii) Down draft gasifier	CO1	L2	12M
	OR			
2	What are the advantages and disadvantages of gasification? What are the advantages and disadvantages of incineration?	CO1	L1	12M

UNIT-II

3	Explain the following types of charcoal production processes i) Earth kiln ii) Brick kiln iii) Steel kiln	CO3	L2	12M
	OR			
4	Write short notes on i) Slow pyrolysis method ii) Flash pyrolysis method iii) Fast Pyrolysis	CO2	L1	12M

UNIT-III

5	Explain the design, construction and operation of downdraft gasifier.	CO4	L2	12M
	OR			
6	Draw Gasifier engine arrangement for production of Electric power and explain the methodology.	CO4	L3	12M

UNIT-IV

7	Explain Design, Construction and Operation of Inclined Grate Combustor.	CO5	L2	12M
	OR			
8	What is meant by exotic design of Biomass Stove? Explain in detail.	CO5	L1	12M

UNIT-V

9	What is meant by Biomass resources? Classify biomass resources based on their application.	CO6	L3	12M
	OR			
10	Write short notes on (i) Urban Waste to Energy Conversion (ii) Biomass Energy Programme	CO6	L1	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 June/July-2025
INTRODUCTION TO COMMUNICATION SYSTEMS
(Open Elective (OE) - I)

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

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

		UNIT-I			
1	a	Define modulation. Classify different types of modulation.	CO2	L1	6M
	b	Explain the need for Modulation.	CO2	L2	6M
		OR			
2	a	What is DSB-SC Modulation? Explain the Time and Frequency domain expressions of DSB-SC wave.	CO3	L1	6M
	b	Define demodulation. Explain any one amplitude demodulation Technique.	CO3	L1	6M
		UNIT-II			
3	a	Define Frequency Modulation with necessary waveforms.	CO2	L1	6M
	b	Derive the expression of Frequency modulation.	CO3	L3	6M
		OR			
4	a	Describe the functionality of each block of phase shift discriminator.	CO2	L2	6M
	b	Explain the block diagram of indirect method in FM generation.	CO2	L2	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	Explain Pulse Amplitude modulation with its waveforms.	CO3	L2	6M
	b	Explain the process of demodulation of a PAM signals.	CO1	L2	6M
		UNIT-IV			
7	a	Explain the function of each block of Digital communication system.	CO1	L2	6M
	b	Discuss the different types of Quantization in detail.	CO5	L2	6M
		OR			
8	a	Draw the block diagram of ASK modulator and demodulator and explain the operation.	CO6	L1	6M
	b	Compare PCM, DPCM, and DM.	CO4	L4	6M
		UNIT-V			
9	a	Explain third generation (3G) wireless networks.	CO1	L2	6M
	b	A spectrum of 30 MHz of bandwidth is allocated to a particular FDD cellular telephone system which uses two 25 kHz simplex channels to provide full duplex voice and control channels, compute the number of channels available per cell if a system uses (i) four-cell reuse, (ii) seven-cell reuse, and (iii) 12-cell reuse. If 1 MHz of the allocated spectrum is dedicated to control channels, determine an equitabledistribution of control channels and voice channels in each cell for each of the three systems.	CO6	L3	6M
		OR			
10	a	Explain the multiple access schemes for narrowband systems.	CO1	L2	6M
	b	Differentiate FDMA,TDMA and CDMA.	CO6	L2	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 June/July-2025
MANAGEMENT SCIENCE
(Open Elective (OE) - I)

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

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

		UNIT-I			
1	a	What are the 14 principles of administrative management?	CO1	L1	6M
	b	"Management is an art of getting things done through others" – Discuss.	CO1	L2	6M
		OR			
2	a	Illustrate any three types of organization structures.	CO1	L3	6M
	b	Assess which organizational structure is suitable structure for managing complex project(Matrix organization).	CO1	L5	6M
		UNIT-II			
3	a	What is meant by Inventory? What is the need for inventory control at different stages of production?	CO2	L4	6M
	b	Explain importance of ABC Analysis and try to list at least two items of each class in case of mobile electronics service-dealer with Sony/Nokia/Samsung.	CO2	L5	6M
		OR			
4	a	Distinguish between Job production and Batch production.	CO2	L5	6M
	b	Elucidate the Quality assurance and Quality control.	CO2	L4	6M
		UNIT-III			
5	a	Define Human Resource Management and describe its importance.	CO3	L1	6M
	b	Managerial and operative function is tool to improve efficiency-Justify your answer.	CO3	L5	6M
		OR			
6	a	What is the purpose of assessing current human resources? How is job analysis done?	CO3	L1	6M
	b	What do you understand by employee grievances in an organization?	CO3	L1	6M
		UNIT-IV			
7		What is the Corporate Planning Process? Is this important for long term success of any business organization – Comment.	CO4	L4	12M
		OR			
8	a	Discuss about basic network terminology application.	CO4	L2	6M
	b	Indicate Rules for drawing network analysis and discuss its terminology.	CO4	L2	6M
		UNIT-V			
9	a	Evaluate the importance of Total Quality Management (TQM).	CO5	L4	6M
	b	Express the importance of Six Sigma in production.	CO5	L2	6M
		OR			
10	a	What is ERP? Explain the significance of ERP packages.	CO5	L1	6M
	b	Justify the statement "Performance management is a tool to develop management efficiency"	CO5	L5	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 June/July-2025
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		A power station has to meet the following demand : Group A : 200 kW between 8 A.M. and 6 P.M. Group B : 100 kW between 6 A.M. and 10 A.M. Group C : 50 kW between 6 A.M. and 10 A.M. Group D : 100 kW between 10 A.M. and 6 P.M. and then between 6 P.M. and 6 A.M. Plot the daily load curve and determine (i) diversity factor (ii) units generated per day (iii) load factor.	CO1	L4	12M
		OR			
2	a	What is Diversity factor? What is the importance of diversity factor ?	CO1	L1	6M
	b	A power station has a maximum demand of 15000 kW. The annual load factor is 50% and plant capacity factor is 40%. Determine the reserve capacity of the plant.	CO1	L4	6M

UNIT-II

3		A single phase distributor one km long has resistance and reactance per conductor of 0·1 Ω and 0·15 Ω respectively. At the far end, the voltage V_B = 200 V and the current is 100 A at a p.f. of 0·8 lagging. At the mid-point M of the distributor, a current of 100 A is tapped at a p.fof 0·6 lagging with reference to the voltage V_M at the mid-point. Calculate : (i) voltage at mid-point (ii) sending end voltage V_A (iii) phase angle between V_A and V_B.	CO2	L3	12M
		OR			
4		A two-wire DC distributor AB, 600 meters long is loaded as under: Distance from A (meters): 150 300 350 450 Loads in Amperes : 100 200 250 300 The feeding point A is maintained at 440V and that of B at 430V. If each conductor has a Resistance of 0.01Ω per 100 meter, calculate (i) The current supplied from A to B (ii). The power dissipated in the distributor	CO2	L3	12M

UNIT-III

5	a	What is Neutral grounding? What are the advantages of neutral grounding.	CO3	L1	6M
	b	Explain how to decide the rating of a distribution a substation?	CO3	L2	6M
		OR			
6		Draw the layout and schematic connection Pole-Mounted Sub-Station? Give the advantages and disadvantages.	CO3	L3	12M

UNIT-IV

7		A single phase A.C. Generator supplies the following loads : (i) Lighting load of 20 kW at unity power factor. (ii) Induction motor load of 100 kW at P.F 0·707 lagging. (iii) Synchronous motor load of 50 kW at P.F 0·9 leading. Calculate the total KW and KVA delivered by the generator and the power factor at which it works.	CO4	L4	12M
		OR			
8	a	Explain the effect of shunt compensation on distribution system.	CO4	L2	6M
	b	Why a consumer having low power factor is charged at higher rates?	CO4	L2	6M

UNIT-V

9	a	What are the communication methods?	CO5	L1	6M
	b	What are the benefits of distribution automation.	CO5	L1	6M
		OR			
10	a	Explain about Information technology and LAN.	CO5	L2	6M
	b	Explain about Sensors.	CO5	L2	6M

***** END *****

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

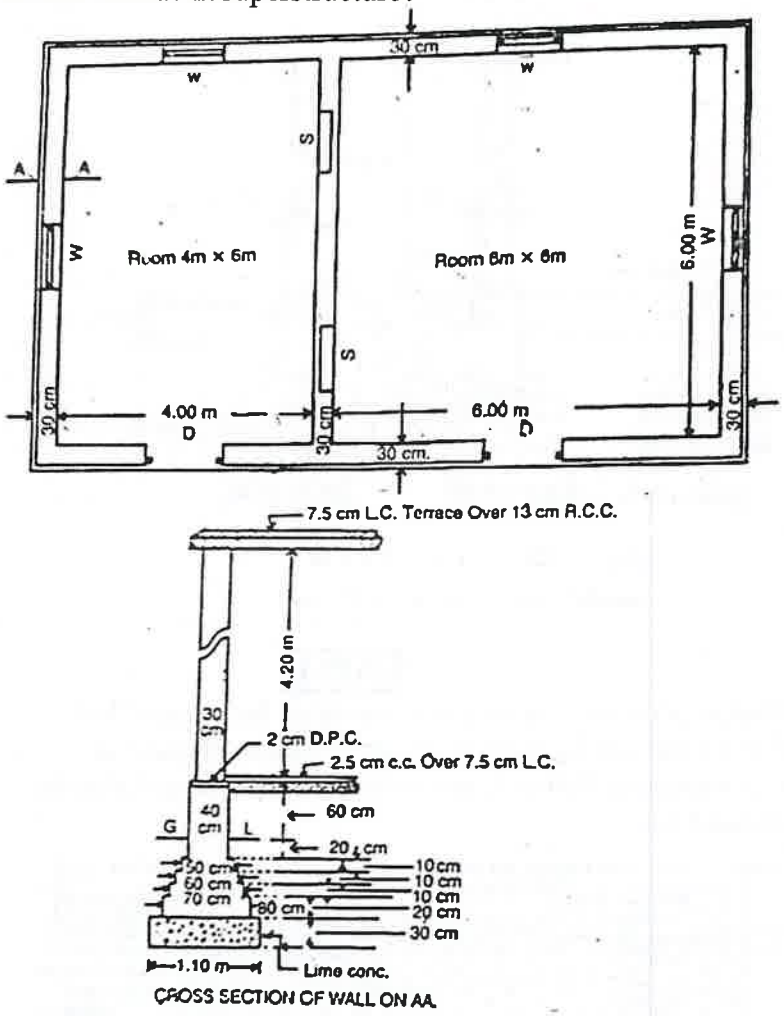
SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY:: PUTTUR
(AUTONOMOUS)
B.Tech III Year I Semester Regular & Supplementary Examinations June-2025
ESTIMATION, COSTING AND VALUATION
(Civil Engineering)

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

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

UNIT-I

1	Estimate the quantities of the following items of a two roomed building from the given plan and section using Long Wall – Short Wall method. (1) earth work in excavation in foundation, (2) Lime concrete in foundation, (3) 1st class brickwork in cement mortar 1:6 in foundation and plinth, (4) 2.5 cm c.c damp proof course, and (5) 1st class brick work in lime mortar in superstructure?	**CO1**	**L3**	**12M**

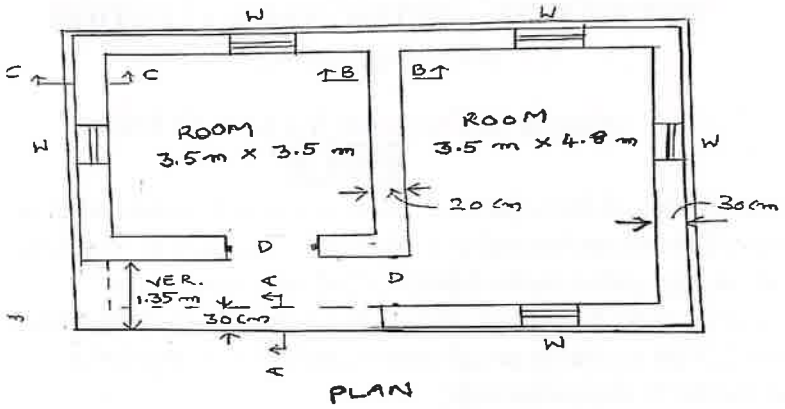


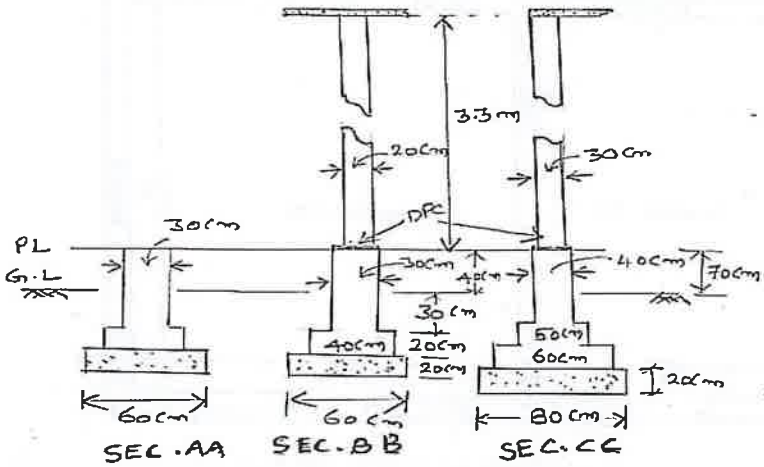
Doors D – 1.2 m x 2.10 m
Windows W – 1.00 m x 1.50 m
Shelves S – 1.00 m x 1.50 m

OR

2	Estimate the quantities of the following items of a two roomed building from the given plan and sections shown below: (a) Earthwork in excavation in foundation, (b) Lime concrete in foundation, (c) 1st class brickwork in 1:6 cement mortar in foundation and plinth,	**CO1**	**L3**	**12M**

(d) 2.5 cm thick damp proof course and
(e) 1st class brick work in 1:6 cement mortar in superstructure?

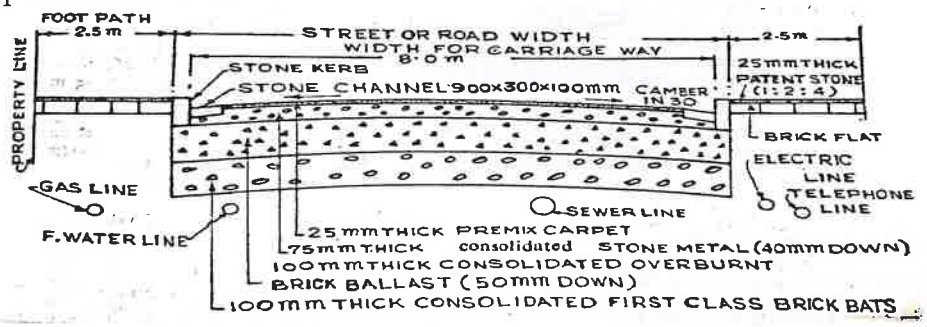




Door D 1 x 2.1 m
Window W 1.2 x 1.5 m

UNIT-II

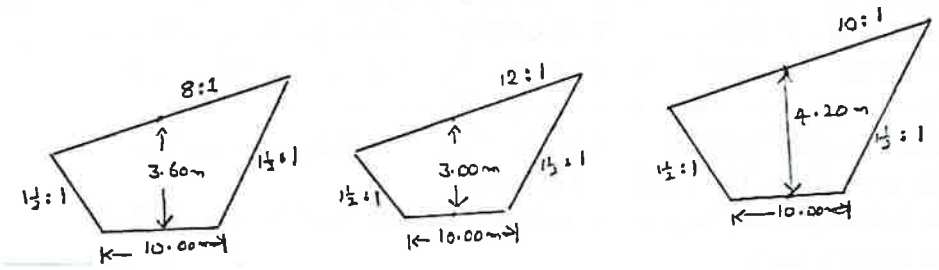
3 Detailed dimensioned cross-section of a city street having mettled portion of 8 m for the carriageway is shown in figure. Prepare an estimate for constructing 500 m length of this street? Indicate also the quantities of materials. **CO2 L3 12M**



OR

4 A hill road is to be constructed in side-long ground in cutting. Calculate the quantity of earthwork for two chain length in between 10th to 12th chainage, the length of chain being 30 m? The depth of cutting at the chainage 10 is 3.60 m at the centre and cross slope of ground is 8:1 **CO2 L3 12M**

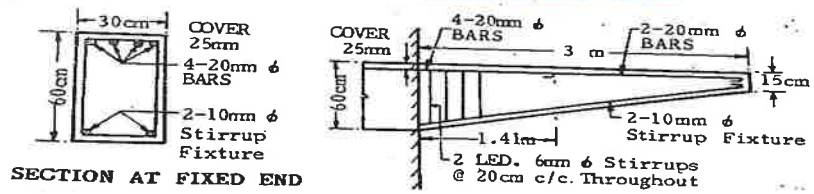
(H:V). The depth of cutting at the chainage 11 is 3.00 m at the centre and cross slope of ground is 12:1 (H:V). The depth of cutting at the chainage 12 is 4.20 m at the centre and cross slope of ground is 10:1 (H:V). Formation width is 10 m and side slopes of cutting are 1.5:1 (H:V). Estimate the cost of earthwork using Mid-Sectional Area, Mean Sectional Area and Prismoidal Method if the rate of earthwork in exaction is Rs.275 % cu.m?



Section at 10th Chainage | Section at 11th Chainage | Section at 12th Chainage

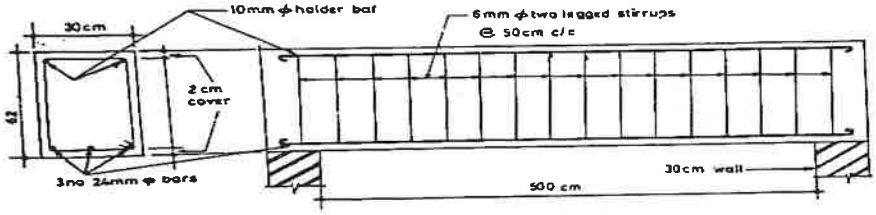
UNIT-III

5	A cantilever RC beam projects beyond the fixed end by 3 m and is 30 cm x 60 cm at fixed end and reduced to 30 cm x 15 cm at the free end. At the fixed end, the beam is reinforced with 4 bars of 20 mm dia at the top and 2 bars are curtailed at a distance of 1.41 m from the fixed end, but the remaining 2 bars continued up to the free end. The beam is provided with 6 mm dia two legged stirrups at 20 cm centre to centre for the entire length. At the bottom there are 2 bars of 10 mm dia. as stirrup fixture. Weight of bars are 20 mm = 2.47 kg/m, 10 mm = 0.62 kg/m, 6 mm =0.22 kg/m. assume 25 mm clear cover and the main bars are suitably anchored, but is not needed in the estimate. Estimate the quantity of reinforcement.	CO3	L3	12M



OR

6	Figure shows the longitudinal section and cross-section of a simple beam of clear span 5.0 m. The thickness of the supporting wall is 30 cm. Work out the total quantity of the reinforcement in the beam?	CO3	L3	12M



UNIT-IV

7	a	Work out rate per cu. m for RCC work in beams and slabs with 1:1½:3 cement concrete?	CO4	L3	6M
	b	Arrive at the rate for I-class brickwork in superstructure with 20 x 10 x 10 cm bricks with 1:6 cement sand mortar?	CO4	L3	6M

OR

8	a	What is the rate per sq. m for providing white washing one coat?	CO4	L3	6M

	b	Calculate rate per sq. m for laying 2 cm thick damp proof course with 1:2 cement mortar?	**CO4**	**L3**	**6M**

UNIT-V

9	**a**	Write the detailed specifications for earthwork excavation.	**CO5**	**L2**	**6M**
	b	What are the different specifications for first class brick work.	**CO5**	**L2**	**6M**

OR

10		In a plot of land costing Rs.20,000.00 a building has been newly constructed at the total cost of Rs.80,000.00 including sanitary and water supply works, electrical installation, etc. The building consists of four flats for four tenants. The owner expects 8% return on the cost of construction and 5% return on the cost of land. Calculate the standard rent for each flat of the building assuming: (i) The life of the building as 60 years and sinking fund will be created on 4% interest basis. (ii) Annual repairs cost at 1% of the cost of construction. (iii) Other outgoings including taxes at 30% of the net return on the building?	**CO5**	**L3**	**12M**

***** END *****

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

SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY:: PUTTUR

(AUTONOMOUS)

B.Tech III Year I Semester Supplementary Examinations June-2025

SOFTWARE ENGINEERING &TESTING

(Computer Sceince and Information Technology)

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

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

UNIT-I

1	a	Explain in detail the following software metrics with example. i) Size metric. ii) Token Count.	CO1	L2	6M
	b	Write a 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	List the process maturity levels in SEI's CMM. Explain each level.	CO1	L2	6M
	b	Analyze Functional Point Analysis (FPA) with an example.	CO1	L2	6M

UNIT-II

3	a	Compare the Walton-Felix model with the SEL model on a software development expected to involve 12 person-years of effort Software Project Planning. (i) Calculate the number of lines of source code that can be produced. (ii) Calculate the duration of the development. (iii) Calculate the productivity in LOC/PY (iv) Calculate the average manning	CO2	L6	6M
	b	Identify typical software risk factors. Explain the risk management activities	CO2	L2	6M
		OR			
4	a	Interpret the Putnam resource allocation model.	CO2	L6	6M
	b	A software development project is planned to cost 95 MY in a period of 1 year and 9 months. Calculate the peak manning and average rate of software team build up.	CO2	L2	6M

UNIT-III

5	a	Describe the various strategies of design. Which design strategy is most popular and practical?	CO3	L2	6M
	b	Define cohesion and coupling. Explain relationship between cohesion and coupling.	CO3	L1	6M
		OR			
6	a	Discuss the basic model of software reliability. How $\Delta\mu$ and $\Delta\tau$ can be calculated	CO3	L6	6M
	b	b Compare hardware reliability with software reliability	CO3	L2	6M

UNIT-IV

7	a	Consider a program for the determination of the nature of roots of a quadratic equation. Its input is a triple of positive integers (say a,b,c) and values may be from interval [0,100]. The program output may have one of the following words. [Not a quadratic equation; Real roots; Imaginary roots; Equal roots] Design the boundary value test cases.	CO4	L6	6M
	b	Explain the boundary value analysis testing techniques with the help of an example.	CO4	L2	6M

OR

8	**a**	Explain mutation testing technique.	**CO4**	**L2**	**6M**
	b	Compare various debugging technique.	**CO4**	**L2**	**6M**

UNIT-V

9	**a**	What is reverse engineering? Discuss levels of reverse engineering.	**CO5**	**L6**	**6M**
	b	What are configuration management activities? Draw the Performa of change request form.	**CO5**	**L6**	**6M**

OR

10	**a**	Classify different categories of software documentation.	**CO5**	**L1**	**6M**
	b	Compare New software development and Re-engineering.	**CO5**	**L4**	**6M**

***** END *****

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

SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY:: PUTTUR
(AUTONOMOUS)
B.Tech. III Year I Semester Supplementary Examinations June/July-2025
HEAT AND MASS TRANSFER
(Mechanical 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).Heat ii).Heat transfer	CO1	L1	6M
	b	List the basic laws which govern the heat transfer.	CO1	L1	6M
		OR			
2	a	What is Fourier's law of conduction? State the assumption and essential feature of it.	CO1	L1	6M
	b	Distinguish between conduction, convection and radiation modes of heat transfer.	CO4	L1	6M

UNIT-II

3	a	Derive an expression for heat conduction through a composite wall.	CO2	L3	6M
	b	A reactor's wall, 320 mm thick, is made up of an inner layer of fire brick (k = 0.84W/m °C) covered with a layer of insulation (k = 0.16 W/m °C). The reactor operates at a temperature of 1325 °C and the ambient temperature is 25 °C. Determine the thickness of fire brick and insulation which gives minimum heat loss.	CO2	L3	6M
		OR			
4	a	Obtain the expression of heat conduction through hollow cylinder.	CO2	L3	6M
	b	A spherical shaped vessel of 1.4 m diameter is 90 mm thick. Find the rate of heat leakage, if the temperature difference between the inner and outer surface is 220 °C. Thermal conductivity of the material of the sphere is 0.083 W/m °C.	CO2	L3	6M

UNIT-III

5	a	What is convective heat transfer? 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	a	Define Nusselt number, Prandtl number and their significance.	CO3	L1	6M
	b	Air stream at 24 °C is flowing at 0.4 m/s across a 100 W bulb at 130 °C. If the bulb is approximately by a 65 mm diameter sphere. Calculate i.) The heat transfer rate, ii.) The percentage of power lost due to convection.	CO3	L4	6M

UNIT-IV

7	a	Define Radiation heat transfer.	CO3	L2	6M
	b	Discuss the different types of processes for condensation of vapours on a solid surface.	CO3	L2	6M
		OR			

8	a	What are the applications of boiling and condensation process?	CO4	L1	6M
	b	Explain Stefan Boltzmann Law, Kirchhoff's Law.	CO4	L2	6M

UNIT-V

9	In a certain double pipe heat exchanger hot water flow at a rate of 5000 kg/h and gas cooled from 95 °C to 65 °C. At the same time 50000 kg/h of cooling water at 30 °C enters the heat exchanger. The flow conditions are that L4overall heat transfer coefficient remains constant at 2270 W/m2 K. Determine the heat transfer area required and the effectiveness, assuming two streams are in parallel flow. Assume for the both the streams cp = 4.2 kJ/kg K.	CO5	L4	12M

OR

10	The flow rate of hot and cold water streams running through a parallel flow heat exchanger are 0.2 kg/s and 0.5 kg/s respectively. The inlet temperatures on the hot and cold sides are 75 °C and 20 °C respectively. The exit temperature of hot water is 45 °C. If the individual heat transfer coefficients on the both sides are 650 W/m2 °C, calculate the area of heat exchanger.	CO5	L4	12M

***** END *****

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

SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY:: PUTTUR
(AUTONOMOUS)
B.Tech. III Year I Semester Supplementary Examinations June/July-2025
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	Explain the principle of operation of a synchronous generator.	CO1	L2	6M
	b	An 8 pole, 3 phase 60 degree spread double layer winding has 72 coils in 72 slots. These coils are short pitched by two slots. Calculate the winding factor for the fundamental and third, fifth harmonics.	CO1	L3	6M

OR

2	a	Write short notes on i) Pitch factor ii) Distribution factor with relevant derivations.	CO1	L3	6M
	b	An alternator is operating at no load has an induced EMF of 346.4 V/ph and a frequency of 60Hz. If the pole flux is decreased by 15% & the speed is increased by 6.8%; Determine i. the induced EMF ii. frequency	CO1	L3	6M

UNIT-II

3	a	A three-phase star-connected alternator is rated at 1500 kVA, 1200V. The armature effective resistance and synchronous reactance are 2 Ω and 35 Ω respectively per phase. Calculate the percentage regulation for a load of 1200 kW at a power factor of 0.8 lagging.	CO2	L4	6M
	b	Define the voltage regulation of an alternator. Explain the various factors, which may affect the regulation of an alternator.	CO3	L1	6M

OR

4	a	Explain the significance of the short circuit ratio for finding voltage regulation.	CO2	L2	6M
	b	Define i) Armature resistance ii) Leakage reactance iii) synchronous reactance iv) Synchronous impedance	CO2	L4	6M

UNIT-III

5	a	Derive the expression for synchronizing current, synchronizing power and synchronizing torque.	CO3	L2	6M
	b	Explain necessity of parallel operation of alternators.	CO3	L2	6M

OR

6	a	Derive the expression for circulating current for dissimilar alternators connected by a common load.	CO3	L2	6M
	b	Explain the effect of change in excitation and mechanical power input of an alternator.	CO3	L2	6M

UNIT-IV

7	a	Explain the construction and working principle of a synchronous motor.	CO5	L2	6M
	b	A three-phase 500V star-connected synchronous motor gives a net output of 17 kW on full load operating at 0.9 lagging power factor. Its armature resistance is 0.8 Ω per phase. The mechanical losses are 1300 W. Estimate the current drawn by the motor and full load efficiency.	CO5	L4	6M

OR

8	a	Explain the power flow equation of synchronous motor.	CO5	L2	6M
	b	A 3-phase 11000V, the star-connected synchronous motor takes a load current of 100A. The effective synchronous reactance and resistance per phase are 30 Ω and 0.8 Ω respectively. Find the power supplied to the motor and induced EMF for i) 0.8 p.f lag ii) 0.8 p.f lead.	CO5	L4	6M

UNIT-V

9	a	State the methods of starting the synchronous motor. Explain any two detail.	CO6	L1	6M
	b	An industrial load of 800 kW is operating at 0.6 lagging power factor. It is desired to improve the factor to 0.92 lagging by connecting a synchronous motor driving load of 200 kW with an efficiency of 91%. Determine the KVA rating of the synchronous motor and the power factor at which it is operating.	CO6	L3	6M

OR

10		A 3-phase, 3300V, star-connected synchronous motor has an effective resistance and synchronous reactance of 2 Ω and 18 Ω per phase respectively. If the open circuit generated e.m.f is 3800 V between lines, calculate i) The maximum total mechanical power that the motor can develop and ii) The current and power factor at the maximum mechanical power.	CO6	L3	12M

***** END *****

Q.P.Code: 20CE0120	R20	H.T.No.									

SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY:: PUTTUR
(AUTONOMOUS)
B.Tech. III Year I Semester Supplementary Examinations June/July-2025
TRANSPORTATION ENGINEERING
(Civil Engineering)

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

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

UNIT-I

1		A valley curve is formed by a descending gradient of 1 in 40 meeting with an ascending gradient of 1 in 30. Design the length of valley curve for a design speed of 120 kmph so as to fulfill both comfort conditions and head light sight distance requirements. Assume rate of change of change of centrifugal acceleration as 0.6 m/sec^3 , reaction time 1.5 sec and coefficient of friction 0.30.	CO1	L3	12M

OR

2	a	Explain any four highway cross-sectional elements.	CO1	L2	6M
	b	What are the engineering surveys conducted to fix the alignment of a highway?	CO1	L2	6M

UNIT-II

3	a	Explain briefly about traffic control devices.	CO2	L2	6M
	b	What are the different types of off-street parking facilities that can be provided ina given area?	CO2	L2	6M

OR

4	a	Give the classification of road markings.	CO2	L2	6M
	b	Define 'Optimum Cycle Time' used in Signal Design by Webster method.	CO2	L2	6M

UNIT-III

5	a	With sketch show the different components of a rigid pavement and mention the functions of Each.	CO3	L2	8M
	b	List out the types of pavement based on structural behaviour.	CO3	L2	4M

OR

6	a	What are the factors should be considered for the design of flexible and rigid pavements Discuss the significance of each.	CO3	L2	8M
	b	Draw the stress distribution and cross section in flexible pavements and rigid pavements?	CO3	L3	4M

UNIT-IV

7	a	Discuss briefly about the functions of different components of permanent way.	CO4	L2	6M
	b	Draw a typical cross section of permanent way and show various components.	CO4	L2	6M

OR

8	a	What are the advantages and disadvantages of concrete sleepers?	CO4	L2	6M
	b	Explain the concept of creep using percussion theory.	CO4	L2	6M

UNIT-V

9	a	What is cant deficiency? Discuss briefly about the limits of cant deficiency.	CO5	L2	6M
	b	Explain briefly about types of Marshalling yards.	CO5	L2	6M

OR

10	a	Define grade compensation? If the ruling gradient is 1 in 120 on a particular section of MG and at the same time a 2.6 degree curve is situated on this ruling gradient, find out the allowable ruling gradient.	CO5	L3	6M
	b	What are the operational classifications of stations?	CO5	L2	6M

***** END *****

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

SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY:: PUTTUR
(AUTONOMOUS)
B.Tech. III Year I Semester Supplementary Examinations June/July-2025
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	List out the general design consideration to be followed while designing a machine element.	**CO1**	**L1**	**6M**
	b	Identify various manufacturing consideration to be followed in designing a machine element.	**CO1**	**L1**	**6M**

OR

2		A hollow shaft of 40 mm outer diameter and 25 mm inner diameter is subjected to a twisting moment of 120 N-m, simultaneously, it is subjected to an axial thrust of 10 kN and a bending moment of 80 N-m. Calculate the maximum compressive and shear stresses.	**CO1**	**L4**	**12M**

UNIT-II

3		A mild steel shaft of 50 mm diameter is subjected to a bending moment of 2000 N-m and a torque T. If the yield point of the steel in tension is 200 MPa, find the maximum value of this torque without causing yielding of the shaft according to 1. The maximum principal stress; 2. The maximum shear stress; and 3. the maximum distortion strain energy theory of yielding.	**CO2**	**L3**	**12M**

OR

4		Cylindrical shaft made of steel of yield strength 700 MPa is subjected to static loads consisting of bending moment 10 kN-m and a torsional moment 30 kN-m. Determine the diameter of the shaft using two different theories of failure, and assuming a factor of safety of 2. Take E = 210 GPa and poisson's ratio = 0.25.	**CO2**	**L3**	**12M**

UNIT-III

5	a	Discuss on bolts of uniform strength with practical applications of such bolts.	**CO3**	**L2**	**6M**
	b	A lever loaded safety valve has a diameter of 100 mm and the blow off pressure is 1.6 N/mm^2. The fulcrum of the lever is screwed into the cast iron body of the cover. Find the diameter of the threaded part of the fulcrum if the permissible tensile stress is limited to 50 MPa and the leverage ratio is 8.	**CO3**	**L3**	**6M**

OR

6	a	What are the advantages of preloading bolted joints?	CO3	L1	6M
	b	A steam engine of effective diameter 300 mm is subjected to a steam pressure of 1.5 N/mm^2. 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	6M

UNIT-IV

7	A steel solid shaft transmitting 15 kW at 200 r.p.m. is supported on two bearings 750 mm apart and has two gears keyed to it. The pinion having 30 teeth of 5 mm module is located 100 mm to the left of the right hand bearing and delivers power horizontally to the right. The gear having 100 teeth of 5 mm module is located 150 mm to the right of the left hand bearing and receives power in a vertical direction from below. Using an allowable stress of 54 MPa in shear, determine the diameter of the shaft.	CO4	L3	12M

OR

8	Design a knuckle joint to transmit 150 kN. The design stresses may be taken as 75 MPa in tension, 60 MPa in shear and 150 MPa in compression.	CO5	L3	12M

UNIT-V

9	Describe, with the help of neat sketches, the types of various shaft couplings mentioning the uses of each type.	CO6	L2	12M

OR

10	Design and draw a clamp coupling to transmit 30 kW at 100 r.p.m. The allowable shear stress for the shaft and key is 40 MPa and the number of bolts connecting the two halves are six. The permissible tensile stress for the bolts is 70 MPa. The coefficient of friction between the muff and the shaft surface may be takeSn as 0.3.	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 June/July-2025
CONTROL SYSTEMS
(Electrical & Electronics Engineering)

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

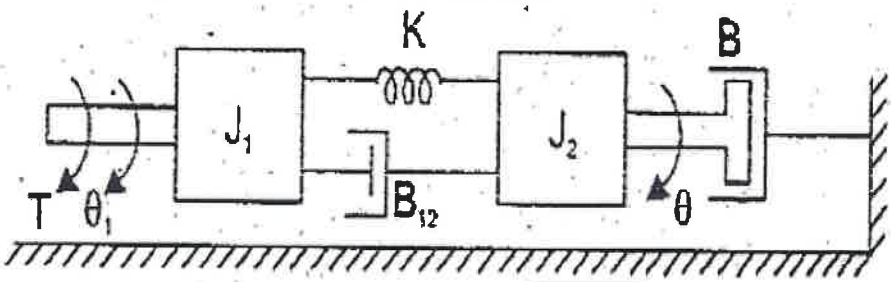
(Answer all Five Units **5 x 12 = 60** Marks)

UNIT-I

1	**a**	Define Open loop and Closed loop control systems with examples.	**CO1**	**L2**	**6M**
	b	List the properties of signal flow graph.	**CO1**	**L2**	**6M**

OR

2		Write the differential equations governing the mechanical rotational system shown in the figure and find transfer function.	**CO1**	**L4**	**12M**



UNIT-II

3	**a**	List out the time domain specifications and derive the expressions for Risetime, Peak time and Peak overshoot.	**CO2**	**L3**	**6M**
	b	Define steady state error. Derive the static error components for Type 0, Type 1 & Type 2 systems.	**CO2**	**L2**	**6M**

OR

4		A unity feedback control system has an open loop transfer function, $(S) = \frac{10}{S(S+2)}$. Find the rise time, percentage overshoot, peak time and settling time for a step input of 12 units.	**CO2**	**L3**	**12M**

UNIT-III

5		Develop the root locus of the system whose open loop transfer function is $(s) = \frac{K}{S(S+2)(S+4)}$.	**CO3**	**L3**	**12M**

OR

6		With the help of Routh's stability criterion determine the stability of the following systems represented by the characteristic equations: i) $S^5 + S^4 + 2S^3 + 2S^2 + 3S + 5 = 0$ ii) $9S^5 - 20S^4 + 10S^3 - S^2 - 9S - 10 = 0$	**CO3**	**L4**	**12M**

UNIT-IV

7		List out the frequency domain specifications and derive the expressions for resonant peak.	**CO4**	**L2**	**12M**

OR

8		Sketch the polar plot for the open loop transfer function of a unity feedback system is given by $(s) = \frac{1}{S^2(1+S)(1+2S)}$. Determine Gain Margin & Phase Margin.	**CO4**	**L4**	**12M**

UNIT-V

9	**a**	Define state, state variable, state equation.	**CO5**	**L2**	**6M**
	b	Find state variable representation of an armature controlled D.C motor.	**CO5**	**L3**	**6M**

OR

10		Find a state model for the system whose Transfer function is given by $$G(s)H(s) = \frac{(7S^2 + 12S + 8)}{(S^3 + 6S^2 + 11S + 9)}$$	**CO5**	**L4**	**12M**

***** END *****

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

SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY:: PUTTUR
(AUTONOMOUS)
B.Tech. III Year I Semester Supplementary Examinations June/July-2025
STRUCTURAL DESIGN
(Civil Engineering)

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

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

UNIT-I

1		A reinforced concrete beam of size 230mm x 450mm overall, carries a 'udl' of 20 kN/m excluding self-weight, the effective span of beam is 5.5m. Design the reinforcement for the beam. Use M20 grade concrete and Fe500 steel assuming an effective cover of 40mm.	**CO1**	**L4**	**12M**
		OR			
2		A reinforced beam of rectangular section 300mm x 450mm has reinforcement of 6# of 20mmϕ as tension reinforcement and 2# of 16mmϕ as compression reinforcement. Find the ultimate moment of resistance of the beam using M20 grade concrete and Fe250 grade steel. Assume effective cover as 35mm.	**CO1**	**L3**	**12M**

UNIT-II

3		Design a rectangular simply supported RC beam over a clear span of 6m, if the super imposed load is 12 kN/m and the support width is 230mm. Use M20 grade concrete and Fe415 steel. The beam to have a width of 300mm. Design the shear reinforcement and do the check for deflection.	**CO2**	**L4**	**12M**
		OR			
4		Design a reinforced concrete slab to carry a live load of 3 kN/m^2 on an effective span of 3.5m. Use M20 concrete & Fe415 steel. Assume floor finish as 1 kN/m^2	**CO2**	**L4**	**12M**

UNIT-III

5		A reinforced concrete column of size 300mm x 300mm carries a load of 750 kN. The safe bearing capacity of soil is 200 kN/m^2. Design an isolated column footing with uniform thickness. Use M20 grade concrete and Fe415 steel.	**CO4**	**L4**	**12M**
		OR			
6		Design a short axially loaded square column 500mm x 500mm for a service load of 2000 kN. Use M20 grade concrete and Fe415 HYSD bars.	**CO3**	**L4**	**12M**

UNIT-IV

7	**a**	Explain various types of structural steel used in construction.	**CO5**	**L2**	**6M**
	b	Explain various types of bolted connections with neat sketch.	**CO5**	**L2**	**6M**
		OR			
8		Design a double angle tension member connected on each side of a 10mm thick gusset plate, to carry an axial load of 375 kN. Use 20mm black bolts. Assume shop connection.	**CO5**	**L4**	**12M**

UNIT-V

9		Design a double angle discontinuous strut to carry a factored load of 135 kN resulting from combination from wind load. The length of the strut is 3m between intersections. The two angles are place back-to-back (with long legs connected) and are tack bolted. Use steel grade of E250 i) Angles are placed on opposite sides of 12mm gusset plate ii) Angles are placed on same side of 12mm gusset plate.	**CO6**	**L4**	**12M**

OR

10	Design a simply supported beam of 10m effective span carrying a factored load of 60 kN/m. Depth of beam should not exceed 500mm. Compression flange of beam is laterally supported by floor construction. Assume stiff end bearing is 75mm.	**CO6**	**L4**	**12M**

***** END *****

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SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY:: PUTTUR
(AUTONOMOUS)
B.Tech. III Year I Semester Supplementary Examinations June/July-2025
AUTOMATA THEORY AND COMPILER DESIGN
(Common to CSM,CIC & CAI)

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

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

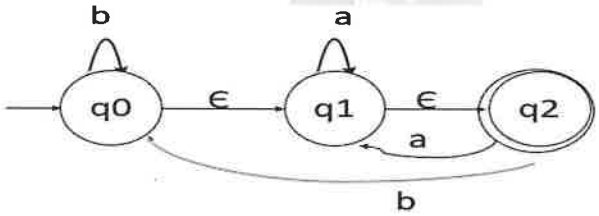
UNIT-I

1	a	Compare DFA and NFA.	CO1	L2	5M
	b	Construct DFA for the given NFA	CO2	L6	7M

	Next state	
	0	1
→ q0	q0,q1	q0
q1	q2	q1
q2	q3	q3
(q3)	-	q2

OR

2	a	Write the process of conversion from NFA with ε moves to DFA.	CO3	L4	6M
	b	Convert the following NFA with ε moves to DFA.	CO2	L6	6M



UNIT-II

3	a	State the formal of PDA.	CO5	L1	6M
	b	Construct an equivalent PDA for the following CFG.	CO5	L6	6M

S→aAB | bBA
A→bS | a
B→aS | b.

OR

4	a	Explain the various types of Turing machine.	CO6	L2	6M
	b	Differentiate PCP and MPCP.	CO6	L4	6M

UNIT-III

5	a	Describe the role of Compiler.	CO1	L1	4M
	b	Design the recursive decent parser for the following grammar.	CO3	L6	8M

E→E+T/T
T→T*F/F
F→(E)/id

OR

6	a	Explain LEX Tool with the structure of Lex Program.	CO3	L2	8M
	b	Illustrate Application of compiler technology.	CO1	L3	4M

UNIT-IV

7	a	Explain syntax directed definition with simple examples.	CO2	L2	6M
	b	Describe in detail the Translation scheme of SDD.	CO2	L2	6M

OR

8	a	Explain about handle pruning.	CO1	L2	6M
	b	Summarize about SLR parsing.	CO1	L2	6M

UNIT-V

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

OR

10	a	Define and Show Dead-code elimination with example.	CO4	L1	6M
	b	List and explain the Issues in the design of a code generator.	CO6	L2	6M

***** END *****