# SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY:: PUTTUR
## (AUTONOMOUS)
### B.Tech IV Year II Semester Supplementary Examinations May-2025
### CRYPTO CURRENCY & BLOCKCHAIN TECHNOLOGY
### (Computer Science & Information Technology)

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

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

## UNIT-I

| | | | | | |
|---|---|---|---|---|---|
| 1 | a | Explain about Byzantine General Problem. | CO1 | L2 | 6M |
| | b | Explain about Byzantine Fault Tolerance. | CO1 | L2 | 6M |

**OR**

| | | | | | |
|---|---|---|---|---|---|
| 2 | | Explain Hadoop Distributed File System. | CO1 | L2 | 12M |

## UNIT-II

| | | | | | |
|---|---|---|---|---|---|
| 3 | | Explain about need of Blockchain. | CO2 | L2 | 12M |

**OR**

| | | | | | |
|---|---|---|---|---|---|
| 4 | | What are the different types of Blockchains? | CO2 | L3 | 12M |

## UNIT-III

| | | | | | |
|---|---|---|---|---|---|
| 5 | | Explain Sybil attack with examples. | CO3 | L3 | 12M |

**OR**

| | | | | | |
|---|---|---|---|---|---|
| 6 | a | How the Bitcoin network prevents sybil attack? | CO3 | L4 | 6M |
| | b | What are the ways to prevent sybil attack? | CO3 | L3 | 6M |

## UNIT-IV

| | | | | | |
|---|---|---|---|---|---|
| 7 | a | What are the attacks in cryptocurrency? | CO4 | L2 | 6M |
| | b | Write a short notes on sidechain and namecoin. | CO4 | L2 | 6M |

**OR**

| | | | | | |
|---|---|---|---|---|---|
| 8 | | Write in detail about GHOST. | CO4 | L4 | 12M |

## UNIT-V

| | | | | | |
|---|---|---|---|---|---|
| 9 | | Explain about roots of Bitcoin. | CO5 | L3 | 12M |

**OR**

| | | | | | |
|---|---|---|---|---|---|
| 10 | | Explain Black Market and Global Economy in detail. | CO5 | L3 | 12M |

*** END ***

## SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY:: PUTTUR
### (AUTONOMOUS)
**B.Tech IV Year II Semester Supplementary Examinations May-2025**
**DISTRIBUTED COMPUTING**
**(Computer Science & Information Technology)**

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

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

### UNIT-I

| | | | | |
|---|---|---|---|---|
| 1 | Define Distributed System. What are the advantages of distributed systems? | CO1 | L1 | 10M |

**OR**

| | | | | |
|---|---|---|---|---|
| 2 | Discuss in detail about LAN and WAN technologies.. | CO6 | L6 | 10M |

### UNIT-II

| | | | | |
|---|---|---|---|---|
| 3 | What is Message Passing? How Message Passing Approach does is differ from Shared memory approach. | CO1 | L1 | 10M |

**OR**

| | | | | |
|---|---|---|---|---|
| 4 | Explain in detail about Constructing a DFS spanning tree with a specified root. | CO2 | L2 | 10M |

### UNIT-III

| | | | | |
|---|---|---|---|---|
| 5 | Explain in detail about RMI Implementation and Java RMI. | CO2 | L2 | 10M |

**OR**

| | | | | |
|---|---|---|---|---|
| 6 | Discuss in detail about Deadlocks in Distributed systems. | CO6 | L6 | 10M |

### UNIT-IV

| | | | | |
|---|---|---|---|---|
| 7 | Distinguish between Load balancing approach and Load sharing approach. | CO4 | L4 | 10M |

**OR**

| | | | | |
|---|---|---|---|---|
| 8 | Explain about threads and fault tolerance. | CO2 | L2 | 10M |

### UNIT-V

| | | | | |
|---|---|---|---|---|
| 9 | Discuss in detail about Naming and its Features. | CO6 | L6 | 10M |

**OR**

| | | | | |
|---|---|---|---|---|
| 10 | Explain about DNS in detail. | CO2 | L2 | 10M |

*** END ***

## SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY:: PUTTUR
(AUTONOMOUS)
**B.Tech III Year II Semester Supplementary Examinations May-2025**
## COMPUTER GRAPHICS & ANIMATION
(Computer Science & Information Technology)

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

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

### UNIT-I

| | | | | |
|---|---|---|---|---|
| 1 | Discuss in brief about history of computer animation. | CO1 | L2 | 12M |

**OR**

| | | | | |
|---|---|---|---|---|
| 2 | What is Display pipe line? Explain. | CO1 | L1 | 12M |

### UNIT-II

| | | | | |
|---|---|---|---|---|
| 3 | What are Key frame systems? Explain. | CO2 | L2 | 12M |

**OR**

| | | | | |
|---|---|---|---|---|
| 4 | Discuss the following | CO2 | L2 | 12M |

   a) Computer Arc length

   b) Interpolating Quaternions

### UNIT-III

| | | | | |
|---|---|---|---|---|
| 5 | Explain in detail about 3 D shape interpolation. | CO3 | L2 | 12M |

**OR**

| | | | | |
|---|---|---|---|---|
| 6 | How to manipulate motion capture data? Explain. | CO3 | L1 | 12M |

### UNIT-IV

| | | | | |
|---|---|---|---|---|
| 7 | What is Reaching and Grasping? Explain. | CO4 | L1 | 12M |

**OR**

| | | | | |
|---|---|---|---|---|
| 8 | Describe about Lip-sync function. | CO4 | L2 | 12M |

### UNIT-V

| | | | | |
|---|---|---|---|---|
| 9 | Explain in detail about modeling intelligent behavior. | CO5 | L2 | 12M |

**OR**

| | | | | |
|---|---|---|---|---|
| 10 | Discuss about the following | CO5 | L2 | 12M |

   a) Modeling individuality

   b) Autonomous behavior

*** END ***

# SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY:: PUTTUR
## (AUTONOMOUS)
### B.Tech III Year II Semester Supplementary Examinations May-2025
### COMPILER DESIGN
### (Common to CSIT & CSE)

Time: 3 Hours                                                    Max. Marks: 60

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

## UNIT-I

| | | | | | |
|---|---|---|---|---|---|
| 1 | a | How many phases are there in a compiler? Explain each phase in detail | CO1 | L3 | 6M |
| | b | Describe the role of lexical analysis in compiler design. | CO1 | L4 | 6M |

**OR**

| | | | | | |
|---|---|---|---|---|---|
| 2 | a | Explain Input Buffering with simple examples. | CO1 | L2 | 6M |
| | b | How to design the compiler by using the source program position:=intial+rate*60. | CO1 | L3 | 6M |

## UNIT-II

| | | | | | |
|---|---|---|---|---|---|
| 3 | a | Explain about Left factoring and Left Recursion with an examples. | CO2 | L4 | 6M |
| | b | Construct Predictive Parse Table for the grammar E->E+T/T, T >T*F/F,F->(E)|id and parse the string id+id*id. | CO2 | L2 | 6M |

**OR**

| | | | | | |
|---|---|---|---|---|---|
| 4 | a | Consider the grammar S->xABC<br>A->a\|bbD<br>B->a\|ε<br>C->b\| ε<br>D->c\| ε<br>Construct predictive parsing table for the given grammar. | CO2 | L3 | 6M |
| | b | Explain the Ambiguous grammar. | CO2 | L2 | 6M |

## UNIT-III

| | | | | | |
|---|---|---|---|---|---|
| 5 | a | Explain syntax directed definition with simple examples. | CO3 | L2 | 6M |
| | b | Describe the evaluation order of SDT with an example. | CO3 | L4 | 6M |

**OR**

| | | | | | |
|---|---|---|---|---|---|
| 6 | a | Explain the Type Checking with suitable examples. | CO3 | L2 | 6M |
| | b | Write down the translation procedure for control statement. | CO3 | L3 | 6M |

## UNIT-IV

| | | | | | |
|---|---|---|---|---|---|
| 7 | a | Draw the format of Activation Record in stack allocation and explain each field in it. | CO4 | L4 | 6M |
| | b | Explain theStorage Organization with simple examples. | CO4 | L2 | 6M |

**OR**

| | | | | | |
|---|---|---|---|---|---|
| 8 | a | Distinguish between static scope and dynamic scope. Briefly explain access to non-local Names in static scope. | CO4 | L3 | 6M |
| | b | Explain the Non Block Structured Languages. | CO4 | L2 | 6M |

## UNIT-V

| | | | | | |
|---|---|---|---|---|---|
| 9 | a | Explain the simple code generator and generate target code sequence for the following statement d:=(a-b)+(a-c)+(a-c). | CO5 | L4 | 6M |
| | b | Discuss the Role of peephole optimization in compilation process. | CO5 | L3 | 6M |

**OR**

| | | | | | |
|---|---|---|---|---|---|
| 10 | a | List and explain the Issues in the design of a code generator. | CO5 | L3 | 6M |
| | b | Explain the target machine architecture. | CO5 | L2 | 6M |

*** END ***

## SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY:: PUTTUR
### (AUTONOMOUS)
**B.TechII Year II Semester Supplementary Examinations May-2025**
## FUNDAMENTALS OF OPERATING SYSTEMS
(Computer Science & Information Technology)

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

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

### UNIT-I

| | | | | | |
|---|---|---|---|---|---|
| 1 | a | Explain Inter Process Communication(IPC). | CO1 | L2 | 6M |
| | b | Justify Message Passing And Shared Memory. | CO1 | L5 | 6M |

**OR**

| | | | | | |
|---|---|---|---|---|---|
| 2 | a | Define Process State Diagram. | CO1 | L1 | 6M |
| | b | Explain Process Scheduling. | CO1 | L2 | 6M |

### UNIT-II

| | | | | | |
|---|---|---|---|---|---|
| 3 | a | Discuss Critical section problem. | CO2 | L2 | 6M |
| | b | Demonstrate critical problem solution. | CO2 | L2 | 6M |

**OR**

| | | | | | |
|---|---|---|---|---|---|
| 4 | a | Write about Implementation of semaphore. | CO2 | L1 | 6M |
| | b | What is semaphore? | CO2 | L1 | 6M |

### UNIT-III

| | | | | | |
|---|---|---|---|---|---|
| 5 | a | Give example for FIFO page replacement. | CO3 | L1 | 6M |
| | b | Illustrate Optimal Page replacement example. | CO3 | L3 | 6M |

**OR**

| | | | | | |
|---|---|---|---|---|---|
| 6 | a | What is Thrashing? | CO3 | L1 | 4M |
| | b | Discuss cause of thrashing and working set model. | CO3 | L2 | 8M |

### UNIT-IV

| | | | | | |
|---|---|---|---|---|---|
| 7 | a | Write short notes on Disk Structure. | CO4 | L1 | 6M |
| | b | Write short notes on Disk Attachment. | CO4 | L1 | 6M |

**OR**

| | | | | | |
|---|---|---|---|---|---|
| 8 | a | Write notes on File system mounting. | CO4 | L1 | 6M |
| | b | Brief about File sharing. | CO4 | L1 | 6M |

### UNIT-V

| | | | | | |
|---|---|---|---|---|---|
| 9 | a | Explain I/O hardware. | CO5 | L2 | 6M |
| | b | Explain application I/O interface. | CO5 | L2 | 6M |

**OR**

| | | | | | |
|---|---|---|---|---|---|
| 10 | a | Explain kernel I/O subsystem. | CO5 | L2 | 6M |
| | b | Explain security problem. | CO5 | L2 | 6M |

*** END ***

## SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY:: PUTTUR
### (AUTONOMOUS)
**B.Tech. II Year II Semester Supplementary Examinations May-2025**
### OBJET ORIENTED PROGRAMMING
### (Common to CSE & CSIT)

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

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

### UNIT-I

| | | | | | |
|---|---|---|---|---|---|
| 1 | a | Explain History and Evolution of Java. | CO1 | L4 | 6M |
| | b | What is a Data Type? How to declare variable in Java. Write the Rules. | CO1 | L3 | 6M |

**OR**

| | | | | | |
|---|---|---|---|---|---|
| 2 | a | Explain about the Iteration Statements with an example. | CO1 | L4 | 6M |
| | b | Write a Java program to use Bit-wise operators. | CO1 | L2 | 6M |

### UNIT-II

| | | | | | |
|---|---|---|---|---|---|
| 3 | a | What is mean by OOP? Explain OOP Concepts. | CO2 | L3 | 6M |
| | b | Discuss about the static, final keywords with an example. | CO2 | L2 | 6M |

**OR**

| | | | | | |
|---|---|---|---|---|---|
| 4 | a | Explain about the Dynamic Method Dispath in Java with example program. | CO2 | L4 | 6M |
| | b | What is a package? How to create user defined package in java with example. | CO2 | L2 | 6M |

### UNIT-III

| | | | | | |
|---|---|---|---|---|---|
| 5 | a | What is an Exception? What are the Exception types? Explain. | CO3 | L3 | 6M |
| | b | Explain about Nested try statements with an example. | CO3 | L2 | 6M |

**OR**

| | | | | | |
|---|---|---|---|---|---|
| 6 | a | What is Multithreading? What are the ways to create multiple threads in java. | CO3 | L4 | 6M |
| | b | Explain about Thread Life Cycle. | CO3 | L2 | 6M |

### UNIT-IV

| | | | | | |
|---|---|---|---|---|---|
| 7 | a | What is an Applet? Explain life cycle of an applet. | CO4 | L3 | 6M |
| | b | Explain about Delegation Event Model in Event Handling with example. | CO4 | L2 | 6M |

**OR**

| | | | | | |
|---|---|---|---|---|---|
| 8 | a | Difference between AWT and Swings. | CO4 | L4 | 6M |
| | b | Write a java swing program to find the sum of two numbers. | CO4 | L2 | 6M |

### UNIT-V

| | | | | | |
|---|---|---|---|---|---|
| 9 | a | Explain java networking? Explain the architecture of networking in java. | CO5 | L3 | 6M |
| | b | Discuss about java.sql package with an example. | CO5 | L2 | 6M |

**OR**

| | | | | | |
|---|---|---|---|---|---|
| 10 | | Write a java program to read and display data from database. | CO5 | L4 | 12M |

*** END ***

## SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY:: PUTTUR
### (AUTONOMOUS)
**B.Tech I Year II Semester Supplementary Examinations May-2025**
### DATA STRUCTURES THROUGH C
(Common to CSE & CSIT)

Time: 3 Hours           Max. Marks: 60

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

### UNIT-I

| | | | | |
|---|---|---|---|---|
| 1 | a | Write a detailed note on<br>(i)     Static representation of Single Linked List.<br>(ii)    Dynamic representation of Single Linked List. | CO1 | L2 | 6 M |
| | b | Write short notes on the following concepts. | CO1 | L2 | 6 M |

**OR**

| | | | | |
|---|---|---|---|---|
| 2 | Discuss all types of Insertion operations on a S.L.L with algorithms. | CO1 | L3 | 12 M |

### UNIT-II

| | | | | |
|---|---|---|---|---|
| 3 | Explain the Tower of Hanoi problem containing 3 discs and write the algorithm to solve it. | CO2 | L3 | 12 M |

**OR**

| | | | | |
|---|---|---|---|---|
| 4 | Define Circular Queue. How to insert and delete a node into and from it. Write algorithms for them. | CO2 | L3 | 12 M |

### UNIT-III

| | | | | |
|---|---|---|---|---|
| 5 | Discuss about traversal operation on a Binary search tree write the algorithms for them. | CO3 | L3 | 12 M |

**OR**

| | | | | |
|---|---|---|---|---|
| 6 | How to do Topological Sorting on a directed acyclic graph, explain with an example? | CO3 | L3 | 12 M |

### UNIT-IV

| | | | | |
|---|---|---|---|---|
| 7 | Discuss the following Sorting techniques with example<br>i)     Straight Insertion Sort.<br>ii)    List Insertion Sort. | CO4 | L3 | 12 M |

**OR**

| | | | | |
|---|---|---|---|---|
| 8 | Write a detailed writes on sorting by Merging. | CO4 | L3 | 12M |

### UNIT-V

| | | | | |
|---|---|---|---|---|
| 9 | What is Hash table and explain any two Hash functions with an example? | CO5 | L3 | 12M |

**OR**

| | | | | |
|---|---|---|---|---|
| 10 | Write and explain the algorithm for Linear search using linked list. | CO5 | L3 | 12 M |

*** END ***

# SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY: PUTTUR
## (AUTONOMOUS)
### B.Tech. II Year II Semester Supplementary Examinations May-2025
### COMPUTER ORGANIZATION
(Common to CSIT & CSE)

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

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

## UNIT-I

| | | | | | |
|---|---|---|---|---|---|
| 1 | a | What is Assembly Language and Write few Assembly Language Instructions. | CO1 | L3 | 6M |
| | b | How the Basic I/O Operations work, explain in detail? | CO1 | L2 | 6M |

**OR**

| | | | | | |
|---|---|---|---|---|---|
| 2 | | Write in detail about Addressing Modes and its types. | CO1 | L3 | 12M |

## UNIT-II

| | | | | | |
|---|---|---|---|---|---|
| 3 | | Explain the logic behind carry - look ahead addition with its circuit diagram and High level generate and propagate function circuit diagram. | CO2 | L5 | 12M |

**OR**

| | | | | | |
|---|---|---|---|---|---|
| 4 | | Draw the H/W Flowchart and H/W Algorithm for Multiplication for signed numbers (Booth Multiplication) with a suitable example. | CO2 | L1 | 12M |

## UNIT-III

| | | | | | |
|---|---|---|---|---|---|
| 5 | | Explain about the overall arithmetic circuit that performs all kinds of AMO with a neat diagram. | CO3 | L2 | 12M |

**OR**

| | | | | | |
|---|---|---|---|---|---|
| 6 | a | Write about Bus transfer with neat diagram. | CO3 | L3 | 6M |
| | b | Write out Register Representations and way it is used. | CO3 | L3 | 6M |

## UNIT-IV

| | | | | | |
|---|---|---|---|---|---|
| 7 | a | Explain about Memory Hierarchy. | CO4 | L2 | 6M |
| | b | Explain about Memory Management Requirements. | CO4 | L5 | 6M |

**OR**

| | | | | | |
|---|---|---|---|---|---|
| 8 | | What is Virtual Memory? Discuss how paging helps in implementing virtual memory. | CO4 | L6 | 12M |

## UNIT-V

| | | | | | |
|---|---|---|---|---|---|
| 9 | a | Define parallel processing? How one can achieve parallel processing with single CPU. | CO5 | L1 | 6M |
| | b | Explain about characteristics of Multiprocessor. | CO5 | L2 | 6M |

**OR**

| | | | | | |
|---|---|---|---|---|---|
| 10 | | What is DMA? Draw the block diagram for DMA controller and explain about DMA transfer in a computer. | CO5 | L1 | 12M |

*** END ***

## SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY:: PUTTUR
### (AUTONOMOUS)
**B.Tech IV Year II Semester Supplementary Examinations May-2025**
### ADVANCED WELDING PROCESSES
#### (Mechanical Engineering)

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

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

### UNIT-I

| | | | | | |
|---|---|---|---|---|---|
| 1 | a | What are the gas welding techniques? | CO1 | L1 | 6M |
| | b | Give the applications of gas welding. | CO1 | L1 | 6M |

**OR**

| | | | | | |
|---|---|---|---|---|---|
| 2 | a | Classify the arc welding consumables. | CO1 | L1 | 6M |
| | b | What are the main purposes of electrode coatings? | CO1 | L1 | 6M |

### UNIT-II

| | | | | | |
|---|---|---|---|---|---|
| 3 | a | Explain the addition of filler metal in TIG welding | CO2 | L2 | 6M |
| | b | What are the metals that can be welded by TIG and give the area of application? | CO2 | L2 | 6M |

**OR**

| | | | | | |
|---|---|---|---|---|---|
| 4 | a | List the different forces that affect the mode of metal transfer in arc welding and describe their role in brief. | CO2 | L3 | 6M |
| | b | Classify the modes of metal transfer in arc welding and describe their characteristics and use in position. | CO2 | L1 | 6M |

### UNIT-III

| | | | | | |
|---|---|---|---|---|---|
| 5 | a | Discuss the output V-I characteristics of welding generator and use of pulsed currents. | CO3 | L2 | 6M |
| | b | If the maximum output current from a welding power source of 100% duty cycle is 350A, determine the rated current at 75% duty cycle. | CO3 | L4 | 6M |

**OR**

| | | | | | |
|---|---|---|---|---|---|
| 6 | a | With neat sketch explain joint designs in friction welding. | CO4 | L2 | 6M |
| | b | Give the applications of friction welding process. | CO4 | L3 | 6M |

### UNIT-IV

| | | | | | |
|---|---|---|---|---|---|
| 7 | a | What are the application of explosive welding and area of application? | CO5 | L1 | 6M |
| | b | Give the advantages and disadvantages of explosive welding. | CO5 | L2 | 6M |

**OR**

| | | | | | |
|---|---|---|---|---|---|
| 8 | a | Give the advantages and disadvantages of adhesive bonding. | CO5 | L2 | 6M |
| | b | What are the applications of adhesive bonding? | CO5 | L1 | 6M |

### UNIT-V

| | | | | | |
|---|---|---|---|---|---|
| 9 | | Enumerate different soldering methods and describe in detail any two of them. | CO6 | L2 | 12M |

**OR**

| | | | | | |
|---|---|---|---|---|---|
| 10 | a | Describe the LASER beam welding process with neat sketch. | CO6 | L2 | 6M |
| | b | Discuss the process variables in LASER beam welding. | CO6 | L2 | 6M |

**\*\*\* END \*\*\***

## SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY:: PUTTUR
### (AUTONOMOUS)
**B.Tech IV Year II Semester Supplementary Examinations May-2025**
## POWER PLANT ENGINEERING
### (Mechanical Engineering)

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

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

### UNIT-I

| | | | | |
|---|---|---|---|---|
| 1 | Explain the layout of steam power plant with neat sketch. | CO1 | L2 | 12M |
| | **OR** | | | |
| 2 | Explain the layout of gas turbine power plant. | CO1 | L5 | 12M |

### UNIT-II

| | | | | |
|---|---|---|---|---|
| 3 | Organize types of equipment used for transferring coal. | CO2 | L6 | 12M |
| | **OR** | | | |
| 4 | Write briefly about cyclone furnace, design and construction. | CO2 | L4 | 12M |

### UNIT-III

| | | | | | |
|---|---|---|---|---|---|
| 5 | | Explain the working of a diesel power plant with a neat sketch. | CO3 | L2 | 12M |
| | | **OR** | | | |
| 6 | a | Discuss about fuel system and lubrication system of diesel engine. | CO3 | L3 | 6M |
| | b | Compare a closed cycle gas turbines with open cycle gas turbine. | CO3 | L1 | 6M |

### UNIT-IV

| | | | | |
|---|---|---|---|---|
| 7 | Discuss a pumped storage power plant with neat diagram. | CO4 | L2 | 12M |
| | **OR** | | | |
| 8 | Explain governing mechanism of turbines with a neat sketch. | CO4 | L5 | 12M |

### UNIT-V

| | | | | |
|---|---|---|---|---|
| 9 | Discuss true chain reaction. | CO5 | L4 | 12M |
| | **OR** | | | |
| 10 | Explain with a neat diagram Pressurized water reactor. | CO5 | L2 | 12M |

*** END ***

## SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY:: PUTTUR
### (AUTONOMOUS)
**B.Tech II Year II Semester Supplementary Examinations May-2025**
### ENGINEERING THERMODYNAMICS
**(Mechanical Engineering)**

Time: 3 Hours                                                    Max. Marks: 60

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

### UNIT-I

| | | | | | |
|---|---|---|---|---|---|
| 1 | a | Discuss the macroscopic and microscopic point of view of thermodynamics. | CO1 | L1 | 6M |
| | b | Define and explain Zeroth Law of Thermodynamics. | CO1 | L2 | 6M |

**OR**

| | | | | | |
|---|---|---|---|---|---|
| 2 | | What is meant by thermodynamics equilibrium? Explains its types briefly. | CO1 | L4 | 12M |

### UNIT-II

| | | | | | |
|---|---|---|---|---|---|
| 3 | a | Derive Steady Flow Energy Equation for Nozzle. | CO2 | L5 | 6M |
| | b | During a cycle consisting of four processes, the heat transfer are as following. Q1 = +60KJ, Q2 = -40KJ, Q3= 15KJ, and Q4=-20KJ, Determine the net work done by the system. | CO2 | L1 | 6M |

**OR**

| | | | | | |
|---|---|---|---|---|---|
| 4 | a | What are the different modes in which energy is stored in a system. | CO3 | L2 | 6M |
| | b | Explain the Specific heat capacities (Cp & Cv). | CO3 | L3 | 6M |

### UNIT-III

| | | | | | |
|---|---|---|---|---|---|
| 5 | a | State and explain second law of thermodynamics | CO3 | L2 | 6M |
| | b | An inventor claims to have developed an engine that takes in 105 MJ at a temperature of 400 K, rejects 42 MJ at a temperature of 200 K, and delivers 15 kWh of mechanical work. Would you advise investing money to put this engine in the market? | CO3 | L4 | 6M |

**OR**

| | | | | | |
|---|---|---|---|---|---|
| 6 | | An adiabatic vessel contain 2 kg of water at 25 0C. By peddle wheel work transfer the temperature of water is increase to 30 0C. If the specific heat of water is assumed constant at 4.187 kJ/kgK, Find entropy change of universe. | CO4 | L5 | 12M |

### UNIT-IV

| | | | | | |
|---|---|---|---|---|---|
| 7 | a | Write Vander walls equation of state. How does it differ from the ideal gas equation of state. | CO4 | L1 | 6M |
| | b | What is the gas equation of ideal gas? | CO4 | L2 | 6M |

**OR**

| | | | | | |
|---|---|---|---|---|---|
| 8 | | One kg of air in a closed system, initially at 5°C and occupying $0.3 m3$ volume, undergoes a constant pressure heating process to 100°C. There is no work other than *pdv* work. Find (i) the work done during the process, (ii) the heat transferred, and (iii) the entropy change of the gas. | CO4 | L3 | 12M |

### UNIT-V

| | | | | | |
|---|---|---|---|---|---|
| 9 | | Derive the Maxwell's equations. | CO5 | L4 | 12M |

**OR**

| | | | | | |
|---|---|---|---|---|---|
| 10 | | Derive an expression for the thermal efficiency of Diesel cycle and draw P-V & T-S diagrams. | CO5 | L5 | 12M |

*** END ***

# SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY:: PUTTUR
## (AUTONOMOUS)
### B.Tech. IV Year II Semester Supplementary Examinations May-2025
### ENTREPRENEURSHIP DEVELOPMENT
(Computer Science & Information Technology)

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

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

## UNIT-I

| | | | | | |
|---|---|---|---|---|---|
| 1 | a | Entrepreneur is successful because of his ability to think differently. Why or why not? | CO1 | L1 | 6M |
| | b | Define the Functions of an entrepreneur. | CO1 | L2 | 6M |

**OR**

| | | | | | |
|---|---|---|---|---|---|
| 2 | a | Analyze the Rural Entrepreneurship? explain in detail. | CO1 | L4 | 6M |
| | b | Write a notes on Corporate entrepreneurship. | CO1 | L2 | 6M |

## UNIT-II

| | | | | | |
|---|---|---|---|---|---|
| 3 | a | How are MSME helpful to develop Economic Development. | CO2 | L2 | 6M |
| | b | What is the Importance of small business. | CO2 | L1 | 6M |

**OR**

| | | | | | |
|---|---|---|---|---|---|
| 4 | | Summarize about Licensing and Leasing and Franchising. | CO2 | L3 | 12M |

## UNIT-III

| | | | | | |
|---|---|---|---|---|---|
| 5 | a | Construct the concept of invention. | CO3 | L5 | 6M |
| | b | Find the advantages of Innovation in Business. | CO3 | L4 | 6M |

**OR**

| | | | | | |
|---|---|---|---|---|---|
| 6 | a | Write short notes on Copy Rights and Patents. | CO3 | L2 | 6M |
| | b | Explain about E-commerce in business. | CO3 | L1 | 6M |

## UNIT-IV

| | | | | | |
|---|---|---|---|---|---|
| 7 | a | Outline the EDP and discuss its advantages. | CO4 | L2 | 6M |
| | b | Examine about consultancy organization. | CO4 | L4 | 6M |

**OR**

| | | | | | |
|---|---|---|---|---|---|
| 8 | a | List out the successful women entrepreneurs. | CO4 | L2 | 6M |
| | b | How are entrepreneurship development programs helpful to an entrepreneur explan. | CO4 | L3 | 6M |

## UNIT-V

| | | | | | |
|---|---|---|---|---|---|
| 9 | a | Determine the stages of project management process. | CO5 | L2 | 6M |
| | b | Explain the role of project planning in entrepreneurship. | CO5 | L1 | 6M |

**OR**

| | | | | | |
|---|---|---|---|---|---|
| 10 | a | Clarify project planning is related to the entrepreneurial development. | CO5 | L3 | 6M |
| | b | How can a feasible about Economic and Industry analysis. | CO5 | L3 | 6M |

*** END ***

## SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY:: PUTTUR
### (AUTONOMOUS)
**B.Tech I Year II Semester Supplementary Examinations May-2025**
### ENGINEERING GRAPHICS
### (Common to CE, EEE, ME & AGE)

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

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

### UNIT-I

| | | | | | |
|---|---|---|---|---|---|
| 1 | a | Draw an ellipse having major axis is equal to 100 mm and the minor axis is equal to 70 mm. Use the concentric circle method | CO1 | L1 | 6M |
| | b | Draw the involute of a square of side 25 mm | CO1 | L1 | 6M |

**OR**

| | | | | |
|---|---|---|---|---|
| 2 | A point P is 30 mm and 50 mm respectively from two straight lines which are at right angles to each other. Draw the rectangular hyperbola from p within 10 mm distance from each line. | CO1 | L2 | 12M |

### UNIT-II

| | | | | |
|---|---|---|---|---|
| 3 | Draw the projections of the following points, keeping the distance between the projectors as 25mm on the same reference lines:<br>A – 20mm above HP and 30mm in front of VP<br>B – 20mm above HP and 30mm behind VP<br>C – 20mm below HP and 30mm behind VP<br>D – 20mm below HP and 30mm in front of VP<br>E – On HP and 30mm in front of VP<br>F – On VP and 20mm above HP<br>G – Lying on both HP and VP | CO1 | L2 | 12M |

**OR**

| | | | | |
|---|---|---|---|---|
| 4 | A line CD, 75mm long is inclined at an angle of $45^0$ to HP and $30^0$ to VP. The point P is 15mm above HP and 20mm in front of VP. Draw the projections of the line. | CO1 | L3 | 12M |

### UNIT-III

| | | | | |
|---|---|---|---|---|
| 5 | An equilateral triangular plane ABC of side 40mm, has its plane parallel to VP and 20mm away from it. Draw the projections of the plane when one of its sides is (i) Parallel to HP and (ii) Inclined to HP at an angle of $45^0$. | CO2 | L2 | 12M |

**OR**

| | | | | |
|---|---|---|---|---|
| 6 | A square pyramid, base 40 mm side and axis 70 mm long, is freely suspended from one of the corners of its base. Draw its projections, when the axis as a vertical plane makes an angle of $45^0$ with the VP. | CO2 | L3 | 12M |

### UNIT-IV

| | | | | |
|---|---|---|---|---|
| 7 | A hexagonal prism of side of base 30 mm and length of axis 75 mm, is resting on its base on HP. It is cut by a section plane inclined $35^0$ to HP and passing through top corner. Draw the front and sectional top views of the solid and true shape of the section. | CO2 | L3 | 12M |

**OR**

| | | | | |
|---|---|---|---|---|
| 8 | A pentagonal pyramid, side of base 30 mm and height 52 mm, stands with its base on HP and an edge of the base is parallel to VP. It is cut by a plane perpendicular to VP, inclined at $40^0$ to HP and passing through a point on the axis, 32 mm above the base. Draw the development of the lateral surface of the truncated pyramid. | CO2 | L3 | 12M |

## UNIT-V

| | | | | |
|---|---|---|---|---|
| 9 | Draw the isometric view of a cylinder of base diameter 50mm and axis 60 mm the axis of the cylinder is perpendicular to the VP. | CO3 | L2 | 12M |

### OR

| | | | | |
|---|---|---|---|---|
| 10 | Draw three views of the blocks shown pictorially in figure according to first angle projection. | CO3 | L4 | 12M |
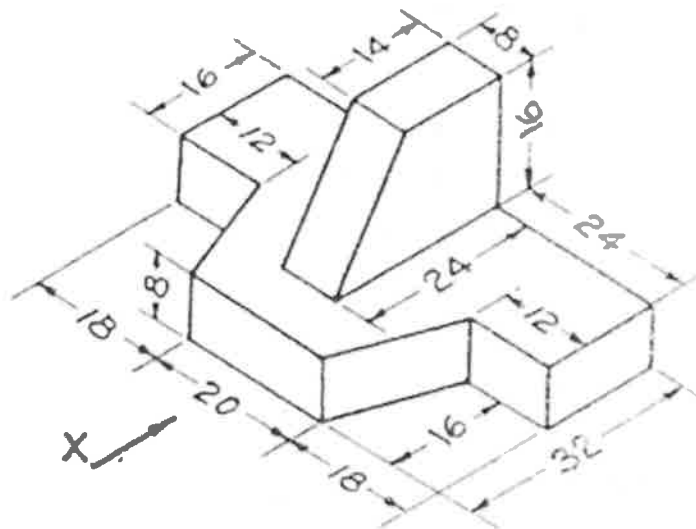


*** END ***

## SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY:: PUTTUR
### (AUTONOMOUS)
**B.Tech. II Year II Semester Supplementary Examinations May-2025**
### DYNAMICS OF MACHINERY
(Mechanical Enginering)

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

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

### UNIT-I

| | | | | |
|---|---|---|---|---|
| 1 | a) Explain following terms <br> (i) Piston Effort (ii) Crank effort <br> b) Define the Gyroscopic torque <br> c) Define Co efficient of fluctuation of energy. <br> d) Define Co efficient of fluctuation of Speed. <br> e) Explain the Gyroscopic couple on rolling of ship. Why? | CO1 | L1 | 12M |

**OR**

| | | | | |
|---|---|---|---|---|
| 2 | a Define coefficient of fluctuation of speed and coefficient of fluctuation of energy. | CO1 | L2 | 6M |
| | b The radius of gyration of a fly wheel is 1meter and fluctuation of speed is not to exceed 1%of the mean speed of the flywheel. If the mass of the flywheel is 3340kg and the steam develops 150KW at 135rpm, then find (i).Maximum fluctuation of energy (ii). Coefficient of fluctuation of energy . | CO1 | L3 | 6M |

### UNIT-II

| | | | | |
|---|---|---|---|---|
| 3 | a) How is rolling friction different from sliding friction? <br> b) Write different types bearings <br> c) Distinguish between a brake and a dynamometer. <br> d) Write the principle of Dynamometer <br> e) Define centrifugal clutch | CO2 | L2 | 12M |

**OR**

| | | | | |
|---|---|---|---|---|
| 4 | a Describe with neat sketch the lope brake dynamometer. | CO2 | L2 | 6M |
| | b Derive the expression for Uniform Pressure and uniform wear any one of the Bearing. | CO2 | L3 | 6M |

### UNIT-III

| | | | | |
|---|---|---|---|---|
| 5 | a) How the governors are classified? <br> b) What is meant by Sensitiveness of governors? <br> c) Distinguish between a Governor and a flywheel. <br> d) What is the effect of friction on the governor? <br> e) What is meant by isochronous condition in Governors? | CO3 | L2 | 12M |

**OR**

| | | | | |
|---|---|---|---|---|
| 6 | The length of the upper and lower arms of a porter governor are 200mm and 250mm respectively. Both the arms are pivoted on the axis of rotation. The central load is 150N, the weight of the each ball is 20N and the friction of the sleeve together with the resistance of the operating gear is equivalent to a force of 30N at the sleeve. If the limiting inclinations of the upper arms to the vertical are 30° and 40° taking friction in to account. Find the range of speed of the governor. | CO3 | L3 | 12M |

7    A shaft is rotating at a uniform angular speed. Four masses M1, M2,    CO4   L3   12M
M3and M4 of magnitudes 300kg, 450kg, 360kg, 390kg respectively are
attached rigidly to the shaft. The masses are rotating in the same plane.
The corresponding radii of rotation are 200mm, 150mm, 250mm and
300mm respectively. The angle made by these masses with horizontal
are 0°.45°, 120°and 255°respectively. Find (i) the magnitude of
balancing mass (ii) the position of balancing mass if its radius of rotation
is 200mm.

**OR**

8    a) What is Balancing of rotating masses?            CO4   L2   12M
     b) Why rotating masses are to be dynamically balanced?
     c) Define direct and reverse cranks .
     d) What are the different types of balancing machines?
     e) Define Swaying couple?

9   a   Deduce the expression for the free longitudinal vibration in terms of    CO5   L2   6M
        spring stiffness, its inertia effect and suspended mass.

   b   A spring mass system has spring stiffness 's'N/m and has a mass of    CO5   L3   6M
       'm'kg.It has the natural frequency of vibration as 12Hz.An extra 2kg
       mass is coupled to 'm' and natural frequency reduces by 2Hz.Find the
       value of 's' and 'm'.

**OR**

10    a) What are the types of Vibrations?                CO5   L2   12M
      b) What are the cause of critical speed? Or why critical speed
         encountered?
      c) Distinguish between a traverse and torsional vibration.
      d) Distinguished the critical damping and large damping
      e) Define resonance.

*** **END** ***

## SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY:: PUTTUR
### (AUTONOMOUS)
**B.Tech II Year II Semester Supplementary Examinations May-2025**
**PROBABILITY &STATISTICS**
(Common to CE, ME, AGE, CSE, CSIT, EEE)

Time: 3 Hours                                              Max. Marks: 60

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

### UNIT-I

| | | | | | |
|---|---|---|---|---|---|
| 1 | a | Two cards are selected at random from 10 cards numbered 1 to 10. Find the probability that the sum is even if (i) The two cards are drawn together. (ii) The two cards drawn one after other with replacement. | CO1 | L1 | 6M |
| | b | Determine (i) $P\left(B/A\right)$ (ii) $P\left(A/B^c\right)$ if A and B are events with $P(A)=\dfrac{1}{3}$, $P(B)=\dfrac{1}{4}$, $P(A \cup B)=\dfrac{1}{2}$. | CO1 | L2 | 6M |

**OR**

| | | | | |
|---|---|---|---|---|
| 2 | Probability density function of a random variable X is $f(x)=\begin{cases}\dfrac{1}{2}\sin x, for\ 0 \le x \le \pi \\ 0, elsewhere\end{cases}$. Find the mean, mode and median of the distribution and also find the probability between 0 and $\pi/2$. | CO1 | L3 | 12M |

### UNIT-II

| | | | | | |
|---|---|---|---|---|---|
| 3 | a | Derive mean and variance of Binomial distribution. | CO2 | L2 | 6M |
| | b | 20% of items produced from a factory are defective. Find the probability that in a sample of 5 chosen at random (i) one is defective (ii) $p(1<x<4)$. | CO2 | L3 | 6M |

**OR**

| | | | | |
|---|---|---|---|---|
| 4 | In a sample of 1000 cases, the mean of certain test is 14 and standard deviation is 2.5.Assuming the distribution to be normal find (i) How many students score between 12 and 15. (ii) How many students score above 18? (iii) How many students score below 18? | CO2 | L1 | 12M |

### UNIT-III

| | | | | | |
|---|---|---|---|---|---|
| 5 | a | The means of two large samples of sizes 1000 and 2000 members are 67.5 inches and 68.0 inches respectively. Can the samples be regarded as drawn from the same population of S.D 2.5 inches. | CO3 | L1 | 6M |
| | b | Experience had shown that 20% of a manufactured product is of the top quality. In one day's production of 400 articles only 50 are of top quality. Test the hypothesis at 0.05 level. | CO3 | L2 | 6M |

**OR**

| | | | | |
|---|---|---|---|---|
| 6 | Two random samples reveal the following results: **[10M]** | CO3 | L3 | 12M |

| Sample | Size | Sample Mean | Sum of squares of deviations from the mean |
|---|---|---|---|
| 1 | 10 | 15 | 90 |
| 2 | 12 | 14 | 108 |

Test whether the samples came from the same normal population.

7  Define ANOVA.Describe briefly the technique of ANOVA for one-way classification.    CO4  L3  12M

**OR**

8  a  Define R.B.D and L.S.D .    CO4  L1  6M
   b  Describe briefly the technique of ANOVA for Two-way classification.    CO4  L2  6M

UNIT-V

9  The following data shows the values of sample mean and range for 10 samples for size 6 each. Calculate the   central limits for mean chart and R- chart and draw the control charts and comment on the state of control.        [10M]    CO5  L1  12M

| Sample no. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
|---|---|---|---|---|---|---|---|---|---|---|
| Mean ($x$) | 43 | 49 | 37 | 44 | 45 | 37 | 51 | 46 | 43 | 47 |
| Range (R) | 5 | 6 | 5 | 7 | 7 | 4 | 8 | 6 | 4 | 6 |

**OR**

10  a  Write the constructions of mean, range, p and c –charts.    CO5  L2  6M
    b  Write the causes of variations.    CO5  L3  6M

**\*\*\* END \*\*\***

# SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY:: PUTTUR
## (AUTONOMOUS)
### B.Tech I Year II Semester Supplementary Examinations May-2025
### ENGINEERING MATHEMATICS-II
#### (Common to all Branches)

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

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

## UNIT-I

**1 a** Reduce the following matrix $A = \begin{bmatrix} 2 & 1 & 3 & 5 \\ 4 & 2 & 1 & 3 \\ 8 & 4 & 7 & 13 \\ 8 & 4 & -3 & -1 \end{bmatrix}$ into Echelon form and hence find the rank.    CO1   L3   6M

**b** Investigate for what values of $\lambda$ and $\mu$ so that the equations $2x+3y+5z=9$ ; $7x+3y-2z=8$; $2x+3y+\lambda z=\mu$ have (i) unique solution, (ii) infinite solutions (iii) no solution    CO1   L2   6M

**OR**

**2** Verify Cayley-Hamilton theorem, find $A^{-1}$ and $A^4$ of $A = \begin{bmatrix} 1 & 2 & 3 \\ 2 & 4 & 5 \\ 3 & 5 & 6 \end{bmatrix}$    CO1   L5   12M

## UNIT-II

**3 a** Find div F where $F = grad(x^3 + y^3 + z^3 - 3xyz)$    CO2   L3   6M

**b** Prove that $div\,(r^n R) = (n+3)r^n$. Find $n$ if it is solenoidal.    CO2   L3   6M

**OR**

**4** Verify divergence theorem for $F = x^2 i + y^2 j + z^2 k$ over the cube formed by the planes $x = 0, x = a, y = 0, y = b, z = 0, z = c$.    CO2   L5   12M

## UNIT-III

**5 a** Find the Fourier series of the function $f(x) = e^{ax}$ ; $0 \le x \le 2\pi$    CO3   L3   6M

**b** Find the Fourier series of the function defined by
$$f(x) = \begin{cases} 0, & -\pi \le x < 0; \\ \sin x, & 0 \le x \le \pi; \end{cases}$$    CO3   L3   6M

**OR**

**6 a** Find the Fourier series of the function $f(x) = x^2$ ; $-l \le x \le l$    CO3   L3   6M

**b** Find the half range cosine series for the function $f(x) = x$; $0 \le x \le 2$    CO3   L3   6M

## UNIT-IV

**7 a** Find the Fourier transform of f(x)=$\begin{cases} a^2 - x^2, & |x| \le a \\ 0, & |x| > a \end{cases}$    CO4   L3   12M

Hence deduce that $\int_0^\infty \frac{\sin t - t\cos t}{t^3}\, dt = \frac{\pi}{4}$

**OR**

| | | | | | |
|---|---|---|---|---|---|
| **8** | **a** | Find the Fourier cosine transform of $e^{-ax}\cos x\,; a > 0$ | CO4 | L3 | 6M |
| | **b** | Find the Fourier cosine transform of $f(x) = \begin{cases} x, & for\ 0 < x < 1 \\ 2 - x, & for\ 1 < x < 2 \\ 0, & for\ x > 2 \end{cases}$ | CO4 | L3 | 6M |

UNIT-V

| | | | | | |
|---|---|---|---|---|---|
| **9** | **a** | Form the PDE by eliminating the arbitrary functions from $f(x + y + z, x^2 + y^2 + z^2) = 0$ | CO5 | L6 | 6M |
| | **b** | Using the method of separation of variable, solve $\dfrac{\partial u}{\partial x} = 2\dfrac{\partial u}{\partial t} + u$, where $u(x,0) = 6e^{-3x}$. | CO5 | L3 | 6M |

**OR**

| | | | | | |
|---|---|---|---|---|---|
| **10** | | A homogeneous rod of conducting material of length 100 cm has its ends kept at zero temperature and the temperature initially is $u(x,0) = \begin{cases} x & ;0 \le x \le 50 \\ 100 - x & ;50 \le x \le 100 \end{cases}$ Find the temperature $u(x,t)$ at any time. | CO5 | L3 | 12M |

*** END ***