



Eklavya University

SESSION

2023-24

M.Sc.(CS) II SEMESTER

SYLLABUS

OF

**Computer Application And Information
Technology Department**

School of Basic and Applied Sciences

EKLAHYA UNIVERSITY, DAMOH (M.P.)

Scheme of Examination Computer Science M.Sc.(cs) II Sem

For batch admitted in Academic Session 2023-24

Subject wise distribution of marks and corresponding credits

S.No.	Subject Code	Subject Name	Maximum Marks Allotted					Total Marks	Contact Periods Per week			Total Credits
			Theory Slot			Practical Slot			L	T	P	
			End Sem.	Mid term Examination	Quiz/ Assignment/ Attendance	End Sem	Lab Work/ sessional					
1	MCOSC20S201	Object Oriented Programming with C++	60	30	10	-	-	100	4	1	-	5
2	MCOSC20S202	Data Structures and Algorithms	60	30	10	-	-	100	4	1	-	5
3	MCOSC20S203	Computer Networks	60	30	10	-	-	100	4	1	-	5
4	MCOSC20S204	Database Management System	60	30	10	-	-	100	4	1	-	5
5	MCOSC20S205	Computerised Accounting with Tally	60	30	10	-	-	100	4	1	-	5
6	MCOSC20S206	Computer Lab 2	-	-	-	60	40	100	-	-	5	5
Total			300	150	50	60	40	600	20	5	5	30

Induction programme of three weeks (MC): Physical activity, Creative Arts, Universal Human Values, Literary, Proficiency Modules, Lectures by Eminent People, Visits to local Areas, Familiarization to Dept./Branch & Innovations.

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Class		MASTER OF SCIENCE (COMPUTER SCIENCE) MSC (CS)	
Semester/Year		SEMESTER - II	
Subject & Subject Code		OBJECT ORIENTED PROGRAMMING WITH C++ - MCOSC20S201	
Max. Marks		60 (ETE) + 40 (IA) =100	
Credit		Total Credits	
L	T	P	5
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Course Objectives:

1. To Understand how C++ Improves C with Object-Oriented Features.
2. To Learn how to Write Inline Functions for Efficiency and Performance.
3. To Learn the Syntax and Semantics of the C++ Programming Language.
4. To Learn how to Design C++ Classes for Code Reuse.
5. To Learn how to Implement Copy Constructors and Class Member Functions.
6. To Learn how to Overload Functions and Operators in C++.
7. To Learn how Containment and Inheritance Promote Code Reuse in C++.
8. To Learn how to Use Exception Handling in C++ Program

Course Outcome:

1. Explain Concepts and Advantages of Object Oriented Programming.
2. Apply and implement the concepts of the Object-Oriented paradigms to analyze design and develop the solutions of real world problems using the Principles of information Hiding Localization and Modularity.
3. Design Develop and maintain the small applications system utility for societal and academic problems using reusability concepts in team spirit.
4. Demonstrate the Advanced Features of C++ Specifically Stream I/O Templates and Operator Overloading and overriding.

Student Learning Outcomes (SLO):

Students will:

1. explain how an existing C++, c program works
2. discover errors in a C++ program and describe how to fix them
3. critique a C program and describe ways to improve it
4. analyze a problem and construct a C++ program that solves it
5. choose and apply the required Linux commands to develop C++ programs in a command-line environment

Unit	Syllabus	Periods
UNIT - I	Overview of C++: Object Oriented Programming Concepts , Advantages Usage Program Development Environment , C++ Language Standards , Introduction to Various C++ Compilers , C++ Standard Libraries , Main Function in C++ , Meaning of Empty, Argument , List , Function , Prototyping , Default Arguments and Argument Matching , User Defined Data Types . Classes & Objects : Structure Union & Classes Inline Function , Scope Resolution Operator. Static Class Members: Static Data Member, Static Member Function , Passing Objects to Function Returning Objects , Object Assignment Friend Function Friend Classes .	8

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UNIT - II	Array Pointers References & the Dynamic Allocation Operators: Array of Objects Pointers to Object , Type Checking C++ Pointers , This Pointer , Pointer to Derived ,Type Pointer to Class Members. References: Reference Parameter, Call by Reference and Return by Reference ,Passing References to Objects , Returning Reference, Independent Reference , C++'S Dynamic Allocation, Operators Initializing, Allocated Memory, Allocating Array, Allocating Objects. Constructor & Destructor: Introduction Constructor , Access Specifiers for Constructors and Instantiation Parameterized Constructor , Multiple Constructor in a Class Constructor with Default Argument , Copy Constructor, Destructor, Type of destructor.	8
UNIT - III	Overloading as Polymorphism Function & Operator : Overloading ,Function Overloading, Overloading Constructor Function, Finding the Address of an Overloaded . Function Operator Overloading: Creating a Member Operator Function , Creating Prefix & Postfix Forms of the Increment & Decrement Operator,Overloading the Shorthand Operation (I.E. += etc.) Operator ,Overloading Restrictions Operator, Overloading Using Friend Function , overriding function,Overloading New & Delete, Overloading Some Special Operators Overloading [] () - Comma Operator Overloading << and. Namespaces: Global Namespace and Namespace Standard ,Nested Namespaces .	8
UNIT - IV	Inheritance: Base Class , Access Control , Protected Base Class Inheritance , Inheriting Multiple Base Classes , Constructors , Destructors & Inheritance .When Constructor & Destructor Function are Executed Passing Parameters to Base Class , Constructors Granting Access Virtual Base Classes .Virtual Functions & Polymorphism: Virtual Function, Pure Virtual Functions, Early Vs. Late Binding.	8
UNIT - V	Exception Handling : Exception Handling in C++ Try, Throw , Catch ,Sequence Multiple Catch Blocks , Uncaught Exceptions Catch, All Exception Handler the C++ . I/O System Basics: C++ Streams the Basic Stream classes, C++ Predefined. Streams Formatted I/O: Formatting Using the IOS Members Setting the Formal , Flags Clearing , Format Flags an Overloaded Form of Setf() Using Width() Precision() and Fill() Using Manipulators to Format I/O, Creating Your Own Manipulators.	8

Text Books : -

- 1 Kerninghan& Ritchie "The C Programming Language", PHI
- 2 Schildt "C:the Complete Reference", 4th Ed TMH
- 3 Kanetkar Y. "Let Us C", BPB.
- 4 M. Kumar 'Programming In C++' TMH Publications
- 5 Kanetkar Y.: "Pointers in C",BPB
- 6 R. Lafore, 'Object Oriented Programming C++
- 7 Herbertz Shield, "C++ The Complete Reference "TMH Publication ISBN 0-07-463880-7

References Books:

- 1 B.S. Gottfried – Programming with C – Schaum's Outline Series – Tata McGraw Hill 2nd Edition – 1998.
- 2 E. Balagurusamy – Programming in C – Tata McGraw Hill 3rd Edition– 2004.
- 3 K.R. Venugopal Sudeep R. Prasad – Programming with C – Tata McGraw Hill - 2002.
- 4 Yashavant Kanetkar – Let Us C – BPB Publications- 5th Edition - 2004.

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Class		MASTER OF SCIENCE (COMPUTER SCIENCE) MSC (CS)
Semester/Year		SEMESTER - II
Subject & Subject Code		DATA STRUCTURES AND ALGORITHMS - MCOSC20S202
Max. Marks		60 (ETE) + 40 (IA) =100
Credit	Total Credits	
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Course Objectives:

1. Learn Basic Data Structures Such as Linked Lists Stacks and Queues Tree and Graph.
2. Learn Algorithm for Solving Problems Like Sorting Searching Insertion and Deletion of Data
3. Understand the Complexity of Various Algorithms.
4. Introduce Various Techniques for Representation of the Data in in Memory.

Course Outcome:

1. Understand and explain Basic Data Structures Such as Linked Lists Stacks and Queues Tree and Graph.
2. Select and apply Appropriate Data Structures to define the particular Problem statement.
3. Implement Operations Like Searching/Sorting Insertion and Deletion Traversing on Various Data Structures.
4. Determine and Analyze the Complexity of Given Algorithms

Student Learning Outcomes (SLO):

1. Designs and analyzes simple algorithms.
2. Defines the meaning of iterative and recursive algorithms.
3. Calculates the running time of iterative algorithms.
4. Discusses basic ADTs such as stacks, queues, and trees
5. Discusses simple hashing schemes for searching.

Unit	Syllabus	Periods
UNIT - I	Algorithm Analysis and Complexity Data Structure : Definition, Types of Data , Structures Recursion: Definition Linear and Binary Recursion , Searching Techniques , Linear Search, Binary Search.	8
UNIT - II	Sorting Techniques: Basic Concepts Sorting by: Insertion (Insertion Sort) Selection (Heap Sort) Exchange (Bubble Sort Quick Sort) Distribution (Radix Sort) and Merging (Merge Sort) Algorithms.	8
UNIT - III	Stacks and Queues: Basic Stack , Stack Operations , Representation of a Stack. Using Arrays Stack Applications: Reversing List Factorial Calculation Infix to Postfix Transformation, Evaluating Arithmetic Expressions. Queues: Basic Queue Operations ,Representation of a Queue Using Array, Implementation of Queue, Operations Using Stack. Circular Queues ,Priority Queues. Applications of Queues- Round Robin Algorithm	8
UNIT - IV	Linked Lists: Introduction Single Linked List ,Representation of a Linked List in Memory Operations on a Single Linked List, Circular Linked List, Double Linked List, Advantages and Disadvantages of Linked List.	8

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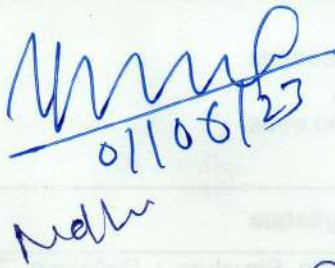

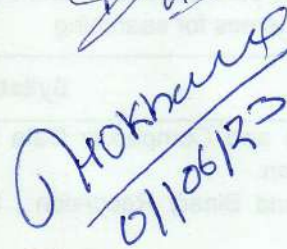
UNIT - V	<p>Trees: Terms Related to Tree Binary Tree, Binary Tree Traversals ,Creation of Binary Tree from inOrder Pre-Order and Post-Order Traversals. Threaded Binary Trees. Binary Search Tree(BST) Operations: Insertion ,Deletion.</p> <p>Graphs: Basic Concepts Representations of Graphs: Using Linked List and Adjacency Matrix Graph Algorithms. Graph Traversals (BFS & DFS) App1ications: Dijkstra's Shortest Path, Minimum Spanning Tree Using Prim's Algorithm, Warshall's Algorithm .</p>	8
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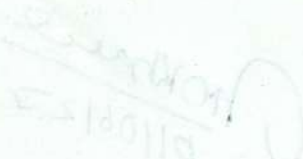

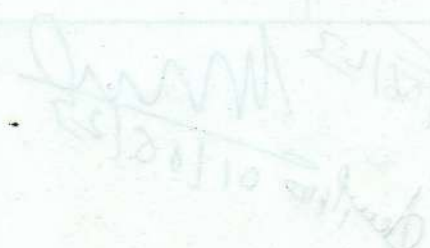

Text Books:

- 1 Data Structure and Algorithm
- 2 Introduction to Algorithms by Thomas H. Cormen
- 3 Data Structure Using "C"

References Books:

- 1 R. S. Salaria- Data Structures and Algorithm-Khanna Publishing
- 2 G. a. V. Pai Data Structures and Algorithms-2008 TMH
- 3 Debasis Sarnanta- Classic Data Structures- 2/E PHI2009
- 4 E. Horowitz Sartaj Sahni and Susan anderson W. H. Freeman -Fundamentals of Data Structures in C
- 5 Schaum "S Series- Introduction of Data Structure-Prentice Hall of India

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Class		MASTER OF SCIENCE (COMPUTER SCIENCE) MSC (CS)	
Semester/Year		SEMESTER - II	
Subject & Subject Code		COMPUTER NETWORKS - MCOSC20S203	
Max. Marks		60 (ETE) + 40 (IA) =100	
Credit		Total Credits	
L	T	P	5
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Course Objectives:

1. Build an understanding of the fundamental concepts of computer networking.
2. Familiarize the student with the basic taxonomy and terminology of the computer networking.
3. Preparing the student for entry in advanced courses of computer networking.
4. To gain knowledge of various protocols for network design and maintenance.

Course Outcome:

1. Understand and explain Data Communications System and its components.
2. Understand Computer Network basics and OSI and TCP/IP model.
3. Understand Networks switching, error detection and error correction techniques.
4. Identify the different types of network devices and their functions.
5. Familiarity with the various protocols of computer networks

Student Learning Outcomes (SLO):

1. Independently understand basic computer network technology.
2. Understand and explain Data Communications System and its components.
3. Identify the different types of network topologies and protocols.
4. Enumerate the layers of the OSI model and TCP/IP. Explain the function(s) of each layer.
5. Identify the different types of network devices and their functions within a network
6. Understand and building the skills of subnetting and routing mechanisms.
7. Familiarity with the basic protocols of computer networks, and how they can be used to assist in network design and implementation.

Unit	Syllabus	Periods
UNIT - I	Introduction to Computer Networks Types of Network : LAN, WAN, MAN, Internet Network Topologies. Transmission Media Communication Mode : Simplex , Half Duplex, Full Duplex ,Analog & Digital Signals Base Band Broad Band. Error Detection and Correction OSI Model: Functions of Each Layer ,Services and Protocols .Inter-Networking Devices : Hub Repeater ,Bridge ,Switch ,Modem, Routers, Gateways.	8
UNIT - II	Multiplexing : Multiplexer FDM, TDM ,Statistical Multiplexing ,Modulation AM FM ,PM .Switching Technique: Message Switching, Circuit Switching ,Packet Switching Virtual ,Circuit IEEE Standards 802.3 ,802.4 ,802.5. Fast Ethernet FDDI ,Token Ring.	8
UNIT - III	Routing Algorithms: Shortest Path Routing , Distance Vector Routing, Unicast Routing, Multicast Routing ,Link State Routing ,Broadcast Routing , Congestion Control Traffic Shaping. TCP/IP: Introduction, History of TCP/IP , Layers of TCP/IP, Comparison Between OSI and TCP/Ip Models , Transmission Control Protocol, User Datagram Protocol, Internet Protocol, IP Addressing ,IP Addressing Classes. Internet Protocols : IP Packet ,ARP RARP, ICMP.	8

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UNIT - IV	Protocols : Protocol HTTP ,Telnet ,FTP, SMTP, UDP ,URL (Uniform Resource Locator) ISDN Channel ,ISDN Services, Base Band ISDN ,Broadband ISDN. Network Security : Network Security Issues. Firewalls : Firewalls Need and Features of Firewalls .Types of Firewall Technology- Network Level and Application Level, IP Packets ,Filter Screening, Routers Limitations of Firewalls.	8
UNIT - V	Introduction to Wireless Network : Fundamentals of Cellular Systems Mobile , Ad-Hoc and Sensor Networks Wireless PAN/LAN/MAN Multi-Path Propagation , Path Loss Slow Fading, Fast Fading , Frequency Reuse Cell, Splitting Cell Sectoring.	8

Text Books

- 1 Computer Networking: A Top-Down Approach.
- 2 Computer Networks.
- 3 Network Warrior.
- 4 Routing TCP/IP, Volume.
- 5 Networking All-in-One For Dummies.

References Books:

- 1 Andrew S.Tanenbaum -Computer Networks Pearson- 4th Edition
- 2 Behrouz a.Forouzan - Data Communications and Networking -Global Ed - 5th Edition
- 3 William a Shay - Understanding Data Communications and Networks -Course Technology Inc- 3rd Revised Edition
- 4 Prakash C. Gupta -Data Communications and Computer Networks-PHI-2nd Edition
- 5 William Stallings- Data and Computer Communications Pearson Education India 10th Edition
- 6 Larry L.Peterson and Bruce S. Davie-Computer Networks – a Systems ApproachMorgan Kaufmann Publishers- Fifth Edition 2011
- 7 Thomas D.Nadeau & Ken Gray-Software Defined Networks o'reilly 2013

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Class			MASTER OF SCIENCE (COMPUTER SCIENCE) MSC (CS)		
Semester/Year			SEMESTER - II		
Subject & Subject Code			DATABASE MANAGEMENT SYSTEM - MCOSC20S204		
Max. Marks			60 (ETE) + 40 (IA) =100		
Credit		Total Credits			
L	T	P	5		
4	1	0			

Course Objectives:

1. Understand the Fundamentals of Data Models and Conceptualize a Database System Using ER Diagram.
2. Make a Study of Relational Database Design.
3. Know About Data Storage Techniques and Query Processing.
4. Impart Knowledge in Transaction Processing Concurrency Control Techniques and Recovery Procedures.
5. To Understand MySQL Database Management System.

Course Outcome:

1. Understand and describe the basic concepts and terminology of Database Management System.
2. Analyze and Design the database of applications using ER modeling and Normalization.
3. Demonstrate the database schema data modeling and normalization process with the help of example.
4. Implement the database design using appropriate database tools.
5. Describe the transaction processing system locking techniques and data recovery.

Student Learning Outcomes (SLO):

1. Designs and analyzes simple algorithms.
2. Defines the meaning of iterative and recursive algorithms.
3. Calculates the running time of iterative algorithms.
4. Discusses basic ADTs such as stacks, queues, and trees
5. Discusses simple hashing schemes for searching.

Unit	Syllabus	Periods
UNIT - I	Introduction: File Systems Versus Database Systems ,Introduction to Relational Model : Relational Model Concepts, Database Schema, Keys, Relational Operations, Formal Relational Query Languages, Relational Algebra, Relational Calculus, Tuple Relational Calculus, Domain Relational Calculus, Overview of Commercial RDBMS Packages, Database Design, ER Diagram	8
UNIT - II	Normal Forms 1NF, 2NF, 3NF, BCNF, 4NF, 5NF, ACID Property Fundamentals Concurrency Control, Structured Query Language ,SQL Commands DDL, DML, DCL Table Fundamentals, Data Constraints, Computations on Table Data , Operators.	8
UNIT - III	Functions, Grouping Data, Sub Queries ,Join , Dynamic SQL , Index, Views, Clusters, Sequence Security Management , OOPs in SQL , Procedural SQL PL/SQL Block Structure, PL/SQL Tables, Cursor Management PL/SQL Transaction PL/SQL Security PLSQL Data Base Objects.	8

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UNIT - IV	Transaction Processing: Transaction Processing , Locking Techniques , Time Stamp , Ordering Validation Techniques ,Recovery Concepts, Shadow Paging ,Log Based Recovery ,Database Security Issues Access Control ,Statistical	8
UNIT - V	Introduction to MySQL , Applications of MySQL, Installing MySQL , MySQL Data Types Running and shutting Down MySQL Server , Making Account , Use Databasesname , Show Database ,show tables , MySQL Connections , Create Database , Drop database , Select database , Creating Tables, Drop Tables ,Inserting data , Select Query , Insert Query, Writing Query.	8

Text Books : -

- 1 Fundamentals of Database Systems 7th Edition
- 2 Database Management Systems, 3rd Edition
- 3 Database System Concepts 7th Edition

References Books:

- 1 Abraham Silberschatz, Henry Korth, S. Sudarshan, "Database Systems Concepts", 7th Edition, McGraw Hill
- 2 Ramakrishnan and Gherke, "Database Management Systems", TMH
- 3 Rajesh Narang "Database management System" PHI.
- 4 R. Elmarsri and SB Navathe, "Fundamentals of Database Systems", Pearson
- 5 . Bipin Desai, "An Introduction to database Systems", Galgotia Publications.
- 6 MySQL (4th Edition) 4th Edition by Paul DuBois
- 7 MySQL(TM): The Complete Reference - The Complete Reference Paperback by Vaswani Vikram

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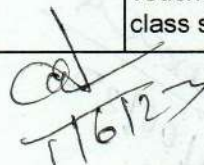
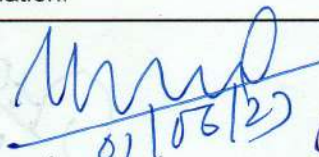

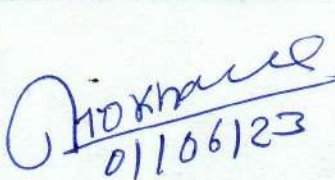

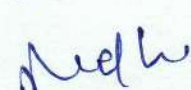
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Semester/Year		SEMESTER - II	
Subject & Subject Code		COMPUTERISED ACCOUNTING WITH TALLY - MCOSC20S205	
Max. Marks		60 (ETE) + 40 (IA) =100	
Credit		Total Credits	
L	T	P	5
4	1	0	
Course Objectives:			
<p>1. This course helps students to work with well-known accounting software i.e. Tally ERP.9</p> <p>2. Student will learn to create company, enter accounting voucher entries including advance voucher entries, do reconcile bank statement, do accrual adjustments, and also print financial statements, etc. in Tally ERP.9 software</p> <p>3. Accounting with Tally certificate course is not just theoretical program, but it also includes continuous practice, to make students ready with required skill for employability in the job market.</p>			
Course Outcome:			
<p>1. After successfully qualifying practical examination, students will be awarded certificate to work with well-known accounting software i.e. Tally ERP.9</p> <p>2. Student will do by their own create company, enter accounting voucher entries including advance voucher entries, do reconcile bank statement, do accrual adjustments, and also print financial statements, etc. in Tally ERP.9 software</p> <p>3. Students do possess required skill and can also be employed as Tally data entry operator.</p>			
Student Learning Outcomes (SLO):			
<p>1. Learn how to create professional MS-Word documents and format texts and paragraphs</p> <p>2. Work with an Excel worksheet by entering and selecting the data in it</p> <p>3. Modify a worksheet, perform calculations and print workbook contents</p> <p>4. Understand and apply basic principles of accounting</p> <p>5. Understand double-entry system of accounts</p> <p>6. Understand the basic features associated with Tally</p> <p>7. Identify the key components of Tally</p>			
Unit	Syllabus		Periods
UNIT - I	Tally Configuration & INI setup Data Directory & Folders configuration Single & Multiple User Tally Screen Components Mouse / Keyboard Conventions & Key Combinations Switching between screen areas Quitting Tally. Maintaining Company Data Basic Company Details Create/Alter/Select/Load/Close a Company Chart of Accounts Company Features Configuration.		8
UNIT - II	Create Alter & Display Groups and Ledgers All accounting vouchertypes and transactions Create and Alter new Voucher type Item and Account Invoice transactions Excise Invoice Export Invoice Transactions using Bill-wise details Create Alter & Display Cost Centre and Cost Categories Cost centre & Cost Category allocation in voucher entry Creating Cost centre Class Invoice entry in a Class situation Create Alter & Delete Foreign Currencies Voucher entry using foreign currency Bank Reconciliation Interest calculations using simple & advance parameters Interest calculations on outstanding balances & on invoices Use of voucher class adjustment of interest Creation of voucher class Invoice entry in a class situation.		8

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UNIT - III	<p>Create Alter & Delete Budgets for groups ledgers & cost centres Defining credit limit & credit period Display Budgets & variances Create Alter & Delete a scenario. Enabling Job Costing in Tally Master creation & configuration for Job costing Creation of Voucher type & Voucher class for Stock Transactions Creation of Transfer journal for transfer of stock between godowns Consumption journal Transactions payment voucher Godown summary Report Job Work Analysis Material consumption summary. Reports like balance sheet Profit & Loss account Ratio analysis Trial Balance. Accounts books like cash/bank book All ledgers Group summary & vouchers Sales purchase & journal registers Cost centre & category summary Cost centre breakup ledger & group breakup outstanding receivables & payables interest receivable & payable Statistics Cash & Fund flow Day book List of Accounts Reversing journals optional vouchers post-dated vouchers.</p>	8
UNIT - IV	<p>Create Alter & Display Stock Groups and Stock Items Stock item behaviour using costing and market valuation method other behaviour like treating all sales as new manufacture treating all purchases as consumed treating all rejections inward as scrap ignoring negative balances Treating difference due to physical counting Create Alter & Display Stock categories Create Alter Display simple & compound units of measures Stock items using alternate units Defining standard cost & selling price Defining Rate of duty Defining MRP Create Alter & Display Godowns Allocation of items to the Godowns All inventory voucher types and transactions Inventory details in accounting vouchers Defining re-order level Transactions using tracking numbers Use of batch-wise details in voucher Additional cost details in vouchers Creating Bill of material Cost estimation Creating Price list & defining Price levels invoice using Price list Zero valued entries Transactions in case of Different actual & billed quantities. Reports like Stock summary Inventory books like Stock item Group summary Stock transfers Physical stock register Movement analysis Stock group & item analysis stock category analysis Ageing analysis Sales order & Purchase order book Statement of inventory related to Godowns categories stock query Reorder status Purchase & Sales order summary Purchase & Sales bill pending Exception reports like negative stock & ledger overdue receivables & payables memorandum vouchers optional vouchers post-dated vouchers reversing journals.</p>	8
UNIT - V	<p>Cheque Printing Common printing options Different printing formats Multi-Account printing Dynamic- Report specific options. Creating Group Company Use of Tally vault Using Security control & defining different security levels Use of Tally Audit. Back-up & Restore Splitting company data Export & import of Data ODBC compliance use of E-mail Internet publishing Upload web browser & online help Re-write data.</p>	8

RECOMMENDED BOOKS –

1. Nadhani-Implementing Tally 6.3 BPB Publications ISBN:817656494X
2. BPB Tally 6.3 BPB Editorial Board (Hindi) BP Publications ISBN 81-7656-594-6

Class			MSC. (CS) I YEAR
Semester/Year			SEMESTER - II
Subject & Subject Code			Computer Lab – 2 – MCOSC20S206
Max. Marks			60 (ETE) + 40 (IA) = 100
Credit		Total Credits	
L	T	P	5
0	0	5	

PRACTICALS LIST OF C++

1. Write a Program That Just Outputs `Hello World`
2. Write a Program to Find Maximum and Minimum of Given 3 Numbers.
3. Write a Program That Output Value as Number and as Character.
4. Implementation of the Function That Calculates the Cross Sum of an Integer.(123 as 1+2+3).
5. Determine Number of Characters in a String.
6. Raising a Number N to a Power P is the Same as Multiplying N By Itself P Times. Write a Function Called Power () That Takes a Double Value for N and an INT Value for P and Returns the Result as Double Value. use a Default Argument of 2 for P So That If This Argument is Omitted the Number Will Be Squared. Write a Main () Function That Gets Values from the User to Test This Function.
7. Write a C++ Program to Sort an Array of Integer in Ascending Order Using a Function Called Exchange() Which Accepts Two Integer Arguments By Reference.
8. Write a C++ Program to Implement Function Overloading in Order to Compute.
9. Write a C++ Program to Implement Power(MN) Where I) M is Double and N is Int II) M and N are Int.
10. Write a Program That Uses a Structure Called Point to Model a Point. Define Three Points and Have the User Input Values to Two of Them. Then Set the Third Point Equal to the Sum of the Other Two and Display the Value of the New Point. Interaction with the Program Might Look Like This:

Enter Coordinates for P1: 3 4

Enter Coordinates for P2: 5 7

Coordinates of P1 + P2 are: 8 11

11. Create the Equivalent of a Four Function Calculator. the Program Should Request the User to Enter a Number an Operator and Another Number. It Should Then Carry Out the Specified Arithmetical Operation: Adding Subtracting Multiplying Or Dividing the Two Numbers. (It Should use a Switch Statement to Select the Operation). Finally It Should Display the Result. When It Finishes the Calculation the Program Should Ask If the User Wants to Do Another Calculation. the Response Can Be Y Or N. Some Sample Interaction with the Program Might Look Like This.

Enter First Number Operator Second Number: 10/ 3

Answer = 3.333333

Do Another (Y/ N)? Y

Enter First Number Operator Second Number 12 + 100

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Answer = 112

Do Another (Y/ N)? N

12. Create a 'Distance' Class with :
 - Feet and Inches as Data Members
 - Member Function to Input Distance
 - Member Function to Output Distance
 - Member Function to Add Two Distance Objects
 - Write a Main Function to Create Objects of Distance Class. Input Two Distances and Output the Sum.
13. Create a Class Called 'Time' That Has
 - Three Integer Data Members for Hours Minutes and Seconds
 - Constructor to Initialize the Object to Zero
 - Constructor to Initialize the Object to Some Constant Value
 - Member Function to Add Two Time Objects
 - Member Function to Display Time in Hh:Mm:Ss Format
 - Write a Main Function to Create Two Time Objects Add Them and Display the Result in Hh:Mm:Ss Format.
14. Create a Class Called 'Employee' That Has
 - Empcode and Emprname as Data Members
 - Member Function Getdata() to Input Data
 - Member Function Display() to Output Data
 - Write a Main Function to Create Emp an Array of Employee Objects. Accept and
 - Display the Details of At Least 6 Employees.
15. Create a Class Rational Which Represents a Numerical Value by Two Double Values- Numerator, Denominator. Include the Following Public Member Functions: Constructor with No Arguments (Default). Constructor with Two Arguments.
 - Void Reduce() That Reduces the Rational Number By Eliminating the Highest Common Factor Between the Numerator and Denominator.
 - Overload + Operator to Add Two Rational Number.
 - Overload >> Operator to Enable Input Through Cin.
 - Overload << Operator to Enable Output Through Cout.
 - Write a Main () to Test All the Functions in the Class.
16. Create a Class 'Complex' to Hold a Complex Number. Write a Friend Function to add Two Complex Numbers. Write a Main Function to Add Two Complex Objects.
17. Create a 'Matrix' Class of Size M X N. Overload the '+' Operator to Add Twomatrix Objects. Write a Main Function to Implement It.
18. Create a 'String' Class Which Overloads '=' Operator to Compare Two Stringobjects.
19. Create a Base Class Called 'Shape' Having
 - Two Data Members of Type Double.
 - Member Function Get-Data() to Initialize Base Class Data Members.

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- Pure Virtual Member Function *Display-Area()* to Compute and Display the Area of the Geometrical Object.
 - Derive Two Specific Classes 'Triangle' and 'Rectangle' from the Base Class.
 - Using These Three Classes Design a Program That Will Accept Dimension of a Triangle/Rectangle Interactively and Display the Area.
20. Consider the Following Class Definition
- ```
Class Father {
Protected: Int Age;
Public;
Father (Int X) {Age = X;}
Virtual Void lam ()
{ Cout<< I Am the Father My Age is : << Age<< End1;}
};
```
- Derive the Two Classes Son and Daughter from the Above Class and for Each Define lam ( ) to Write Our Similar But Appropriate Messages. You Should Also Define Suitable Constructors for These Classes.
  - Now Write a Main ( ) That Creates Objects of the Three Classes and Then Calls lam ( ) for Them. Declare Pointer to Father. Successively Assign Addresses of Objects of the Two Derived Classes to This Pointer and in Each Case Call lam ( ) Through the Pointer to Demonstrate Polymorphism in Action.
21. Write a C++ Program That Displays the Size (in Bytes) of a Given File. The Name of the File is specified as Command Line Argument.
22. Design Your Own Manipulator to Provide the Following Output Specification For printing Money Value:
- a. 10 Columns Width
  - b. The Character '\$' At the Beginning
  - c. Two Digits Precision
  - d. Filling of Unused Spaces with ' \* '
  - e. Trailing Zeros Shown

### DBMS LAB

1. Draw an ER Diagram for University Database.
2. Draw an ER Diagram for Library Management System. Convert it to Tables.
3. Create a Library Management Schema/ Database and Search Anomalies in it.
4. Assume a Video Library Maintains a Database of Movies Rented Out. Without Any Normalization All Information is Stored in One Table as Shown Below.

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| Full Names   | Physical Address          | Movies Rented                                    | Salutation | Category           |
|--------------|---------------------------|--------------------------------------------------|------------|--------------------|
| Janet Jones  | First Street<br>Plot No 4 | Pirates of the Caribbean<br>Clash of the Titans  | Ms.        | ActionAction       |
| Robert Phill | 3 <sup>rd</sup> Street 34 | Forgetting Sarah Marshal<br>Daddy's Little Girls | Mr.        | Romance<br>Romance |
| Robert Phill | 5 <sup>th</sup> Avenue    | Clash of the Titans                              | Mr.        | Action             |

6. Normalize the Following Schema with Given Constraints.

Books (Accessionno|sbn Title Author Publisher)

Users (Userid|Name|Deptid|Deptname)

Accessionno -> ISBN

ISBN -> Title

ISBN -> Publisher

ISBN -> Title

Userid -> Name

Userid -> Deptid

Deptid -> Department

7. Compare 3NF and BCNF with Appropriate Example

**Database Query**

8. Give Exercise on DDL and DML.

9. Create a Database Named "School.Mdb" and Perform the Following Tasks Using Ms Access or My SQL

10. Create a Table Named "Studentinfo" Having Following Table Structure.

| Field Name | Data Type     | Structure                    |
|------------|---------------|------------------------------|
| Class      | Number        |                              |
| Section    | Text          |                              |
| Roll No.   | Number        |                              |
| Name       | Text          | 40 Characters Long           |
| Status     | Lookup Wizard | Two Value: Senior and Junior |
| Photo      | Ole Object    | Photos of Student            |
| Dob        | Date/Time     | Date of Birth of Students    |
| Remarks    | Memo          |                              |

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- Fill At Least 5 Records.
- Prepare a Query to Display All Records and Name Should Be in Ascending Order.
- Prepare a Query Named "Senior" to Display Records Including Fields Name Class Sec Rollno Status Photo and Value of "Status" Field Must Be Senior.
- Prepare a Form of Above Query "Senior".
- Prepare a Report of All the Fields of Above Table

### Forms and Report

- Create a Database Named "Library.Mdb" and Perform the Following Tasks:
- Create a Table Named "Book" Having Following Structure:

| Field Name | Data Type |
|------------|-----------|
| Bookid     | Text      |
| Bname      | Text      |
| Wname      | Text      |
| Pyear      | Date/Time |
| Pname      | Text      |
| Price      | Currency  |

- Add at Least 5 Records.
  - Prepare a Query to Display Only Records Including Book Name Writer Name and Publication Name. Save the Query as "Q\_Book".
  - Prepare a Query to Display All Records On the Basis of Price which is More Than Rs500.
  - Prepare a Form On the Basis of Table.
  - Prepare a Report On the Basis of Query Named "Q\_Book".
- Create Tables According to the following Definition.

```
CREATE TABLE DEPOSIT (ACTNO VARCHAR2(5) CNAME VARCHAR2(18) BNAME
VARCHAR2(18) AMOUNT NUMBER(82) ADATE DATE); CREATE TABLE BRANCH(BNAME
VARCHAR2(18)CITY VARCHAR2(18)); CREATE TABLE CUSTOMERS(CNAME
VARCHAR2(19) CITY VARCHAR2(18)); CREATE TABLE
BORROW(LOANNO VARCHAR2(5) CNAME VARCHAR2(18)
BNAMEVARCHAR2(18) AMOUNT NUMBER (82));
```

- Insert the data as shown below.

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### Deposit

| ACTNO | CNAME   | BNAME       | AMOUNT  | ADATE     |
|-------|---------|-------------|---------|-----------|
| 100   | ANIL    | VRCE        | 1000.00 | 1-MAR-95  |
| 101   | SUNIL   | AJNI        | 5000.00 | 4-JAN-96  |
| 102   | MEHUL   | KAROLBAGH   | 3500.00 | 17-NOV-95 |
| 104   | MADHURI | CHANDI      | 1200.00 | 17-DEC-95 |
| 105   | PRMOD   | M.G.ROAD    | 3000.00 | 27-MAR-96 |
| 106   | SANDIP  | ANDHERI     | 2000.00 | 31-MAR-96 |
| 107   | SHIVANI | VIRAR       | 1000.00 | 5-SEP-95  |
| 108   | KRANTI  | NEHRU PLACE | 5000.00 | 2-JUL-95  |
| 109   | MINU    | POWAI       | 7000.00 | 10-AUG-95 |

### Branch

|             |          |
|-------------|----------|
| VRCE        | NAGPUR   |
| AJNI        | NAGPUR   |
| KAROLBAGH   | DELHI    |
| CHANDI      | DELHI    |
| DHARAMPETH  | NAGPUR   |
| M.G.ROAD    | BANGLORE |
| ANDHERI     | BOMBAY   |
| VIRAR       | BOMBAY   |
| NEHRU PLACE | DELHI    |
| POWAI       | BOMBAY   |

### Customers

|         |          |
|---------|----------|
| ANIL    | CALCUTTA |
| SUNIL   | DELHI    |
| MEHUL   | BARODA   |
| MANDAR  | PATNA    |
| MADHURI | NAGPUR   |
| PRAMOD  | NAGPUR   |
| SANDIP  | SURAT    |
| SHIVANI | BOMBAY   |
| KRANTI  | BOMBAY   |
| NAREN   | BOMBAY   |

### Borrow

| LOANNO | CNAME   | BNAME       | AMOUNT  |
|--------|---------|-------------|---------|
| 201    | ANIL    | VRCE        | 1000.00 |
| 206    | MEHUL   | AJNI        | 5000.00 |
| 311    | SUNIL   | DHARAMPETH  | 3000.00 |
| 321    | MADHURI | ANDHERI     | 2000.00 |
| 375    | PRAMOD  | VIRAR       | 8000.00 |
| 481    | KRANTI  | NEHRU PLACE | 3000.00 |

From the above given tables perform the following queries:

1. Describe deposit branch.

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| COLUMN NAME | DATA TYPE    |
|-------------|--------------|
| a_no        | Varchar2(5)  |
| cname       | Varchar2(15) |
| bname       | Varchar2(10) |
| amount      | Number(72)   |
| a_date      | Date         |

d. Create table borrow(loanno cname bname amount)

| COLUMN NAME | DATA TYPE    |
|-------------|--------------|
| loanno      | Varchar2(5)  |
| cname       | Varchar2(15) |
| bname       | Varchar2(10) |
| amount      | Varchar2(72) |

d. Insert following values in the table Employee.

| Emp_no | emp_name | emp_sal | Emp_comm | Dept_no |
|--------|----------|---------|----------|---------|
| 101    | Smith    | 800     |          | 20      |
| 102    | Snehal   | 1600    | 300      | 25      |
| 103    | Adama    | 1100    | 0        | 20      |
| 104    | Aman     | 3000    |          | 15      |
| 105    | Anita    | 5000    | 50000    | 10      |
| 106    | Sneha    | 2450    | 24500    | 10      |
| 107    | Anamika  | 2975    |          | 30      |

e. Insert following values in the table job.

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 - Snehal 01/06/23  
 - Anita 01/06/23  
 - Sneha 01/06/23  
 - Anamika 01/06/23  
 - (18) Snehal 01/06/23

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| job_id   | job_name          | min_sal | max_sal |
|----------|-------------------|---------|---------|
| IT_PROG  | Programmer        | 4000    | 10000   |
| MK_MGR   | Marketing manager | 9000    | 15000   |
| F1_MGR   | Finance manager   | 8200    | 12000   |
| F1_ACC   | Account           | 4200    | 9000    |
| LEC      | Lecturer          | 6000    | 17000   |
| COM_P_OP | Computer Operator | 1500    | 3000    |

g. Insert following values in the table **deposit**

| A_no | ename | Bname      | Amount | date      |
|------|-------|------------|--------|-----------|
| 101  | Anil  | andheri    | 7000   | 01-jan-06 |
| 102  | Sunil | Virar      | 5000   | 15-jul-06 |
| 103  | jay   | villeparle | 6500   | 12-mar-06 |
| 104  | vijay | andheri    | 8000   | 17-sep-06 |
| 105  | keyur | dadar      | 7500   | 19-nov-06 |
| 106  | mayur | Borivali   | 5500   | 21-dec-06 |

Perform following queries

- i. Retrieve all data from employee jobs and deposit.
  - ii. Give details of account no. and deposited rupees of customers having account opened between dates 01-01-06 and 25-07-06.
  - iii. Display all jobs with minimum salary is greater than 4000.
  - iv. Display name and salary of employee whose department no is 20. Give alias name to name of employee.
  - v. Display employee noname and department details of those employee whose department lies in( 1020)
14. To study various options of LIKE predicate
- i. Display all employee whose name start with 'A' and third character is 'a'.
  - ii. Display name number and salary of those employees whose name is 5 characters long and first three characters are 'Ani'
  - iii. Display the non-null values of employees and also employee name second character should be 'n' and string should be 5 characters long.

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- iv. Display the null values of employee and also employee name's third character should be "a"  
v. What will be output if you are giving LIKE predicate as '%\\_%' ESCAPE 'V'
15. To perform various data manipulation commands aggregate functions and sorting concept on all created tables.
- List total deposit from deposit.
  - List total loan from karolbagh branch
  - Give maximum loan from branch vrce.
  - Count total number of customers
  - Count total number of customer's cities.
  - Create table supplier from employee with all the columns.
  - Create table upl from employee with first two columns.
  - Create table sup2 from employee with no data
  - Insert the data into sup2 from employee whose second character should be 'n' and string should be 5 characters long in employee name field.
    - Delete all the rows from sup1.
    - Delete the detail of supplier whose sup no is 103.
    - Rename the table sup2.
    - Destroy table sup 1 with all the data.
    - Update the value dept no to 10 where second character of emp. name is 'm'.
    - Update the value of employee name whose employee number is 103.
16. To study Single-row functions.
- Write a query to display the current date. Label the column Date
  - For each employee display the employee number job salary and salary increased by 15% and expressed as a whole number. Label the column New Salary
  - Modify your query no 4. (2) to add a column that subtracts the old salary from the new salary. Label the column Increase
  - Write a query that displays the employee's names with the first letter capitalized and all other letters lowercase and the length of the names for all employees whose name starts with J A or M. Give each column an appropriate label. Sort the results by the employees' last names.
  - Write a query that produces the following for each employee: <employee last name> earns <salary> monthly
  - Display the name hire date number of months employed and day of the week on which the employee has started. Order the results by the day of the week starting with Monday.
  - Display the hiredate of emp in a format that appears as Seventh of June 1994 12:00:00 AM.
  - Write a query to calculate the annual compensation of all employees (sal+comm.).
17. Displaying data from Multiple Tables (join)
- Give details of customers ANIL.
  - Give name of customer who are borrowers and depositors and having living city Nagpur.
  - Give city as their city name of customers having same living branch.
  - Write a query to display the last name department number and department name for all employees.

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- v. Create a unique listing of all jobs that are in department 30. Include the location of the department in the output
- vi. Write a query to display the employee name department number and department name for all employees who work in NEW YORK.
- vii. Display the employee last name and employee number along with their manager's last name and manager number. Label the columns Employee Emp# Manager and Mgr# respectively. viii. Create a query to display the name and hire date of any employee hired after employee SCOTT.
18. To apply the concept of Aggregating Data using Group functions.
- List total deposit of customer having account date after 1-jan-96.
  - List total deposit of customers living in city Nagpur.
  - List maximum deposit of customers living in bombay.
  - Display the highest lowest sum and average salary of all employees. Label the columns Maximum Minimum Sum and Average respectively. Round your results to the nearest whole number.
  - Write a query that displays the difference between the highest and lowest salaries. Label the column DIFFERENCE.
  - Create a query that will display the total number of employees and of that total the number of employees hired in 1995 1996 1997 and 1998
  - Find the average salaries for each department without displaying the respective department numbers.
  - Write a query to display the total salary being paid to each job title within each department.
  - Find the average salaries > 2000 for each department without displaying the respective department numbers.
  - Display the job and total salary for each job with a total salary amount exceeding 3000 in which excludes president and sorts the list by the total salary.
  - List the branches having sum of deposit more than 5000 and located in city Bombay.
19. To solve queries using the concept of sub query.
- Write a query to display the last name and hire date of any employee in the same department as SCOTT. Exclude SCOTT
  - Give name of customers who are depositors having same branch city of mr. sunil.
  - Give deposit details and loan details of customer in same city where pramod is living.
  - Create a query to display the employee numbers and last names of all employees who earn more than the average salary. Sort the results in ascending order of salary.
  - Give names of depositors having same living city as mr. anil and having deposit amount greater than 2000
  - Display the last name and salary of every employee who reports to ford.
  - Display the department number name and job for every employee in the Accounting department.
  - List the name of branch having highest number of depositors.
  - Give the name of cities where in which the maximum numbers of branches are located.
  - Give name of customers living in same city where maximum depositors are located.

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### 20. Manipulating Data

- i. Give 10% interest to all depositors.
- ii. Give 10% interest to all depositors having branch vree
- iii. Give 10% interest to all depositors living in nagpur and having branch city Bombay.
- iv. Write a query which changes the department number of all employees with empno 7788's job to employee 7844' current department number.
- v. Transfer 10 Rs from account of anil to sunil if both are having same branch.
- vi. Give 100 Rs more to all depositors if they are maximum depositors in their respective branch.
- vii. Delete depositors of branches having number of customers between 1 to 3.
- viii. Delete deposit of vijay.
- ix. Delete borrower of branches having average loan less than 1000.

### Data Structure Lab

1. Program to Maintain a Linked List.
2. Program to Add a New Node to the Ascending Order Linked List.
3. Program to Maintain a Doubly Linked List.
4. Program to Implement Stack as an Array.
5. Program to Implement Stack as a Linked List.
6. Program to convert an a.E. from Infix Form to Postfix Form.
7. Program to Evaluate an Expression Entered in Postfix Form.
8. Program to Implement Non-Recursive Function for Factorial of a Number.
9. Program to Implement Recursive Function for Factorial of a Number.
10. Program to Implement a Queue as an Array.
11. Program to Implement a Queue as a Linked List.
12. Program to Implement a Circular Queue as an Array.
13. Program to Implement a Circular Queue as a Linked List.
14. Program to Implement a Dequeue Using an Array.
15. Program to Implement Linear Search in an Unsorted Array.
16. Program to Implement Binary Search in a Sorted Array.
17. Program to Implement Selection Sort.
18. Program to Implement Insertion Sort (the Program Should Report the Number of Comparisons).
19. Program to Implement Bubble Sort.
20. Program to Implement Quick Sort.

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### PRACTICAL LIST OF TALLY

#### Practical Assignment -1

1. Create a Company as "Sagar Industries Ltd." in Tally with inventory management. and Pass the following Entries :-
  - a. Sagar started "Sagar Industries Ltd." by bringing Capital Rs.3 00000/- Cash.
  - b. He deposited Rs.1 00000/- cash at ICICI bank.
  - c. He paid electricity bill for Rs.1 200/- by cash.
  - d. He withdrawn Rs.10 000/- cash for his personal use.
  - e. He purchased the following item from Computer Lab. Ltd. on credit with 4% Vat rate.
  - f. Computer - 10 Nos. - @20000/- each
  - g. He sold the following item to Somnath Traders in cash with 4% Vat rate.
  - h. Computer - 5 Nos. - @27500/- each
  - i. He received Rs.6 000/- as commission from Rohit by cash.
  - j. He paid House Rent for Rs.5 000/- by cash.
  - k. He withdrawn Rs.25 000/- cash from ICICI Bank.
  - l. He purchased furniture for Rs.25 000/- by cash for office use.
2. Show the Trial Balance and Balance Sheet of "Sagar Industries Ltd."
3. Show the Vat Computation report of the above company.
4. Show the Cash Book & Bank Book of the company.
5. Show the Day Book.

#### Practical Assignment -2

- i. Jyoti Printers over took all the printing Expenses is of Rs. 1500/-
- ii. Under packing Expenses & from Hariom packing lmt. Rs. 5000/-
- iii. Kashav & brother's help in fuelling of Rs. 300/-
- iv. om. open in Bank of India an account with Rs. 100000/-
- v. From Ram lal & son's 4000/- is to be taken of previous year.
- vi. Under Medicalexpenses we purchase Rs. 750/- Medical from Mahima Medical.
- vii. One NANO car of RS.125000/- from TATA Moter's.
- viii. From M/s R.K. Investment's we purchase share's of SAMSUNG. of Rs.7500.
- ix. From Soni Brother's Gold @ 35000/- is purchased.
- x. From XYZ & son's Rs. 5000/- is due of previous year.
- xi. Payment is done to Hariom packing lmt. of Rs.3500/-.
- xii. Payment to Kulvinder & Son's is done of Rs.2700/-
- xiii. Payment to TATA Moter's is done by D.D. Rs 125000/- which is 1500/- bank commission paid by us.
- xiv. From Arjun Ltd. 7000/- is to be taken of previous year.
- xv. Payment to Soni Brother's has done by cheque of Rs. 35000/-

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- xvi. From XYZ & son's we received Rs. 5000/-
- xvii. Payment to Jyoti Printer's has been done by cheque.
- xviii. Payment to Hariom packing lmt. we paid his whole amount by cheque

### Practical Assignment -3

#### Payment & Receipt Voucher

- i. Com. has opening cash Rs. 100000/-
- ii. Mr. Rajendra is the owner of the company his opening capital Rs. 200000/-
- iii. Com. has to receive from previous year. {1} VIKAS NAGAR - 75000/- {2} HARISH KUMAR - 75000/-
- iv. Com. paid for full charges Rs. 500/- in cash. 5. Com. purchase chairs in cash Rs. 2000/-.
- v. Com. Received from Harish Kumar Rs. 25000/- in cash.
- vi. Com. purchase packing material of Rs.5000/-
- vii. Paid to Vivek worker 25000/- as a loan.
- viii. Com paid to Vivek worker Rs. 2000/- in cash salary.
- ix. Com. Received from Vikas Nagar 35000/- in cash.
- x. Com. Purchase shares of Tata of Rs. 16000/- in cash.
- xi. Com. paid Building Rent Rs. 35000/- in cash.
- xii. Com. sales in cash Shares of Tata Rs. 26000/- in cash.
- xiii. Paid Mobile bill of Rs. 1250/- in cash.
- xiv. Com. paid water bill Rs. 750/- & Electricity bill Rs. 4500/- in cash.
- xv. Com. Received from Vivek Worker Rs. 25000/- in cash

### Practical Assignment -4

1. Mr. RAJENDRA KUMAR is owner of the company his Capital opening balance is Rs. - 2524125/-

1. Company has taken Loan previous year there opening Balance is

- a). ICICI Bank - 567124/-
- b). HDFC Bank - 215724/-

2. Company has to Pay of previous year -

- a). Kelash Chand & Com. - 500000/-
- b). Sunjay Singh & Com. - 225000/-
- c). Singh & Com. - 225000/-

3. Company has Opening Stock:- ITEM NAME Qun. Rate

- i. Ashirwad Aata(5kg) 490 50/- Pkt.
- ii. Ashirwad Aata(10kg) 513 95/- Pkt.
- iii. Swastik Aata (5kg) 123 51/- Pkt.
- iv. Swastik Aata (10kg) 50 95/- Pkt.
- Madhushree Tea(50gm) 500 7/- Pkt.

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## School of Basic & Applied Sciences

- vi. Madhushree Tea(100gm) 1000 13.50/- Pkt.
- vii. Madhushree Tea(250gm) 700 31/- Pkt. 8. Madhushree Tea(500gm) 425 60/- Pkt.
- viii. Madhushree Tea(1Kg) 200 95/- Pkt. 10. Tata Tea (100gm.) 1000 13/- Pkt
- ix. Tata Tea(500gm.) 1000 75/- Pkt.
- x. Zotex(100ml.) 2000 110/- Nos.
- xi. Spicy Cool(100ml) 300 85/- Nos.

4. Company. has some fixed Assets there Opening balance:-

(i) Maruti Swift - 2 13232/-

(ii) Lang & Building - 13 52232/-

(iii) Furniture - 500000/-

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