BCA
SEMESTER
IV

The scheme and syllabus approved in 8th BOS (UG) held on 21.11.2024

BCA Scheme of Studies

Semester– IV

Sr. No	Category	Course code	Course Title	Course Requirements (hrs)			Sessional Marks/End Term Marks		Total Marks	Credits
				L	P	Total	Sessional	End Term		
1	Discipline Specific-Major	BCA-23- 202	Database Management System	3	-	3	25	75	100	3
2	Discipline Specific-Major	BCA-23- 204	Design of Unix OS	3		3	25	75	100	3
3	Discipline Specific-Major	BCA-23- 206	Python Programing	3	-	3	25	75	100	3
4.	Discipline Specific-Major	BCA-23- 208	Logical Organization of Computer	4		4	25	75	100	4
5	Discipline Specific-Minor	BCA-23- 210	Wireless Communications	4	-	4	25	75	100	4
6	Ability Enhancement Courses	AEC-108-N1	Critical Thinking and Rhetorical Communication	2	-	2	25	75	100	2
7	Value Added Course	VAC-108-N1	Indian Knowledge System	2	-	2	25	75	100	2
8	Discipline Specific Lab	BCA-23- 212	Database Management System Lab	-	4	4	15	35	50	2
9	Discipline Specific Lab	BCA-23- 214	Design of Unix OS Lab		4	4	15	35	50	2
10	Discipline Specific Lab	BCA-23- 216	Python Programming Lab	-	4	4	15	35	50	2
			Total			**33**	**220**	**630**	**850**	**27**

BCA-23-202
Database Management System
BCA-IV Semester

No. of Credits:			3		
L	T	P	Total	Sessional:	25 Marks
3	0	0	3	Theory:	75 Marks
				Total:	100 Marks
				Duration of Exam:	3 Hours

Note: The examiner will be required to set seven questions in all having two parts. Part I will have Question Number 1 consisting of a total of 10 parts (short-answer type questions) covering the entire syllabus and will carry 15 marks. In Part II, there will be six questions. The examiner will set one and a half questions from each Unit of the syllabus and each question will carry 15 marks. Question Number 1 will be compulsory. In addition to the compulsory question, A student will have to attempt four more questions from Part II.

Course Objectives:

1 To understand basic terminology used in database systems, basic concepts, the applications of database systems and understand role of Database administrator in DBMS.
2 The critically evaluate the various data model like Hierarchical model, Network Model, Relational model, E-R model and will be able to make E-R diagram from data given by user and table from E-R diagram.
3 The students will become familiar with relational database theory and be able to write relational algebra expressions for query and will be able to understand the logical design guidelines for databases, normalization approach, primary key, super key, foreign key concepts.
4 To design the basic issues of transaction processing, query optimization and Concurrency, security, and control.

Syllabus:

Unit I: Basic Concepts of DBMS and Database System Architecture

Introduction to Database, Purpose of Database Systems,Characteristics of Database Approach, advantages, and disadvantages of database system. Data, Information, Records, and files. Database Administrator, Database Designers, DBMS users, DBMS Functions and Components, Databases versus information retrieval. Data models, scheme, instances, Categories of Data Models, Three-Schema Architecture, Data Independence, Component modules of a DBMS and their interactions. Centralized DBMSs Architecture, Two-Tier Client/Server Architectures for DBMS, Three-Tier and n-Tier Architectures for Web Applications, DBMS Languages, Classification of DBMS.

Unit II:**Entity-Relationship Model**

Relational Data Model - Brief History, Relational Model Terminology, Relational Data Structure, Database Relations, Properties of Relations, Keys, Domains, Integrity Constraints over Relations Relational Model Constraints, Relational Database Schemes, Entity Types, Entity Sets, Attributes Relationship Types, Relationship Instances and ER Diagrams, abstraction and integration.
Basic Concepts of Hierarchical and Network Data Model

Unit III: Relational Algebra and Relational Calculus

Unary Relational Operations: Select and Project, Sequence of Operations, rename Operation, Relational algebra from set theory, Cartesian product, Binary relational operations, additional relational operations such as Generalized Projection, Aggregate Functions and Grouping etc. Tuple relation calculus, Domain relation calculus.

Unit Iv: Relational Database Design:

Functional dependencies, Modification anomalies, Ist to 3rd NFs, BCNF, 4th and 5th NFs, computing closures of set FDs, SQL: Data types, Basic Queries in SQL, Insert, Delete and Update Statements, Views, Query processing: General strategies of query processing, query optimization, query processor, concept of security, concurrency and recovery, introduction to distributed DBMS.

Course Outcomes:

A student will be able to:

CO1 : Understand basic terminology used in database systems, basic concepts, and the applications of database systems and understand the role of Database administrator in DBMS. The students will also be able to understand various data models like the Hierarchical model, Network Model, Relational model, E- R model and will be able to make E-R diagrams from data given by the user and table from the E-R diagram

CO2 : Work with relational database theory and be able to write relational algebra expressions for queries.

CO3 : Demonstrate the logical design guidelines for databases, normalization approach, primary key, super key, and foreign key concepts.

CO4 : Understand the issues of transaction processing, query optimization and Concurrency, security and control.

Text/ Reference Books:

1 Elmasri&Navathe, “Fundamentals of Database Systems”, 5th edition, Pearson Education.

2 Thomas Connolly Carolyn Begg, “Database Systems”, 3/e, Pearson Education

3 C. J. Date, “An Introduction to Database Systems”, 8th edition, Addison Wesley N. Delhi.

BCA-23-204
Design of UNIX Operating System
BCA-IV Semester

No. of Credits:			3		
L	T	P	Total	Sessional:	25 Marks
3	0	0	3	Theory:	75 Marks
				Total:	100 Marks
				Duration of Exam:	3 Hours

Note: The examiner will be required to set seven questions in all having two parts. Part I will have Question Number 1 consisting of a total of 10 parts (short-answer type questions) covering the entire syllabus and will carry 15 marks. In Part II, there will be six questions. The examiner will set one and a half questions from each Unit of the syllabus and each question will carry 15 marks. Question Number 1 will be compulsory. In addition to the compulsory question, A student will have to attempt four more questions from Part II.

Course Objectives:

1 To understand the services provided by and the design of an operating system.
2 To Evaluate the structure and organization of the file system.
3 To Familier with what a process is and how processes are synchronized and scheduled.
4 To compare and evaluate different approaches to memory management.

Syllabus:

Unit I: Theoretical Concepts of Unix Operating System

Evolution of UNIX, Basic features of UNIX, Architecture of UNIX kernel: File subsystem and process control subsystem, UNIX vs LINUX, introduction to shell programming. System administrator privileges.

Unit II: File system of the UNIX OS

Parent-child relationship of files, Types of files, File system layout, data structures of the file subsystem; internal representation of files: inodes, accessing and releasing inodes, the structure of regular files and directories, superblocks, inode and disk block assignment to a new file.

Unit III: Process Control System

Concept of a process, state transitions, data structures, Context of a process, Layout of the system memory, process scheduler, scheduling parameters, round robin multiple feedback scheduling, Fair share scheduler.

Unit IV: Memory Management Policies

Swapping: Data structures, implementation of swapping processes in and swapping out; Demand Paging: Data structures, page stealer process, fault handler.

Course Outcomes:

A student will be able to:

CO1 : Develop an understanding of how an operating functions as a middle layer between the hardware of a computer

CO2 : Appreciate the design issues and concepts of the Unix Operating Systems.

CO3 : Aware with the structure and organization of the file system.

CO4 : Familiar with the process management and memory management.

Text/ Reference Books:

1 The Design of the UNIX Operating System: Maurice J Bach, PHI

2 UNIX: Concepts and Applications: Sumitabha Das, Tata McGraw Hill.

3 UNIX Shell Programming: YashwantKanetkar, BPB publications.

BCA-23-206
Python Programming
BCA-IV Semester

No. of Credits:			3		
L	T	P	Total	Sessional:	25 Marks
3	0	0	3	Theory:	75 Marks
				Total:	100 Marks
				Duration of Exam:	3 Hours

Note: The examiner will be required to set seven questions in all having two parts. Part I will have Question Number 1 consisting of a total of 10 parts (short-answer type questions) covering the entire syllabus and will carry 15 marks. In Part II, there will be six questions. The examiner will set one and a half questions from each Unit of the syllabus and each question will carry 15 marks. Question Number 1 will be compulsory. In addition to the compulsory question, A student will have to attempt four more questions from Part II.

Course Objectives:

1 Learn the syntax and semantics of Python Programming Language.
2 Write Python functions to facilitate code reuse and manipulate strings.
3 Illustrate the process of structuring the data using lists, tuples and dictionaries.
4 Demonstrate the use of built-in functions to navigate the file system.

Syllabus:

Unit I: Basics of Python and Structure Types and Mutability

Python Installation and Working of it, get familiar with Python variables and data types, Operator understanding and its usage, detail study of Python blocks, conditional blocks using if, else and elif,looping with range, list and dictionaries. Hands-onorganizing python code with function, modular approach in Python.

Unit II: Exception, Testing and Debugging

Handling if exceptions to handle the code cracks, handling and helping file operations, coding with the exceptional handling, and testing Anonymous method, Properties, Indexers, Exception Handling.

Unit Iii: Classes and OOP Concepts

Procedural and Object-Oriented Programming, Classes and working with instances, Method overloading, Polymorphism, importing internal module as well as external modules in the code Packages understanding and their usage, hands on with Lambda function in python coding with the use of functions, modules and external packages

Unit Iv: Algorithm and Data Structure

Stack, Queue, Tree, ordered list, Introduction to Recursion, Divide and Conquer Strategy, Greedy Strategy, Graph Algorithms.
Advance Topics: Regular Expression, Multi thread Programming, Security

Course Outcomes:

A student will be able to:

CO1 : Apply various fundamentals for problem solving using python.

CO2 : Implement modular programming and differentiate the mutability of various datatypes

CO3 : Create object-oriented solutions by applying various concepts like polymorphism, inheritance, and package with python programming.

CO4 : Implement multithreading and manage security in Linux operating system.

Text/ Reference Books:

1 Starting Out with Python (2009) Pearson , Tonny Gaddis

2 Beginning PyhtonWrox Publication Peter Norton, Alex Samuel

3 Python Algorithms Apress, Magnus LietHetland,

4 Python Object Oriented Programming PACKT Press, Dusty Phillips

5 Python for Unix and Linux System Administration O'Relly, Noad Gift

BCA-23-208
Logical Organisation of Computer
BCA-IV Semester

No. of Credits:			4		
L	T	P	Total	Sessional:	25 Marks
4	0	0	4	Theory:	75 Marks
				Total:	100 Marks
				Duration of Exam:	3 Hours

Note: The examiner will be required to set seven questions in all having two parts. Part I will have Question Number 1 consisting of a total of 10 parts (short-answer type questions) covering the entire syllabus and will carry 15 marks. In Part II, there will be six questions. The examiner will set one and a half questions from each Unit of the syllabus and each question will carry 15 marks. Question Number 1 will be compulsory. In addition to the compulsory question, A student will have to attempt four more questions from Part II.

Course Objectives:

1 To develop an understanding of components of computer,how Computer Systems work and the basic principles
2. To make students understand the concept of microprocessor architecture and peripherals and I/O interfacing.
3. To learn the concepts of parallel processors and pipelining techniques.
4. To study the concept of memory organization and its techniques.

UNIT-I Functional blocks of a computer:

CPU, memory, input-output subsystems, control unit. Instruction set architecture of a CPU – registers, instruction execution cycle, RTL interpretation of instructions, addressing modes, instruction set. Case study – instruction sets of some common CPUs.

Data representation: signed number representation, fixed and floating point representations, character representation. Computer arithmetic – integer addition and subtraction, ripple carry adder, carry look-ahead adder, etc. multiplication – shift-and add, Booth multiplier, carry save multiplier, etc. Division restoring and non-restoring techniques, floating point arithmetic.

UNIT-II Introduction to x86 architecture:
CPU control unit design: hardwired and micro-programmed design approaches, Case study – design of a simple hypothetical CPU.

Memory system design: semiconductor memory technologies, memory organization.
Peripheral devices and their characteristics: Input-output subsystems, I/O device interface, I/O transfers – program controlled, interrupt driven and DMA, privileged and non-privileged instructions, software interrupts and exceptions. Programs and processes – role of interrupts in process state transitions, I/O device interfaces – SCII, USB

UNIT-III Pipelining:
Basic concepts of pipelining, throughput and speedup, pipeline hazards.
Parallel Processors: Introduction to parallel processors, Concurrent access to memory and cache coherency.

UNIT-IV Memory organization: Memory interleaving, concept of hierarchical memory organization, cache memory, cache size Vs block size, mapping functions, replacement algorithms, write policies.

Course Outcomes:

After completion of this course, the students will be able to perform the following:

1. Draw the functional block diagram of single bus architecture of a computer and describe the function of the instruction execution cycle, RTL interpretation of instructions, addressing modes, instruction set.
2. Write assembly language program for specified microprocessors using different data representations and design the ALU, Control Unit and CPU of a computer system.
3. Analyse concepts of parallel processors and pipelining techniques
4. Given a CPU organization, apply design techniques for memory interfacing and interleaving.

TextBooks/References:

1. **"**Computer Organization and Design: The Hardware/Software Interface", 5th Edition by David A. Patterson and John L. Hennessy, Elsevier.
2. "Computer Organization and Embedded Systems", 6th Edition by Carl Hamacher, McGraw Hill Higher Education.
3. "Computer Architecture and Organization", 3rd Edition by John P. Hayes WCB/McGraw-Hill
4. "Computer Organization and Architecture: Designing for Performance", 10th Edition by William Stallings, Pearson Education.
5. "Computer System Design and Architecture", 2nd Edition by Vincent P. Heuring and Harry F. Jordan, Pearson Education.

BCA-23-210
Wireless Communication
BCA-IV Semester

No. of Credits: 4

L	T	P	Total
4	0	0	4

Sessional: 25 Marks
Theory: 75 Marks
Total: 100 Marks
Duration of Exam: 3 Hours

Note: The examiner will be required to set seven questions in all having two parts. Part I will have Question Number 1 consisting of a total of 10 parts (short-answer type questions) covering the entire syllabus and will carry 15 marks. In Part II, there will be six questions. The examiner will set one and a half questions from each Unit of the syllabus and each question will carry 15 marks. Question Number 1 will be compulsory. In addition to the compulsory question, A student will have to attempt four more questions from Part II.

Course Objectives:

1 To provide an overview of the Wireless Communication Networks area and its applications and examples of wireless communication devices.
2 To understand the various terminology, principles, devices, schemes, concepts, algorithms, and different methodologies used in Wireless Communication Networks.
3 To Introduce various wireless systems and standards such as GSM and their basic operation cases. It also deals with second-generation and third-generation wireless networks.
4 To understand the characteristics of different multiple access techniques and it provides an overview of the need for Cell splitting and Cell sectoring in cellular networks.

Syllabus:

Unit I: Introduction to Wireless Communication System
Evolution of wireless communications, examples of wireless communication systems, comparison of various wireless systems.
Modern Wireless Communication System: Second generation cellular networks: GSM, third generation wireless networks: CDMA, Introduction to 4G wireless networks, wireless in local loop, wireless local area networks, Bluetooth and Personal Area Networks.

Unit II: Introduction to Cellular Mobile Systems and Design Fundamental
Spectrum Allocation, Basic cellular Systems, performance criteria, Operation of Cellular systems, Analog cellular systems, Digital cellular Systems.

Cellular System Design Fundamentals**:** Frequency Reuse, channel assignmentstrategies, hand off strategies (MAHO, MCHO, NCHO), Interference and system capacity, tracking and grade off service, improving coverage and capacity: Cell splitting, Cell sectoring, Zone concepts.
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Unit III: Multiple Access Techniques for Wireless Communication

Introduction to Multiple Access, FDMA, TDMA, spread Spectrum multiple Access, space division multiple access, packet ratio, capacity of a cellular systems.

Unit IV: Wireless Networking

Difference between wireless and fixed telephone networks, development of wireless networks, fixed network transmission hierarchy, traffic routing in the wireless network, wireless data services, common channel signaling, ISDN (Integrated Service Digital Networks), Advanced Intelligent Networks.

Course Outcomes:

A student will be able to:

CO1: Aware of the overall GSM cellular concept along with Cellular systems from 1G to 3G, Wireless 4G systems.

CO2: The students will be aware of the Fundamentals of cellular communications such as hexagonal cell geometry, Co-channel interference, Cellular system design, and Sectoring using directional antennas

CO3: Have Knowledge of different spread spectrum techniques and an understanding of design considerations for how to effectively share spectrum through multiple access

CO4: Understand the basic principles channel allocation and handoffs and awareness of the technologies used in Time Division Multiple Access (TDMA), Code Division Multiple Access (CDMA)

Text/ Reference Books:

1 J. Goldsmith, Wireless Communications, Cambridge University Press, 2005.

2 D. Tse and P. Viswanath, Fundamentals of Wireless Communications, Cambridge University Press, 2005.

3 A. Molisch, Wireless Communications, John Wiley & Sons, 2005.

4 S. Haykin and M. Moher, Modern Wireless Communications, Pearson Education, 2005.

5 T. S. Rappaport, Wireless Communications, Prentice Hall, 1996.

6 G. L. Stuber, Principles of Mobile Communications, Kluwer, 1996.

7 T. Cover and J. Thomas, Elements of Information Theory, John Wiley & Sons, 1991.

AEC-108-N1
Critical Thinking and Rhetorical Communication
BCA-IV Semester

No. of Credits: 2

L	T	P	Total
2	0	0	2

Sessional:	25 Marks
Theory:	75 Marks
Total:	100 Marks
Duration of Exam:	3 Hours

Note: The examiner will be required to set seven questions in all having two parts. Part I will have Question Number 1 consisting of a total of 10 parts (short-answer type questions) covering the entire syllabus and will carry 15 marks. In Part II, there will be six questions. The examiner will set one and a half questions from each Unit of the syllabus and each question will carry 15 marks. Question Number 1 will be compulsory. In addition to the compulsory question, A student will have to attempt four more questions from Part II.

Course Objectives:

1. To be familiarized with the concept and significance of
2. To practice critical thinking including comprehension, analysis and interpretation of information in communication process.
3. To help students articulate content for clear and persuasive communication.
4. To understand and apply conflict-resolution and problem-solving approaches towards building and managing teams and for better organizational communication.

Syllabus:

Unit 1: Introduction to Critical Thinking and Rhetoric
Definition and types: Analysis, Communication, inference, Observation; Problem-Solving; Inductive and Deductive Reasoning; Edward de Bono's Thinking Hats; The Rhetorical Situation: Purpose; Audience; Topic and Context; Rhetorical strategies: compare; contrast; classify; describe; Rhetorical devices: alliteration and amplification.

Unit II: Content Analysis and Articulation
Comprehension of core ideas of an article; Identify credible sources; Evaluate and respond to arguments; Assess alternative viewpoints; Test hypotheses against relevantcriteria; analyze information and form judgments; **CRAAP test**, these queslions focus on thc currency, relevance, authority, accuracy and purpose of a source of information; bias and eliminating bias, evidence-based arguments, considering alternatives views, popular media and information literacy.

Unit III: interview Skills
STAR method: Situation, Task, Action and Result; mock-interview exercises.

Unit IV: Conflict Resolution and Group Discussion

conflict; 3 P's of conflict resolution: Problem, People and Process; strategies to resolve conflict: avoid; compromise; accommodate; compete, collaborate; GD exercises with topical issues and chronic problems of regional, national and international importance; including leadership and team-building skills.

Course Outcome:

1. Students will be familiarized with the concept and significance of critical thinking.
2. Students demonstrate critical thinking skills including comprehension analysis and interpretation of information in communication process.
3. Students are able to articulate content for clear and persuasive communication
4. Students can apply conflict-resolution and problem-solving approaches towards building and managing teams for better organizational communication.

VAC-108-N1
Subject Name: Introduction to Indian Knowledge System
BCA-IV Semester

NO. OF CREDITS: 2

L	**T**	**P**	**Total**	**Sessional : 25 Marks**
2	**0**	**0**	**2**	**Final Exam : 75 Marks** **Total : 100 Marks** **Duration of Exam : 3 hours**

NOTE:Questionpaperwillhavetwoparts.Part-1willbecompulsoryandhave10questionsofequalmarkscoveringtheentiresyllabus.Anyfourquestionshavetobeattemptedoutofsixfrom Part-2.

Course Objectives:

1. Toprovideanoverviewofdifferentknowledgesystemsoriginatedin India.
2. Tointroduceinthestudentsacomprehensiveunderstandingof Indianethicsandvalues.

UNIT-I: Introduction and foundational concepts of IKS (4 Hrs)

Overviewofvariousstreamsofknowledgein Indiaandclassificationofancient Indiantexts;Various philosophicalsystemsof Indiaandfundamentalprinciplesinlaidinthem

UNIT-II: Psychology from Indian perspective, Yoga and Indian Linguistics (4 Hrs)
Introduction to Ashtanga Yoga; Rasa Siddhanta of Natyasastra(theory of emotions), Panini's contribution to linguistics; Contributions of the Vakyasastra and Pramanasastra to linguistics

UNIT-III: Indian Mathematics and Astronomy (8 Hrs)
An overview of Indian mathematics, Development of arithmetic geometry and Trigonometry; Introduction to spherical geometry and calculus in India.
Vedic system of arithmetic computation, Vedic sutra for arithmetic computation.
An introduction to Indian Astronomy, Pre and Post Siddhantic period

UNIT-IV: Medicinal traditions in India (3 Hrs)
An Introduction to Ayurveda; Distinct features of Ayurveda, as compared to Alopathy; Excerpts from Sutrasthana

UNIT-V: Indian Architecture and Planning (3 Hrs)
Traditional measurement system used in Vastusastra, Prescriptions for residential Vastu, City planning as per Vastusastra

UNIT-VI: Economics, Management and Governance (4 Hrs)
An overview of Indian economic thought- Arthasastra and Nitisastra, Leadership and Motivation,
Planning and Organizing, Financial Management etc.

SUGGESTED BOOKS:

1. Introduction to Indian Knowledge System, B. Mahadevan, V. R. Bhat, NagendraPavana R. N., PHI. 2022
2. Yoga System of Patanjali, J. H. Woods, Bharatiya Kala Prakashan 2009
3. Indian Philosophy Vol I and II, S. Radhakrishnan, Oxford University Press. 2009
4. Mayamatam Indian Treatise on Housing, Architecture and Iconography (2 volumes), Bruno Daegens, Indira Gandhi National centre for Arts. 2007
5. Vedanta and Management: Relevance of Vedantic Concepts in Modern Management Practices, N. V. Dave, Deep & Deep. 2002
6. Tantrasagraha with detailed Mathematical Explanatory Notes, K. Ramasubramanian, M. S. Sriram, Hindustan Book Agency. 2011
7. Karanapadhati of PutumanaSomayaji, VenkateswaraPai, Ramasubramanian, M. S. Sriram and M.D. Srinivas, Hindustan Book Agency 2018
8. New Delhi 2002
9. The NighaMotilalBanarsidass Publishers 2015
10. ga Literature, Archak K.B. Kaveri Books, New Delhi, 2012
11. Textbook of Ayurveda: Volume 1 - Fundamental Principles of Ayurveda, Vasant Lad, Ayurvedic Press; UK ed. Edition 2002
12. Sanskrit Academy, Hyderabad. 2010
13. Vedic Mathematics, Jagadguru Swami Sri BharatiKrsnaTirathjiMaharaj, MotilalBanarsidass Publishers, Delhi 1965
14. LilavatiBhaskaracarya: A Treatise of Mathematics of Vedic Tradition, K S Patwardhan, S A Naimpally and ShyamLal Singh, MotilalBanarsidass Publishers Pvt Ltd, Delhi 2006

BCA-23-212					
Data Base Management System Lab					
BCA-IV Semester					
Discipline Specific Course					
No. of Credits:			2		
L	T	P	Total	Sessional:	15 Marks
0	0	4	4	Theory:	35 Marks
				Total:	50 Marks
				Duration of Exam:	3 Hours

List of Experiments

1.Create a table and display data from table to understand theconcept of create, insert and select command.Use of update, Delete, Truncate command to understand theconcept of DML.Apply Alter command and Drop command to understand theconcept of DDL.

2. Apply constraints to understand the concept of Primary Key,Foreign key, Unique key, integrity constraints

3. Apply Operators, Range Searching, and Pattern Matching on datato understand the concept of And, Or, Not, Arithmetic Operator,Like operator, In, Not in operator

4. Write a program to execute DDL(Create, Alter, Drop and Truncate) commands with examples.

5.For a given set of relation schemes, create tables and perform the following Simple Queries, Simple Queries with Aggregate functions, Queries with Aggregate functions (group by and having clause), Queries involving- Date Functions, String Functions , Math Functions Join Queries- Inner Join, Outer Join Subqueries- With IN clause, With EXISTS clause

6.Write a program to execute DML(Insert, Update, Delete and Select) commands with examples.

7.Write a program to perform join operations on two tables.

8.Write a program to execute Transaction control language(Commit, Rollback and Save) commands with examples.

9.Develop GUI using front end tool

10.Given the table EMPLOYEE (EmpNo, Name, Salary, Designation, DeptID) write a cursor to select the five highest paid employees from the table.

BCA-23-214					
Design of Unix OS Lab					
BCA-IV Semester					
Discipline Specific Course					
No. of Credits:			2		
L	T	P	Total	Sessional:	15 Marks
0	0	4	4	Theory:	35 Marks
				Total:	50 Marks
				Duration of Exam:	3 Hours

List of Experiments

1. Write a shell that takes a valid directory name as an argument and recursively descend all the subdirectories, finds the maximum length of any file in that hierarchy and writes this maximum value to the standard output.

2. Write a shell script that accepts a path name creates all the components in that path name as directories. For example, if the script is named mpc, then command mpc a/b/c/d should create directories a, a/b, a/b/c, a/b/c/d.

3. Write a shell script that accepts two file names as arguments, checks if the permissions for these files are identical and if the permission are identical, output common permission and otherwise output each file name followed by its permissions.

4. Write a shell script which accepts valid log in names as arguments and prints their corresponding home directories, if no arguments are specified, print a suitable error message.

5. Write a shell script that accept one or more filenames as argument and convert all of them to uppercase, provided they exist in current directory.

6. Write a shell script that accepts as filename as argument and display its creation time if file exist and if it does not send output error message.

7. Write a shell script to find a file/s that matches a pattern given as command line argument in the home directory, display the contents of the file and copy the file into the directory ~/mydir

8. Write a shell script that determine the period for which a specified user is working on system and display appropriate message.

9. Write a shell script that folds long lines into 40 columns. Thus any line that exceeds 40 characters must be broken after 40th, a "\" is to be appended as the indication of folding and the processing is to be continued with the residue. The input is to be supplied through a text file created by the user.

10. Write an script that accepts date argument in the form of dd-mm-yy and displays it in the form if month, day and year. The script should check the validity of the argument and in the case of error, display a suitable message.

BCA-23-216					
Python Programming Lab					
BCA-IV Semester					
Discipline Specific Course					
No. of Credits:			2		
L	T	P	Total	Sessional:	15 Marks
0	0	4	4	Theory:	35 Marks
				Total:	50 Marks
				Duration of Exam:	3 Hours

List of Experiments

1. Write a Python program which accepts the radius of a circle from the user and compute the area.
2. Write a Python program to get the largest number from a list.
3. Write a Python program to display the first and last colors from the following list. color_list = ["Red","Green","White" ,"Black"].
4. Write a Python program to calculate the sum of three given numbers, if the values are equal then return thrice of their sum.
5. Write a Python program to find whether a given number (accept from the user) is even or odd, print out an appropriate message to the user.
6. Write a Python script to add a key to a dictionary.
7. Write a Python script to check if a given key already exists in a dictionary.
8. Write a Python function to sum all the numbers in a list.
9. Write a Python script to make calculator using Tkinter.
10. Write a program to implement file handling in python.
11. Write a Python script to perform various functions on Images.