M.Sc. (Computer Science) Syllabus

Under the

CHOICE BASED CREDIT SYSTEM
(With effect from 2016-17)

DEPARTMENT OF COMPUTER SCIENCE
University College, KU, Warangal-506009
M.Sc. I Year I Semester:

<table>
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Total: 675 27

L: Lecture  T: Tutorial  P: Practical
UNIT - I

FUNDAMENTALS: Sets, Relations and functions, Fundamental of logic, Logical inferences, First order logic, Quantified propositions, Mathematical induction

ELEMENTARY COMBINATORICS: Combinations and Permutations, Enumeration - with Repetitions, with constrained repetitions, The Principle of Inclusion-Exclusion.(Chapters 1-2)

UNIT - II

RECURRENCE RELATIONS: Generating functions, Coefficients of Generating functions, Recurrence Relations, Inhomogeneous Recurrence Relations (Chapter-3)

UNIT - III

RELATIONS AND DIAGRAMS: Relations and diagrams, Binary relations, Equivalence relations, Ordering relations, Lattices, Paths and Closures, Directed graphs, Adjacency matrices-Applications, Sorting and Searching (Chapter - 4)

UNIT - IV

GRAPHS: Graphs, Isomorphism, Trees, Spanning trees, Binary trees, Planar graphs, Euler'sCircuits, Hamiltonian graphs, Chromatic numbers, Four-color problem, Network flows (Chapter 5)

TEXT-BOOK:

1. DISCRETE MATHEMATICS FOR COMPUTER SCIENTISTS, BY - J L MOTT, A KANDEL AND T PBAKER

REFERENCE BOOKS:

1. DISCRETE MATHEMATICAL STRUCTURE - (TMH) BY - TREMBLEY AND MANOHAR
2. DISCRETE MATHEMATICS WITH ALGORITHMS - (JOHN WILEY) BY - M.O. ALBERTSON AND J.P.HUTCHINSON
3. ELEMENTS OF DISCRETE MATHEMATICS-(TMH, SECOND EDITION) BY - C.L.LIU
4. DISCRETE MATHEMATICS - (PHI, THIRD EDITION) BY - BURNORD KOLMAN
5. DISCRETE MATHEMATICS BY KH ROSSEN (TMH)
6. DISCRETE MATHEMATICS BY S LIPSCUTZ AND M. LIPSON Schaum's Series (TMH)
7. DISCRETE MATHEMATICS FOR COMPUTER SCIENCE BY GARRRY HAGGARD, J. SCHILPF AND S WHITE SIDES (THOMSON PRESS)
8. DISCRETE &COMBINATORIAL MATHEMATICS BY RALPH P GRIMALDI(PEARSON EDUCATION)
9. DISCRETE MATHEMATICAL STRUCTURES BY DS MALLIK & M K SEN (THOMSON PRESS)
UNIT - I
BASIC STRUCTURE OF COMPUTER HARDWARE AND SOFTWARE: Functional units, Basic operational concepts, Bus structures, Software, Performance, Distributed Computing.
LOGIC CIRCUITS: Basic Logic Functions, Synthesis of Logic Functions Using ADN, OR, and NOT Gates, Minimization of Logic Expression, Synthesis with NAND and NOR Gates, Practical Implementation of Logic Gates, Flip-Flops, Registers and Shift Registers, Counters, Decoders, Multiplexers, Sequential Circuits. (Chapter 1, A.1 to A.13)

UNIT - II
ADDRESSING METHODS: Basic Concepts, Memory Locations, Main Memory Operations, Addressing Modes, Assembly Language, Basic I/O operations, Stacks and Queues, Subroutines. PROCESSING UNIT: Some Fundamental Concepts, Execution of a Complete Instruction, Hardwired Control, Performance Considerations, Micro Programmed Control, Signed Addition and Subtraction, Arithmetic and Branching Conditions, Multiplication of Positive Numbers, Signed-Operand, Integer Division, Floating-Point Numbers. (Chapter 2.1 to 2.83, 6.4 to 6.10)

UNIT - III

UNIT - IV
MEMORY: Semiconductor RAM memories, Read-Only Memories, Cache Memories, Performance Considerations, Virtual Memories, Memory Management Requirements.
INTRODUCTION TO COMPUTER PERIPHERALS: I/O Devices, On-Line Storage. (Chapter 5, 9.1, 9.2)

TEXT BOOK:
1. COMPUTER ORGANIZATION, TMH (IV EDITION) BY - V.C. HAMACHER
REFERENCES:
1. COMPUTER ORGANIZATION, (PHI) BY - MORIS MANO
2. COMPUTER ARCHITECTURE & ORGANISATIONBY - HAYES, (TMH)
3. COMPUTER SYSTEMS ORGANISATION& ARCHITECTURE BY - CARPINELLI, (ADDISON WESLEY)
4. THE ARCHITECTURE OF COMPUTER HANDWONE AND SYTEMS HANDWONE BY- ENGLANDER (WIELY).
5. COMPUTER SYTEMS DESIGN AND ARCHITECTURE BY- VP HEURING, HF JORDAN (PEARSON).
6. COMPUTER ORGANIZATION & ARCHITECTURES BY – STALLINGS (PEARSON, PHI).
7. COMPUTER ORGANIZATION & DESIGN BY - PP CHAUDARI (PHI)
UNIT - I
Object - Oriented Thinking: Messages and Methods - Classes and Instances - Class Hierarchies
-Inheritance - Method Binding, Overriding, and Exceptions. A Brief History of Object - Oriented
Programming: The History of Java - Client - Side Computing - Java Language Description.
Object - Oriented Design: RDD - CRC cards - Components and Behavior - Software
Components-Formalizing the Interface – Implementing components Integration of Components.
Understanding Paradigms: Program Structure - Types - Access Modifiers - Lifetime
Modifiers. (Chapters1 to 4)

UNIT - II
Data Fields - Constructors - Inheritance - The Java Graphics Model - Multiple Objects of
the Same Class. Adding User Interaction - Inner Classes - Interfaces - The Java Event Model
- Window Layout. Understanding Inheritance: An Intuitive Description of Inheritance -
Subclass, Subtype, and Substitutability - Forms of Inheritance - Modifiers and Inheritance -
The Benefits of Inheritance -The Costs of Inheritance. Mechanisms for Software Reuse:
Substitutability-Combining Inheritance and Composition - Dynamic Composition. (Chapters 5,
6, 8, 10)

UNIT - III
Implications of Inheritance: The Polymorphic Variable - Assignment - Equality Test
- Garbage Collection. Polymorphism: Polymorphic Variables - Overloading - Overriding -
Abstract methods - Pure Polymorphism. Input and Output Streams: Input Streams - Output
Streams - Object serialization - Piped Input and Output - Readers and Writers. Exception
Handling: Information Transmitted to the Catch Block - The Finally Clause - Throwing
Exceptions - Passing on Exceptions. (Chapters 11, 12,14,16)

UNIT - IV
The AWT: The AWT Class Hierarchy - User Interface Components – Panels Dialogs.
Understanding Graphics: Color - Rectangles - Fonts - Images. Multiple Threads of Execution:
Creating Threads - synchronizing Threads. Collection Classes - Multiple Threads of Execution -
Exception Handling. Applets and Web Programming: Applets and HTML - Security Issues -
Applets and Applications -Obtaining Resources Using an Applet - Combining Applications and
Applets. (Chapters 7, 13, 18, 20, 21)

TEXT BOOK:
1. UNDERSTANDING OBJECT-ORIENTED PROGRAMMING WITH JAVA BY – TIMOTHY
BUDD (PEARSON)

REFERENCE BOOKS:
1. THE COMPLETE REFERENCE JAVA 2 (Fourth Edition) BY - PATRICK NAUGHTON &
HERBETSCHILDT (TMH)
2. PROGRAMMING JAVA - DECKER&HIRSH FIELD VIKAS PUBLISKING(2001) (THOMSON
LEARNING) (SECOND EDITON)
3. INTRODUCTION TO JAVA PROGRAMMING - Y.DANIEL LIANG PHI (2002)
4. OBJECT ORIENTED PROGRAMMING THROUGH JAVA 2 BY - THAMUS WU (Mc.GrawHill)
5. JAVA 2 - DIETEL & DIETEL (PEARSON EDUCATION)
6. INTRODUCTION TO JAVA - BALA GURU SWAMY
7. INTRODUCTION TO PROGRAMMIND & OOD USING JAVA - JAINO NINE & FA HOSCH
(JOHNWILEY)
8. STARTING OUT WITH JAVA - JONY GADDIS (DREAM TECH PRESS)
9. JAVA PROGRAMMING - SCHAUM’S SERIES
10. OBJECT ORIENTED APPLICATION DEVELOPMENT USING JAVA - ER DOXE ETC.
(THOMSONPRESS)
UNIT - I
Computer System Overview - The Memory Hierarchy - I/O Communication Techniques.
Operating System Overview - The Evolution of Operating Systems - Microsoft Windows
Overview - Modern UNIX Systems - Linux. Process Description and Control - Process States -
Process Description - Process Control - UNIX SVR 4 Process management. Threads, SMP, and
(Chapters1to 4)

UNIT - II
CONCURRENCY: Mutual Exclusion and Synchronization - Principles of Concurrency -
Mutual Exclusion : Hardware Support - Semaphores - Monitors - Message Passing - Readers
/ Writers problem. Concurrency: Deadlock and Starvation - Principles of Deadlock - Deadlock
Prevention - Deadlock Avoidance - Deadlock Detection - Dining Philosophers Problem - UNIX
Concurrency Mechanisms. (Chapters 5, 6)

UNIT - III
Memory Management - memory management Requirements - Memory Partitioning- Paging -
Segmentation. Virtual Memory - Hardware and Control Structures - Operating System Software.
Uniprocessor Scheduling - Types of Processor Scheduling - Scheduling Algorithms -
Traditional UNIX Scheduling. (Chapters 7, 8, 9)

UNIT - IV
I/O Management and Disk Scheduling - I/O Devices - Organization of the I/O Function
-Operating System Design Issues - Disk Scheduling - Disk Cache.
File Management - File Organization and Access - File Directories - File Sharing - record
Blocking - Secondary Storage Management - UNIX File Management. (Chapter 11, 12)

TEXT BOOK:
1. OPERATING SYSTEMS - BY - WILLIAM STALLINGS (V Edition)

REFERENCE BOOKS:
1. OPERATING SYSTEMS A MODERN PERSPECTIVE (Second Edition)BY - GARY NUTT (PEARSON)
2. APPLIED OPERATING SYSTEM BY - SILER SCHATZ, GALVIN (JOHN WILEY)
3. MODERN OPERATING SYSTEM BY - TANANBAM (PHI)
4. OPERATING SYSTEM PRINCIPLES BY - SILBERSCHATZ, GALIVN. GAGNE (JOHN WILEY)
5. OPERATING SYSTEMS BY - DM DHAMDHERE (TMH)
6. UNDER STANDING OPERATING SYSTEMS BY - IM FLYNN, AM MCHOCs (THOMSONPRESS)
7. OPERATING SYTEMS - DIETEL (PEARSON)
8. OPERATING SYSTEMS - RC JOSHI, S. TAPASWI (DREAM TECH)
UNIT - I

APPLICATION LAYER: Principles of Application Layer Protocols, The World Wide Web: HTTP, File Transfer: FTP, Electronic Mail in the Internet, DNS - The Internet’s Directory Service. (Chapter 1 and Chapter 2.1 to 2.5)

UNIT - II

TRANSPORT LAYER: Transport-Layer Services and Principles, Multiplexing and DE Multiplexing Applications, Connectionless Transport: UDP, Principles of Reliable Data Transfer, Connection-Oriented Transport: TCP, Principles of Congestion Control. (Chapter 3.1 to 3.6)

UNIT - III

NETWORK LAYER AND ROUTING: Introduction and Network Service Models, Routing Principles, Hierarchical Routing, Inter Protocol, Routing in the Internet, What’s Inside a Router? (Chapter 4.1 to 4.6)

UNIT - IV

LINK LAYER AND LOCAL AREA NETWORKS: The Data Link Layer: Introduction, Services, Error Detection and Correction Techniques, Multiple Access Protocols and LAN’s, LAN Addresses and ARP, Ethernet, Hubs, Bridges, and Switches, IEEE 802.11 LANs, PPP: The Point-to-Point Protocol, Asynchronous Transfer Mode (ATM), X.25 and Frame Relay. (Chapter 5.1 to 5.10)

TEXT BOOK:

1. COMPUTER NETWORKING A TOP-DOWN APPROACH FEATURING THE INTERNET BY – JAMES F. KUROSE AND KEITH W. ROSS (PEARSON)

REFERENCE BOOKS:

1. BUSINESS DATA COMMUNICATION & NETWORKS By - FITZ GERALD (John Wiley)
2. DATA & COMPUTER COMMUNICATIONS - W STALLINGS (PEARSON, PHI)
3. COMPUTER COMMUNICATIONS&NETWORKING TOPOLOGIES-MAGALLO, V.M.HANCOCK (THOMSON)
4. DATA COMMUNICATION & COMPUTER NETWORKS - R. AGARWAL, BB TIWARI (VIKAS)
5. COMPUTER NETWORKS - AS TANENBAUM (PHI)
6. COMPUTER NETWORKS - BLACK (PHI)
7. UNDER STANDING COMMUNICATIONS & NETWORKS - WA SHAY (THOMSON)
1. Write a Java Program for sorting a given list of names in ascending order using
   Command line arguments.
2. Write a Java Program to multiply two given matrices.
3. Programs Illustrating Overloading & Overriding methods in Java.
4. Programs Illustrating the Implementation of Various forms of Inheritance.
   (Ex. Single, Hierarchical, Multilevel inheritance....)
5. Program which illustrates the implementation of multiple Inheritance using
   interfaces in Java.
6. Program illustrates the implementation of abstract class.
7. Programs to create packages in Java.
8. Program to Create Multiple Threads in Java.
10. Program to Write Applets to draw the various polygons.
11. Create and Manipulate Labels, Lists, Text Fields, Text Areas & Panels
12. Handling Mouse Events & Keyboard Events.
14. Create & Manipulate the Following Text Areas, Canvas, Scroll bars, Frames, Menus, Dialog
    Boxes.
15. Programs which illustrate the manipulation of strings. Ex. 1 Sorting an array of Strings.
16. Frequency count of words & Characters in a text.
17. Programs which illustrates the use of files & Streams.
18. Java Program that reads on file name from the user and displays the contents of
    file.
19. Java Program that displays the no. of characters, lines & words in a text file.
20. Java Program to display the contents of file along with a line number before each
    line.
21. Java Program to read & write the data using Random Access File.

**TEXT BOOK:**

1. THE COMPLETE REFERENCE JAVA J2SE 5th EDITION BY - HERBERT SCHILDT (TMH)
NETWORKS LABORATORY

PART A – Simulation Exercises
*The following experiments shall be conducted using either NS228/OPNET or any other simulators.*

1. Simulate a three nodes point-to-point network with duplex links between them.
   Set the queue size vary the bandwidth and find the number of packets dropped.
2. Simulate a four node point-to-point network, and connect the links as follows:
   n0- n2, n1-n2 and n2-n3. Apply TCP agent between n0-n3 and UDP n1-n3. Apply relevant applications over TCP and UDP agents changing the parameter and determine the number of packets by TCP/UDP.
3. Simulate the different types of Internet traffic such as FTP a TELNET over a network and analyze the throughput.
4. Simulate the transmission of ping messaged over a network topology consisting of 6 nodes and find the number of packets dropped due to congestion.
5. Simulate an Ethernet LAN using N-nodes(6-10), change error rate and data rate and Compare the throughput.
6. Simulate an Ethernet LAN using N nodes and set multiple traffic nodes and determine collision across different nodes.
7. Simulate an Ethernet LAN using N nodes and set multiple traffic nodes and plot congestion window for different source/destination.
8. Simulate simple ESS and with transmitting nodes in wire-less LAN by simulation And determine the performance with respect to transmission of packets.
1. Simulate the following CPU Scheduling algorithms
   a) Round Robin
   b) SJF
   c) FCFS
   d) Priority
2. Simulate all file allocation strategies.
   a) Sequential
   b) Indexed
   c) Linked
3. Simulate MVT and MFT
4. Simulate all File organization techniques.
   a) Single level directory
   b) Two level
   c) Hierarchical
   d) DAG
5. Simulate Bankers Algorithm for Dead Lock Avoidance
7. Simulate all Page replacement algorithms.
   a) FIFO
   b) LRU
   c) LFU
   d) Etc....
8. Simulate Paging Techniques of memory management.
   a) Writing Simple shell scripts
   b) Control structures - sequence, selection, iteration
   c) Pipes & Redirections
   d) Passing arguments to shell programs
   e) Simple programs using system calls
10. UNIX System Administration:
    a) User account maintenance
    b) Security
    c) Print jobs
    d) Backup
    e) Package installations
    f) Resource management
    g) Device drivers
**M.Sc. I Year II Semester:**

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Majulis
Chairman
Board of Studies
Department of Computer Science
Kakatiya University
Warangal-506009 (T.S.)

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Dean
Faculty of Science
Warangal-506009 (A.P.)
UNIT- I
Introduction to XHTML - Headers, Hyperlinks, Lists, Images, Tables, Frames, Forms.
Cascading Style sheets - Introduction, Inline Styles and Embedded Style Sheets, Linking external sheets.
JavaScript- Introduction, simple programming, Obtaining User Input with prompt Dialogs, Functions - program modules in JavaScript, programmer defined functions, function definition - Arrays.

(Text Book 1 chapters 4, 5, 6, 7, 10 and 11)

UNIT -II
JavaScript- Objects - Math Object, String Object, Date Object, document and window Objects.
Event Model - onclick, onload, onerror, onmouseover, onmouseout, onfocus, onblur, onsubmit, more DHTML events.
Extensible Markup Language(XML)- Introduction, Structuring Data, Document Type Definitions (DTDs), Document Object Model (DOM), DOM Methods, XSL.

(Text Book 1 chapters 12, 14 and 20)

UNIT - III
JDBC- Introduction, Drivers, API’s, classes and interfaces, Exploring JDBC Processes with the java.sql. package and javax.sql package, working with Transactions.

(Text Book 2 -Chapter 3)

UNIT - IV
Servlets- Features of Servlets, servlet API, servlet Life Cycle, creating simple servlet, working with HttpServletRequest and HttpServletResponse interfaces, Forward, include, redirect, session tracking and cookees.
JSP-introduction, features, advantages of JSP, Architecture of JSP, Life Cycle, JSP Tags and Implicit Objects, Action Tags in JSP. (Text Book 2 - Chapter 4, 5 and 7)

Text Book:

NOTE: One of the bits in each question should be a problem
UNIT - I
FINITE AUTOMATA AND REGULAR EXPRESSIONS: Preliminaries, Finite state systems, Nondeterministic finite automata (NFA), Deterministic finite automata (DFA), NFA TO DFA conversion Regular expressions, interconversions, Two-way finite automata, finite automata with output, State minimization applications. PROPERTIES OF REGULAR SETS: Pumping Lemma, closure properties of regular sets. (Chapters 1, 2, 3.1 and 3.2)

UNIT - II
CONTEXT FREE GRAMMARS (CFG): Context free grammars Derivation tree, simplification of context - Free grammars, Normal forms. PUSHDOWN AUTOMATA: Informal description, Definitions, pushdown automata design. (Chapters 4.1 to 4.6, 5)

UNIT - III
PROPERTIES OF CONTEXT FREE LANGUAGES (CFL): Pumping Lemma, closure properties, decision algorithms for CFLs. TURING MACHINES (TM): The turning machine & model, computable languages and functions, design of TM, modification of TM, Church's hypothesis. (Chapters 6, 7)

UNIT - IV
RECURSIVE & RECURSIVELY INNUMERABLE LANGUAGES: UNDECIDABILITY: Properties of recursive and recursively innumerable languages, Universal turing machine, post correspondence problem. Decidable and Undecidable problems, universal turing machine, Rice's theorem. THE CHOMSKY HIERARCHY: Regular grammars, Unrestricted grammars, interconversions between regular grammars and finite automata, context - sensitive languages, (Chapters 8.1 to 8.8, 9)

Text Book:
1. INTRODUCTION TO AUTOMATA THEORY LANGUAGES AND COMPUTATION By - J.E. HOPCROFT, J.D. ULLMAN (Narosa)

Note: For Examples refer the book. Introduction to computer Theory - DIA Cohen (John Wiley)

REFERENCE BOOKS:
1. INTRODUCTION TO COMPUTER THEORY-DAVIEL I.A.COHEN (John wiley, 1Ind Edition)
2. INTRODUCTION TO LANGUAGES AND THEORY OF COMPUTATION BY - JOHN C. MARTIN (Second Edition TMH)
3. THEORY OF COMPUTATION By - CHANDRA SEKHARAN & MISRA (PHI)
4. INTRODUCTION TO AUTOMATA THEORY, LANGUAGES & COMPUTATION - JE HOPFCROFT, R. MOTWANI, JD ULLMAN (PEARSON)
5. THE THEORY OF COMPUTATION BERNARD M MORET (PEARSON)
6. INTRODUCTION TO THEORY OF COMPUTATION - M SIPSER (THOMSON)
7. INTRODUCTION TO THEORY OF COMPUTER SCIENCE - EV KRISHNA MURTHY (EWP)
8. AN INTRODUCTION TO FORMAL LANGUAGES & AUTOMATA - PETER LINZ (NAROSA)
9. AUTOMATA & COMPUTABILITY - DC KOZEN (SPINGER)
10. THEOERY OF COMPUTATION - SK AZAD (DHANPAT RAI & CO)
UNIT - I
Inter-process Communication: Introduction, File and Record Locking, Simple Client-server Pipes, FIFO's, Streams and Messages, Name Spaces, System V IPC, Message Queues, Semaphores, Shared Memory, Socket and TLI. (Chapters 3, 3.1 to 3.12)

UNIT - II
A Network Primer Communication Protocols: Introduction, TCP/IP, XNS, SNA, NetBIOS, OSI Protocol, UUCP, Protocols Comparisons. (Chapters 4, 5, 5.1 to 5.8)

UNIT - III

UNIT - IV

TEXT BOOK:
1. UNIX NETWORK PROGRAMMING BY W. RICHARD STEVENS

REFERENCE BOOKS:
1. UNIX SYSTEMS PROGRAMMING - K.A. ROBBINS, S. ROBBINS (PEARSON)
2. UNIX THE C ODYSSEY - M. GANDHI, SHETTI, SHAH (BPB PUBLICATIONS)
UNIT I

UNIT II
ASSEMBLERS: Basic Assembler Functions, A Simple SIC Assembler, Assembler Algorithm and Data Structures, Machine-Dependent Assembler Features, Instruction Formats and Addressing Modes, Program Relocation, Machine-independent Assembler Feature, Literals, Symbol-Defining Statements, Expressions, Program Blocks, Control Sections and Program Linking, Assemblers Design Options, One-Pass Assemblers, Multi-Pass Assemblers. (Chapters 1, 2 of text book1)

UNIT III
MACRO PROCESSOR: Basic Macro processor Functions, Macro Definition and Expansion, Macro Processor Algorithm and Data Structures, Machine-Independent Macro Processor Features, Concatenation of Macro Parameters, Generation of Unique Labels, Conditional Macro Expansion, Keyword Macro Parameters, Macro Processor Design Options. (Chapters 3,4 of text book1)

UNIT IV

TEXT-BOOK
1. SYSTEM SOFTWARE AN INTRODUCTION TO SYSTEMS PROGRAMMING -By LELAND L. BECK
2. ASSEMBLY LANGUAGE PROGRAMMING FOR THE IBM PC FAMILY- WILLIAM B JONES (DREAMTECH)

REFERENCE BOOK:
1. SYSTEM SOFTWARE AND OPERATING SYSTEMS -By DHAMDHERE - TMH 2nd Edition
SYSTEM PROGRAMMING - DONOVON
UNIT- I

ARTIFICIAL INTELLIGENCE: ITS ROOTS AND SCOPE, AI: HISTORY AND APPLICATIONS: From Eden to ENIAC: Attitudes toward Intelligence, Knowledge, and Human Artifice, Overview of AI Application Area


UNIT - II
STRUCTURES AND STRATEGIES FOR STATE SPACE SEARCH:
Introduction, Graph Theory, Strategies for State Space Search, Using the State Space to Represent Reasoning with the Predicate Calculus.


CONTROL AND IMPLEMENTATION OF STATE SPACE SEARCH:
Introduction, Recursion-Based Search, Pattern-Directed Search, production Systems, TheBlackboard Architecture for Problem Solving. (Chapters 3, 4 and 5)

UNIT - III

STRONG METHOD PROBLEM SOLVING: Introduction, Overview of Expert System Technology, Rule-Based Expert Systems, Model-Based, Case Based, and Hybrid Systems, Planning. (Chapters 6 and 7)

UNIT - IV
REASONING IN UNCERTAIN SITUATIONS: Introduction, Logic-Based Abductive Inference, Abduction: Alternatives to Logic, The Stochastic Approach to Uncertainty. (Chapter 8)

TEXT BOOK
1. ARTIFICIAL INTELLIGENCE By George F Luger, Pearson Education.

REFERENCE BOOKS:
1. ARTIFICIAL INTELLIGENCES By Ritch & Neight.
2. INTRODUCTION TO ARTIFICIAL INTELLIGENCE AND EXPERT SYSTEMS By D.W. Patterson (PHI-200)
3. ARTIFICIAL INTELLIGENCE By Patrick Henry Winston
4. PRINCIPLES OF ARTIFICIAL INTELLIGENCE (Narosa)
5. Artificial Intelligence ByShiartRussel Peter Novvig (PHI)
1. Create a simple HTML page which demonstrate all types of lists.
2. Create a letter head of your college using following styles
   i. image as background
   ii. use header tags to format college name and address
3. Create a web page, which contains hyper links like fruits, flowers, animals. When you click on
    hyper links, it must take you to related web page, these web pages must contains with related images.
4. Create a hyperlink to move around within a single page rather than to load another page.
5. Create a leave letter using different text formatting tags.
6. Create a table format given bellow using row span and column span.

   RNO   NAME
   
   Insert 5 records.

7. Create a table with different formats as given bellow.
   i. Give different background and font colors to table header, footer and body.
   ii. Use table caption tag.
8. Divide a web page vertically and horizontally with scroll bars, name them as shown bellow decorate
    it with some items. F1

8. Divide a web page as shown bellow.

9. Create a student Bio-Data, using forms.
10. Create a web page using following style sheets
    i. Inline style sheets.
    ii. Embedded style sheets.
    iii. External style sheets

11. Create a web page using “class” style sheets with different “border-width” property values like
    thick, medium, thin, groove, inset, and outset, red & blue.
12. Accept marks from bellow form, calculate total and average, results must be shown in alert box.

13. Write a JavaScript program to accept name and index of name character from prompt box, convert name into uppercase and display name and index char in dialogbox.

14. Write a JavaScript program to accept two values from form and apply any 5 mathematical functions.

15. Display the current date and time in both GMT and local form.

16. Write a JavaScript program on MouseOver, MouseOut, blur events.

17. Write a XML program using document type definitions

18. Write Student database with XML.

19. Write a XML program using XS

(All exercises from the text book must be practiced in addition to the above problems)

**Note:** Programs are to be practiced on the basis of topics covered in corresponding theory paper for III & IV Units
Programs Using UNIX or LINUX

1. Write a program that takes one or more file/directory names as command line input and reports the following information on the file:
   a. File type
   b. Number of links
   c. Time of last access
   d. Read, Write, Execution permissions.
2. Write a ‘C’ program that illustrates how to execute two commands concurrently with a command pipe.
3. Write a ‘C’ program that illustrates the creation of child process using fork system call.
4. Write a ‘C’ program that illustrates the real time of a day every 60 seconds.
5. Write a ‘C’ program that illustrates implementation of ls command.
6. Write a ‘C’ program that illustrates simple file locking.
7. Write a ‘C’ program that illustrates to read or write from a file.
8. Write a ‘C’ program that illustrates the following
   a. Creation of FIFO
   b. Reading from FIFO
   c. Writing on to the FIFO.
9. Write a ‘C’ program that illustrates sending the data from parent to child using PIPE System Call.
10. Write a ‘C’ program which displays the current working directory by using `popen`.
11. Write a ‘C’ program that illustrates the file locking using semaphores.
12. Write a ‘C’ program that illustrates Read or Write operation using semaphore.
13. Write a ‘C’ program that illustrates the creation of shared memory.
14. Write a ‘C’ program that illustrates inter-process communication using shared memory system calls.
15. Write a ‘C’ program that illustrates the following
    a. Creating a message queue
    b. Writing to a message queue
    c. Reading from a message queue

**BOOK FOR REFERENCE:**

1. UNIX THE C ODYSSEY - M. GANDHI, SHETTI, SHAH (BPB PUBLICATIONS)
2. UNIX NETWORK PROGRAMMING - W. RICHARD STEVENS
1. Write a program to display a message
2. Write a program to print the alphabets from A-Z
3. Write a program to print the alphabets from Z TO A
4. Write a program to print the alphabets from a to z
5. Write a program to print the alphabets from z to a
6. Write a program to print ‘A’ character 5 times
7. Write a program to print natural numbers from 0 to 9
8. Write a program to add two single digits
9. Write a program to subtract two single digits
10. Write a Program to divide two single digits
11. Write a Program to print even numbers from 0-9
12. Write a program to display whether the given no is positive or negative
13. Write a program to find the given number is palindrome or not
14. Write a program to find the given number is Armstrong or not
15. Write a program to find the sum of the digits of a given number.
16. Write a program to find the given String is palindrome or not.
17. Write a program to search an element using linear search
18. Write a program to sort the elements using any one of the sorting technique.
19. Write a program to find the factors of a given number.
20. Write a program to find the given number is Prime or not.