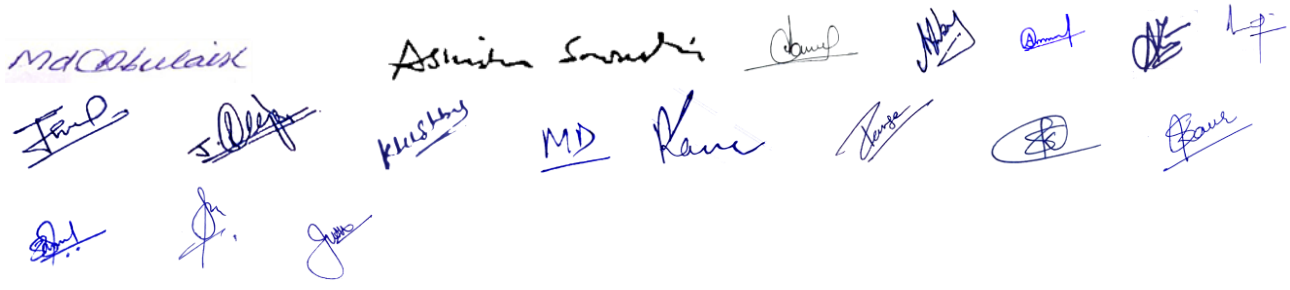
B.Sc. III YEAR Computer Science (For Regular Students)

Paper	Subjects	Internals			Theory	Total (B)	Total A+B	Practical	Grand Total
		3 Months	6 Months	Total (A)					
I	Web Application Development using PHP and DBMS	10	10	20	40	80	100	50	150
II	Operating System and Computer Network				40				



Learning outcomes of BSc Computer Science

PLO-1. Demonstrate the aptitude of Computer Programming and Computer based problem solving skills.

PLO-2. Display the knowledge of appropriate theory, practices and tools for the specification, design, and implementation

PLO-3. Ability to link knowledge of Computer Science with other two chosen auxiliary disciplines of study.

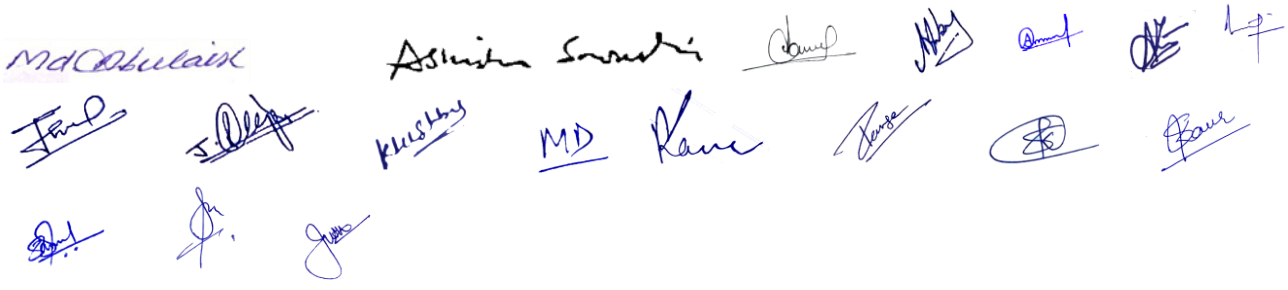
PLO-4. Ability to understand, design, and analyses precise specifications of algorithms, procedures, and interaction behaviour.

PLO-5. Ability to apply mathematics, logic, and statistics to the design, development, and analysis of software systems

PLO-6. Ability to be equipped with a range of fundamental principles of Computer Science that will provide the basis for future learning and enable them to adapt to the constant rapid development of the field.

PLO-7. Ability of working in teams to build software systems.

PLO-8. Ability to identify and to apply relevant problem-solving methodologies



B.Sc. III YEAR COMPUTER SCIENCE
PAPER I
WEB APPLICATION DEVELOPMENT USING PHP AND DBMS

Course Objective: The objective of the course is to present an introduction to database management systems, with an emphasis on how to organize, maintain and retrieve - efficiently, and effectively - information from a DBMS also provides the understanding for developing web application and server-side programming.
Course Outcome: Students will be able to work with a basic web application and understand the Database management, web design and server connectivity.

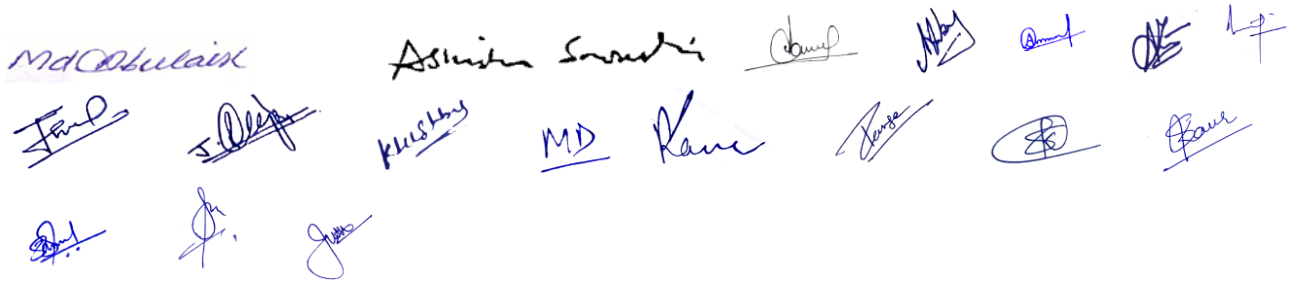
UNIT-I
Purpose of database system, views of data, data models: relation, network, hierarchical, instances and schemas, data dictionary, types of database languages: -DDL, DML, structure of DBMS, advantages and disadvantages of DBMS, 3-level architecture, external, conceptual & internal levels, keys.

UNIT-II
Entities & entities set, relationship and relationship set, attributes and mapping constraints, ER diagram, strong and weak entities, reducing ER diagram to tables, fundamentals of integrity rules: entity & referential integrity, generalization, specialization & aggregation.

UNIT-III
Relational algebra: select, project, cartesian product, types of joins: theta, equi, natural, outer joins, set operations. Functional Dependencies, Good & Bad Decomposition and Anomalies as a database: A consequences of bad design, Universal relation, Normalization: INF, 2NF, 3NF & BCNF normal forms, multi-valued dependency, join dependency, 4NF, 5NF.

UNIT-IV
Overview of HTML, Working with Text, Link, Table, Image, Forms, Input. Introduction of cascading style sheet, selector, inline, internal, external CSS, CSS in text, image. Overview of JavaScript, Variables, Operators, Control flow statements, Popup Boxes, Functions, Events, Windows and Document Objects, Array.

UNIT-V
Introducing PHP, Variable, Constant, Arrays, Functions, GET/POST, Introduction of MySQL, Saving, deleting, updating and retrieving records from database, session, header.



Text Books:

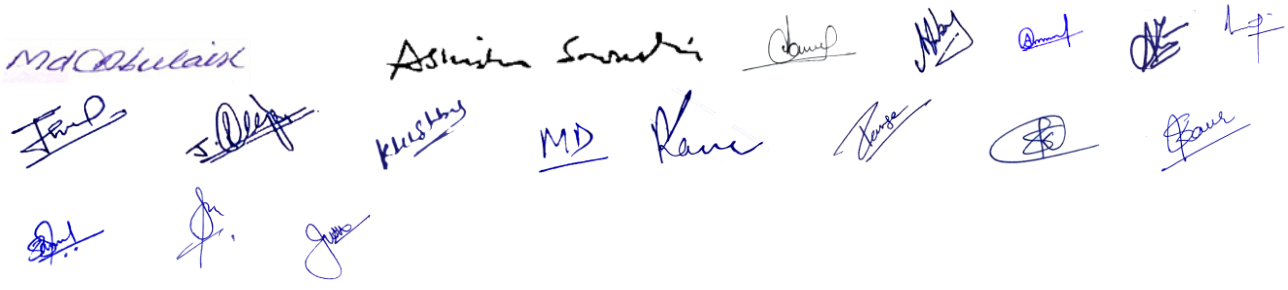
- Database System Concepts by Henry Korth and A. Silberschatz.
- Simplified approach to DBMS, Prateek Bhatia, Gurvinder Singh Kalyani Publication
- HTML5 Black Book, DT Editorial Services.
- JavaScript Bible by Danny Goodman, Michael Morrison, Paul Novitski and Tia Gustaff Rayl.
- PHP, A Beginner's Guide by Vikram Vaswami.
- A Brain-Friendly Guide Head First PHP & MySQL by Lynn Beighley & Michael Morrison

Suggested list of programs for practical

Create the appropriate table and apply the following queries

Oracle

1. WAQ to insert some new records in emp table.
2. WAQ to list the number of employees whose name is not 'ford', 'jams' or 'jones,
3. WAQ to list the name and salary and sort them in descending order of their salary
4. WAQ to list the details of employees whose name is starts from 'a'
5. WAQ to delete all records from emp table
6. WAQ to insert values in 3 fields.
7. WAQ to list the student name having 'd' as second character.
8. WAQ to list the name and salary and sort them in descending order of their salary
9. WAQ to list the name and salary and sort them in descending order of their salary
10. WAQ in employee table find all the manager who earns between 1000 and 2000.
11. Display record of employee who have salary between 1000 and 2000.
12. List the name salary and department number of the employee and order them by their salary in descending order.
13. In employee table change the city of employee from existing one to new one.
14. Add a column salary of datatype 'number' & having size '5' with default value 1000.
15. WAQ to find the employee who earns the lowest salary in each department. Display in ascending order of salary.
16. Lisl the employee who earns maximum salary in their department. Find the name of all employee who works for 'first bank corporation'. Display the record of employee whose name start with 's' & age is greater than 18.
17. Find the name, street & city of residence ol' all employee who works for 'fbc'
18. WAQ to update the salary of employee number 1902 to Rs. 10,000



19. WAQ to find the name, street and city of all employee who works for 'fbc' and who earn more than 1000.
20. WAQ to increase the salary by 2000 and rename the column as "newsalary"
21. WAQ to find the name, street and city of all employee who works for 'fbc' and who earn more than1000
22. WAQ to find total of salaries of all employees from emp table
23. WAQ to decrease the salary of emp from 5000 and rename column as 'newsalary'
24. List the employee number of employee who belong to department 10,2().
25. List the employee no of employees who earn greater than 2000
26. Insert new field called category in emp table.
27. Display different jobs in departments 20,30
28. List the names of employees having two 'aa' in the name.
29. Print the name, emp no, sal of employees in emp table.
30. List the names of employees who do the job of clerks or salesman.

PHP Scripting list

1. Write a JavaScript program to calculate multiplication and division of two numbers (input from user).
2. Write a JavaScript program to convert temperatures to and from Celsius, Fahrenheit.

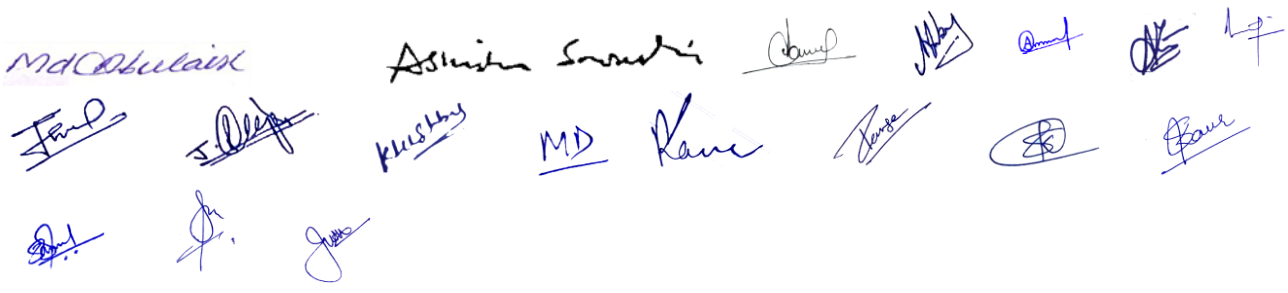
   [Formula : c/5 = (f-32)/9 [where c = temperature in Celsius and f = temperature in Fahrenheit]

   Expected Output :60°C is 140 °F

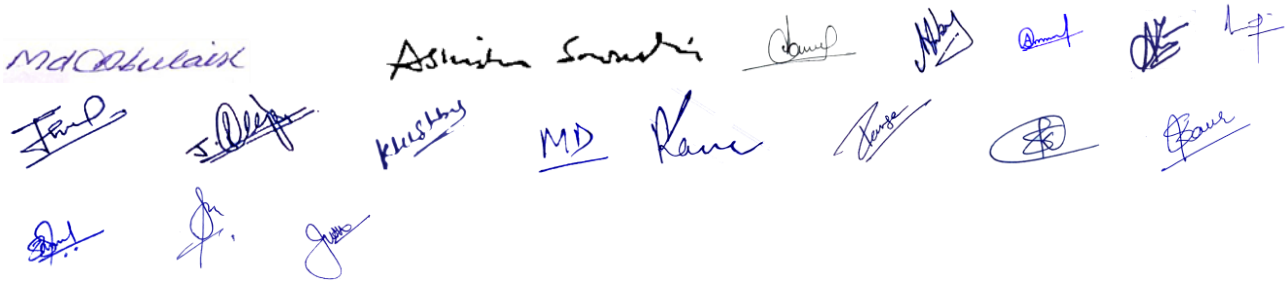
   45°F is 7.222222222222222°C
3. Write a JavaScript program to create a new string adding "Py" in front of a given string. If the given string begins with "Py" then return the original string.
4. Write a JavaScript function that checks whether a passed string is palindrome or not?
5. Write a JavaScript program to display the current day and time in the following format.

   Today is : Tuesday.

   Current time is : 10 PM : 30 : 38
6. Write a JavaScript function to calculate the sum of values in an array.
7. Write a PHP script to get the PHP version and configuration information.
8. Create a simple HTML form and accept the user name and display the name through PHP echo statement.
9. Write a PHP script, which changes the color.
10. Write a PHP program to swap two variables.



11. Write a function for factorial.
12. Create a short website with the following dynamic web pages with the proper web template.
    a Login form.
    b Registration form with insert, Search, update and delete option.



B.Sc. III YEAR COMPUTER SCIENCE
PAPER II
OPERATING SYSTEM AND COMPUTER NETWORK

Course Objective: To study and apply concepts relating to operating systems, such as processes, scheduling, deadlocks, memory management, processor and disk scheduling, parallel processing, and security management policies. This paper gives the basic knowledge of computer networking with the concept of signal transmission, types of networks, transmission media and cryptography.

Course Outcome: Students will be able to get the concepts of operating system and the basic knowledge of computer networks and cryptography.

UNIT-I

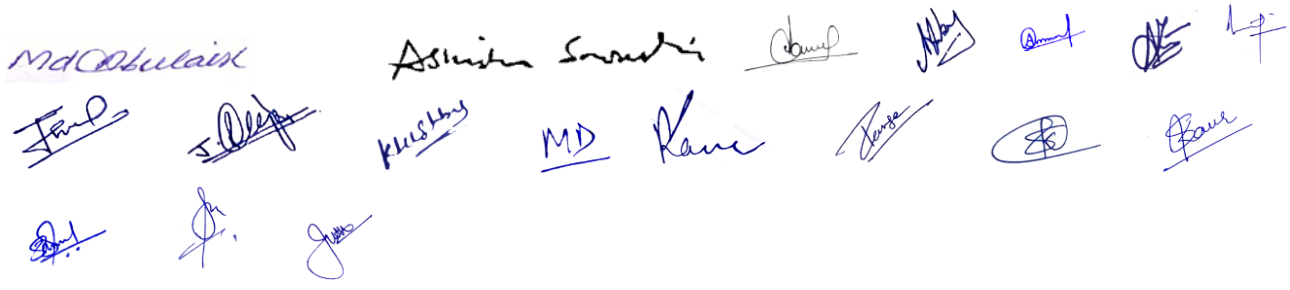
Operating system definitions, its components, evolution of operating system, types of operating systems: batch, multiprogramming, multitasking, multiprocessor, real time, client server, peer-to-peer, distributed, clustered, operating system services, system calls, protection of I/O, memory and CPU. Process scheduling: concept of a process, process states, PCB, process life cycle, operations on processes, context switch, types of schedulers, CPU burst- I/O burst cycles, dispatcher, scheduling criteria, scheduling algorithms — FCFS, SJF, STRN, Round Robin, priority, event driven, multilevel queue.

UNIT-II

Inter process communication and synchronization, Deadlocks- definition, prevention, avoidance, detection and recovery. Memory Management: address binding, logical and physical address space, dynamic loading and linking. Swapping, Contiguous memory allocation: static and dynamic partitioned memory, fragmentation, swapping relocation, compaction, protection. Non-contiguous memory allocation: paging, segmentation.

UNIT-III

Virtual Memory: demand paging, page fault, page replacement algorithms- FIFO, LRU, optimal. Thrashing, page fault frequency. Disk organization, disk structure, disk management - contiguous and non-contiguous allocation strategies, disk address translation, disk caching, disk scheduling algorithms. Device Management: dedicated devices, shared devices. Security and protection: security problem, program threats, system and network threats, Security policies and mechanisms, authentication, protection and access control.



UNIT-IV

Computer Networks: Needs and Advantages, Network Types (LAN, WAN, MAN, Server based, Peer, Hybrid), Server types, Network Topology- Bus, Star, Ring, Star bus, Star ring, Mesh. Transmission Media, Signal Transmission: Digital signaling, analog signaling. OSI Model, TCP/IP Model.

UNIT-V

Network Connectivity- Hubs, Switches, Bridges, Repeaters, Multiplexers, Internet Connectivity- Routers and Brouters, Gateway. Switching (Circuit and Packet). Overview of Internet and ISP, Internet addressing (IPv4), URL addresses, DNS, FTP, NNTP, Email, and SMTP. Internet Security: Security Issues, firewall Principle, Cryptography: Introduction, Substitution, Transposition, One - Time Pads. Digital Signatures: Symmetric key signature, public key signature.

TEXT BOOKS AND REFERENCE BOOKS

1. Operating system Concepts: by Silberschatz, Galvin 5th and 6th Edition
2. Operating system Design and Concepts, by Milan Milenkovic
3. Operating system by Andrew Tanenbaum
4. Data Communications and Networking Behrouz A Forouzan
5. Computer Networks Andrew S Tanenbaum