SYLLABUS FOR

B.Sc. ITM

FOR ADMISSION BATCH 2022 – 23

SHAILABALA WOMEN'S (AUTO) COLLEGE

CUTTACK

ODISHA

BACHELOR OF SCIENCE IN INFORMATION TECHNOLOGY & MANAGEMENT							
Examination Course Curriculum for B.SC. ITM Programme							
SEMESTER-1							
SL NO	**Paper code**	**Paper Name**	**Internal Marks**	**Practical Marks**	**End Sem Marks**	**Credit**	**Total Marks**
1	AECC-1	EVS & DM	20		80	4	100
2	C-1	Programming in C (PC)	15	25	60	6	100
3	C-2	Computer Mathematics (CM)	20		80	6	100
4	GE-1	Computer Fundamental (CF)	15	25	60	6	100
5		Ethics & Value (EV 1)			25	1	25
		Total Credit & Mark=				**23**	**425**
Practical		**[Viva+Record+Written+Practical]**					
SEMESTER-2							
1	AECC-2	MIL(Odia/Alt. Eng/Hindi)	20		80	4	100
2	C-3	Operating System (OS)	15	25	60	6	100
3	C-4	Computer Architecture (CA)	20		80	6	100
4	GE-2	Data Communication & Computer (DCCN)	15	25	60	6	100
5		Ethics & Value (EV 2)			25	1	25
		Total Credit & Mark=				**23**	**425**
Practical		**[Viva+Record+Written+Practical]**					
SEMESTER-3							
1	C-5	Data Structures (DS)	15	25	60	6	100
2	C-6	Artificial Intelligence (AI)	20		80	6	100
3	C-7	Quantitative Technique (QT)	20		80	6	100
4	GE-3	Data Base Management System	15	25	60	6	100
5	SEC-1	Communicative English (CE)	20		80	4	100
6		Ethics & Value (EV 3)			25	1	25
		Total Credit & Mark=				**29**	**525**
Practical		**[Viva+Record+Written+Practical]**					
SEMESTER-4							
1	C-8	Object Oriented Programming Structure	15	25	60	6	100
2	C-9	Software Engineering (SE)	20		80	6	100
3	C-10	Managerial Economics (ME)	20		80	6	100
4	GE-4	Python Programming	15	25	60	6	100
5	SEC-2	QALT	20		80	4	100
6		Ethics & Value (EV 4)			25	1	25
		Total Credit & Mark=				**29**	**525**
Practical		**[Viva+Record+Written+Practical]**					

SL NO	Paper code	Paper Name	Internal Marks	Practical Marks	End Sem Marks	Credit	Total Marks
SEMESTER-5							
1	C-11	Java Programming	15	25	60	6	100
2	C-12	Organizational Behaviour (OB)	20		80	6	100
3	DSE-1	HTML/CSS/PHP	15	25	60	6	100
4	DSE-2	ASP.Net	15	25	60	6	100
5		Ethics & Value (EV 5)			25	1	25
		Total Credit & Mark=				**25**	**425**
Practical		**[Viva+Record+Written+Practical]**					
SEMESTER-6							
1	C-13	Computer Graphics (CG)	15	25	60	6	100
2	C-14	Management Information System	20		80	6	100
3	DSE-3	Operation Research (OR)	15	25	60	6	100
4	DSE-4	**PROJECT [RECORD + VIVA-VOICE]**			100	6	100
5		Ethics & Value (EV 6)			25	1	25
		Total Credit & Mark=				**25**	**425**
Practical		**[Viva+Record+Written+Practical]**					
6	DSE-4	**Internet & Web Technology (IWT)**	15	25	60	6	100

CONTENT

FIRST SEMESTER

[AECC-1] ENVIRONMEMTAL STUDIES & DISASTER MANAGEMENT (EVS & DM)
Mark: 20+80=100

Unit-1 Environmemnt

The Environment: The Atmosphere, Lithosphere, Hydrosphere, Biosphere. Ecosystem: Energy flow in ecosystem. Biogeochemical Cycle: Water cycle, carbon cycle, Nitrogen Cycle. Pollution: Water pollution, Air pollution, Soil pollution, Radiation pollution, Industrial pollution, Light pollution, Sound pollution. Environmental Laws:Water act 1974, Air act 1981, The wildlife protection act 1972, The environment protection act 1986, The forest conservation act 1980.

Unit-2 CLIMATE CHANGE & SUSTAINABLE DEVELOPMENT

Population Ecology: Individuals, species, population, community. Human population growth, population control methods. Urbanization and it's effect on society. Climate change: Causes, effect, Global warming, carbon footprint and environmental protection. Steps taken towards sustainable development: Ban of single-use plastics, Automobile scrapping policy, promotion of electrical vehicles. Brief idea on sustainable on development Goals(SDGs), Agenda 21 of Rio Earth Summit.

Unit-3 Disaster Management

Types of Disasters (Natural and Manmade) and their causes and effect. Vulnerability Assessment and Risk Analysis: Vulnerability to various disasters(Flood, Cyclone, Earthquake, Heat waves and lighting). Institutional framework: Institutional arrangements for disaster management(national disaster management authority(NDMA), State disaster management authority(SDMA), District Disaster management authority(DDMA), National Disaster Response Force(NDRF) and Odisha Disaster rapid action force(ODRAF).Preparedness Measures: Disaster management cycle, Early warning system, pre disaster and post disaster preparedness, Strengthening of SDMA & DDMA, Community preparedness, stakeholder participation, Corporate social responsibility. Survival skills: Survival skills adopted during and after disaster (Flood, fire, earthquake, cyclone and lightening)

Unit-4 PUBLIC HEALTH MANGEMENT.

Brief idea on Epidemics and pandemics. Communicable diseases with special reference to covid-19, Flu, Hepatitis, AIDS and Tuberculosis and their transmission. Non-communicable diseases with special reference to cardiovascular diseases, cancer, diabetes, hypertension and obesity and their prevention. Dynamic disease of transmission: Mode of transmission(direct/indirect), Events after infection: Immunity (Active vs Passive, innate vs Acquired, Herd immunity), Incubation period. Prevention of Epidemics /Pandemics Diseases: preventing Measures (Quarantine, sanitization, personal protective measures such as hand washing and use of protective devices, vaccination) Control Measures (Surveillance, isolation, contact Tracing). Life style management (Diet, physical exercise, yoga and sleeping habit). Role of different sectors in managing Health Disaster: Role of Government(Centre and state), community, civil society, student mass, NGOs.

Reference Book :

1. Asthana DK and Asthana M: Atext book of environment studies, S. Chand, New delhi
2. Bharucha E: Atext book of environment studies, New delhi:UGC
3. Dash MC and Mishra PC: Man and environment, McMillan, London

[C-1] PROGRAMMING IN C (PC) **Mark: 15+60+25=100**

Unit-1 Introduction to input and output operators:

Importance of C, Simple C Programs, Basic Structure of C Programs, Programming style, Executing a C Program, Tokens, Keywords and identifiers, Constants, Variables, Data

types, Operators and Expression, Type conversions in expressions, Operators Precedence and associativity, review studies and exercises.

Reading a character, writing a character, formatted input, formatted output, Decision Making and Branching :IF statement, , IF ELSE statement, Nested IF ..ELSE statements, ELSELIF ladder, switch statement, The GOTO statement, Looping: WHILE, DO WHILE and FOR Statement, Jumps in Loops, Cases studies, Review questions and Exercises.

Unit-2 Introduction to Arrays :

One-dimensional arrays, Two-dimensional arrays, Multidimensional arrays, Character Strings: Declaring and initializing string variables, Reading strings from terminal, Writing strings to screen, Arithmetic operations on characters, Putting strings together, Comparison of two strings, String-Handling functions, Table of strings.

Unit-3 Function and Structure :

Need for user-defined functions, Calling a function, Category of Functions, Handling of noninteger functions, Nesting of functions, Recursions, Functions with arrays, The scope and lifetime of variables in functions, Structure and Unions :Structure definition, Giving values to members, Structure initialization, Comparison of structure variables, Arrays of structures, Arrays within structures, Structures within structures, Structures and functions, ,Size of Structures, Unions .

Unit-4 Pointers and File Management:

Understanding pointers. Accessing the address of a variable, Declaring and initializing pointers, Accessing a variable through a pointer, Pointer expressions, Pointer increments , Pointer and arrays, Pointer and character strings, Pointers and functions, pointers and structures, Point to pointers, File Management: Defining and opening a file, Closing a file, Input / output operations on files, Error handling during I/O operations, Random access to files, command line arguments, Dynamic memory Allocation.

Text Books:

ANSI C, Author: E Balaguruswamy, Tat McGraw Hill

Programming in C, Author: E Balaguruswamy, TataMcGrawHill

[C-1] Practical Using C :-

1. Write a program to find greatest among 3 number.
2. Write a program to perform all arithmetic operation using switch case.
3. Write a program to print sum and product of digits of an integer.
4. Write a program to reverse a number.
5. Write a program to compute sum of the first n terms of following series.
   a. $1+\frac{1}{2}+\frac{1}{3}+\frac{1}{4}+\frac{1}{5}+$ _____
6. Write a function that checks whether a string is palindrome or not.
7. Write a program to check whether a number is prime or not.
8. Write a program to compute the factors of given number.
9. Write a program to swap two number using third variable.
10. Write a program to print this triangle.

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11. Write a program to perform even valued element in an array.
12. Write a program to print an array in reverse order.
13. Write a program to print maximum & minimum element of an array.

14. Write a program that swaps two number using pointer.
15. Write a program which takes radius of a circle as inputted by the user, passes it to another function that compute area and circumference of the circle and displays result from the main () function.
16. Write a program to find sum & average of n elements entered by the user. To write this program allocate memory dynamically using malloc () and calloc () function.
17. Write a program to display two table using any looping structure.
18. Write a program to concatenate two strings without using strcat function & write a program to concatenate using strcat function.
19. Write a program to compare two strings.
20. Write a program to calculate length of string using pointer.
21. Convert all uppercase character to lower case character.
22. Write a program to reverse the string without using its library function
23. Write a program to print Fibonacci series.
24. Given two ordered arrays of integers, write a program to merge two arrays to get an ordered array.
25. Write a program to copy elements from one file to another.

[C-2] COMPUTER MATHEMATICS (CM) **Mark: 20+80=100**

Unit-1 Objective:

Convert numbers to various bases and perform simple binary arithmetic operations, Use algebraic terminology to solve algebraic equations, Perform simple statistics calculations, Use Boolean, Venn diagram and logic algorithms, Use appropriate methods in determining accuracy in computations.

Unit-2 Number bases

Introduction, Number sets, Level of precessions, Single precision, Double precision, Number base, Column System, Conversion from other bases to Binary Conversion from Binary bases to other conversion, Conversion among other based Binary to Octal Binary to Hexadecimal, Conversion between Octal & Hexadecimal, Real Number Octal Arithmetic Hexadecimal Arithmetic, Modular Arithmetic, Computer Based arithmetic Binary Addition, Rules for Binary addition, Examples' of Binary addition, Binary subtraction Rules for binary subtraction, Examples of binary subtraction, Binary multiplication, Rules for Binary multiplication, Binary Division, Example of binary division, Number storage in the computer word, 32 bit machine, Size limits of data, Storage of numbers, Storage of integers, Storage of Fractions, Storage of Mixed numbers, Storage of number using 2's Complement method, Ten's complement, Two's complement, Re-complementing cases, Shift operation to achieve multiplication, Shift operation to achieve division, Floating Point Representation Introduction, Fixed point and floating point Binary, Floating point storage. Store floating point Format, Floating point notation, Normalized floating point form (decimal) Normalized exponent form (Binary), Storing negative mantissa, Storing negative Exponent.

Unit-3 Logic set, Probability & Statistic

Probability, Definition of Probability, Success and failure, Probability Spaces, Probability of Combined Events, Addition law, Multiplication law, Probability of events that occur together, Statistics Introduction, Raw Data, Arrays Grouped Data, Frequency distributions, Class interval and class limits, Class boundaries, The size of Class interval, The class mark, Presentation of Statistical data.

Histogram and Frequency polygons, Cumulative frequency distributions, Measure of central tendency. The arithmetic mean, the median, the mode, Dispersion and variation, Mean deviation, the standard deviation, The variance.

Logic, Rules of Inference, Methods of Proof, Set, Relation & Digraphs.

Unit-4 Order Relation & Structure, Tree

Recurrence relations, Generating functions, Techniques of solving recurrence relations.

Partially Ordered Set, External Elements of Partially Ordered Sets, Lattices, Finite Boolean algebra, Function on Boolean Algebra, Boolean Function as Boolean Polynomials.

Tree, Labeled Tree, Tree Searching, Undirected tree, Minimal Spanning Trees.

TEXT BOOKS:

Mathematics for Management, Author: Raghabacharya, Discrete Mathematics, Author: Kolman & Porty, PHI.

Discrete Mathematics, Author: Bernard Kolman, Rovert C Busby & Sharon Ross, PHI.

[GE-1] COMPUTER FUNDAMENTAL (CF) Mark=15+60+25=100

Unit- 1 INTRODUCTION TO COMPUTERS

What is a computer? Characteristics of computer. Generations of computers – First generation, Second generation, Third generation, Fourth generation, Fifth generation. Classification of computer – Super computers, Mainframe computers, Mini computers, Micro computers. Application of computers.

Input devices – Keyboard, Pointing devices, Scanning devices, Optical recognition devices, Digital camera, Voice recognition system,Media input devices.

Output devices – Display monitors, Printers – Impact printers, Non impact printers, Plotters, Voice output system, Projectors.

Unit- 2 MEMORY & STORAGE DEVICES

Introduction, Hardware and Softwares, Types of software, RAM, Types of RAM, ROM, Types of ROM, Secondary storage devices, Types of secondary storage devices.

Unit -3 NUMBER SYSTEM

Binary number system, Working with Binary numbers**: Conversion** of binary number into decimal form & vice-versa. Addition of two binary numbers, Subtraction of two binary numbers using two's complement, Multiplication of two binary numbers, Division of two binary numbers. Octal number system: Conversion of octal number into decimal form& vice-versa. Hexadecimal number system**:** Conversion of hexadecimal number into binary form & vice-versa, Conversion of hexadecimal number into decimal form, Conversion of decimal number to hexadecimal form.

Unit-4 COMPUTER NETWORKS & THE INTERNET

Introduction to computer network, Media, Networking topologies**,** Types of network **:** local area network, wide area network, metropolitan area network, campus area network,personalareanetwork,Networkingdevices**:**hub,repeater,switch,bridge,router,gateway,networking interface card, Internet, Internet application, Understanding world wide web, Web browser, Search engine.

TEXT BOOKS:

1. Computer fundamental by P.K.Shinna ,BPB Publication
2. Fundamentals of Computers - E. Balagurusamy Mc Graw Hill.
3. Computer Fundamentals and Programming in C - Reema Thareja OXFORD Publication

[GE-1] Practical of Computer Fundamentals

1.Study of different types of Input devices
2.Study of different types of Output devices

3.Study of different types of Printers
4.Study of MS WORD
5. Study of MS EXCEL
6. Study of MS POWERPOINT

PRACTICAL PAPER

Programming in C lab: As per the theory paper—25 Marks
Computer Fundamental: MS-OFFICE —25 Marks

SECOND SEMESTER

[AECC-2] MIL(ALTERNATIVE ENGLISH) **Mark=20+80=100**

UNIT 1: Short Story

(i) Jim Corbett-The Fight between Leopards
(ii) Dash Benhur- The Bicycle
(iii)Dinanath Pathy- George V High School
(iv)Alexander Baron- The Man who knew too much
(v)Will f Jenkins- Uneasy Homecoming

UNIT 2: Prose

(i) Mahatma Gandhi- The way to Equal Distribution
(ii) S Radhakrishnan- A Call to Youth
(iii) C V Raman-Water- The Elixir of Life
(iv) Harold Nicolson- An Educated Person
(v) Claire Needell Hollander- No Learning without Feeling

UNIT 3:

Comprehension of a passage and answering the questions

UNIT 4:

Language exercises-test of vocabulary, usage and grammar

Text Books

All Stories and Prose pieces .

Reference Books

- *The Widening Arc: A Selection of Prose and Stories*, Ed. A R Parhi, S Deepika, P Jani, Kitab Bhavan, Bhubaneswar.
- *A Communicative Grammar of English*, Geoffrey Leech.
- *A University Grammar of English,* Randolph Quirk and Sidney Greenbaum
- *Developing Reading Skills*. F. Grellet. Cambridge: Cambridge University Press, 1981.

[C-3] OPERATING SYSTEM (OS) **Mark: 15+60+25=100**

Unit-1 Introduction:

What is Operating System, Simple Batch Systems, Multiprogramming and Time-sharing System, Personal Computer System, Parallel and distributed System, Real time system. Operating System Structures: System Components, Operating System Services, System Calls. Process Management: Process concept, Process Scheduling. Operation on process. Cooperating process, Threads.

Unit-2 CPU Scheduling:

Basic Concepts, Scheduling Criteria, Scheduling Algorithms, Dead locks: System model, dead lock characterization, methods of handling dead locks, dead lock Prevention, Dead lock avoidance, Dead lock detection, Recovery from dead lock.

Unit-3 Memory Management & Virtual Memory:

Backgrounds, logic versus Physical address space, swapping, Contiguous Allocation, Paging and segmentation.

Demand paging, Performance of Demand paging, Page replacement, Page replacement algorithms. Allocation of frames, thrashing.

Unit-4 File System Interface:

File Concept, Access Method, Directory Structure, I/O Hardware, Kernel I/O System, secondary Storage Structure, Disk Structure, Disk Scheduling, Disk Management, Swap Space management, Disk Reliability.

Text Book:

Operating System Concepts: Abraham Silberschartz and Peter Baer Galvin, Addison-Wesley. Chapter:1, Chapter 3 (3.1,3.2,3.3), Chapter 4(4.1 to 4.5), Chapter 5(5.1,5.2,5.3), Chapter:7 (7.1 to 7.7), Chapter 8 (8.1 to 8.6), Chapter 9 (9.1 to 9.7), Chapter 10 (10.1, 10.2, 10.3), Chapter 12 (12.2, 12.4), Chapter 12 (13.1 to 13.5)

Reference Books:

1. Operating System: Madnick & Donovan, MC.Graw Hill.
2. Modern Operating System: Andrew S.Tannenbaum,
3. Operating Systems and System Programming, Balakrishna Prasad, SCITECH

[C-3] Practical of UNIX & LINUX:

1) UNIX:

- Introduction to Unix operating system.
- Difference between different operating system (Windows, DOS, UNIX & LINUX)
- Features of UNIX
- Unix command usage
- Basic Unix commands
- Listing of files & directory commands.
- File management
- Unix--The vi Editor

2) LINUX:

- Introduction to Linux operating system.
- Features of Linux
- Linux directory command
- Linux file commands
- Linux user command
- Linux filter command
- Linux utility command
- Linux networking command
- Mathematical functions
- Shell & shell scripting
- Addresses commands

[C-4] COMPUTER ARCHITECTURE (CA) **Mark: 20+80=100**

Unit-1 **Number System** and Codes, Binary Number base Conversations, Octal and Hexadecimal numbers, Complements, Signed Binary Numbers, Binary Codes- BCD Codes, Gray Code, ASCII Character Code, Codes for serial data transmission and storage. Boolean Algebra and Logic Gates, Axiomatic definition of Boolean algebra, Basic theorems and properties of Boolean algebra, Boolean functions, Canonical and Standard forms, minterms and maxterms, standard forms; minters and maxterms, standard forms Digital logic Gates, multiple inputs. Gate level Minimization. The Map Method, K Maps, input five variables, Product of Sums Simplification, Don't care condition, Nand and NOR implementation.

Unit-2 **Combinational logic**, Combinational Circuits, Analysis and Design Procedure; Binary Adder Subtractor, Decoders, Encoders, Multiplexer, Demultiplexer Synchronous Sequential Logic, Sequential Circuit, Latches, Flip-Flop, Analysis of Clocked sequential Circuits, Registers and Counters Shift Register, Ripple Counter.

Unit-3 Basic structures of Computers: Functional units, operational concepts, Bus structures, Software, Performance, Multiprocessors and multicomputer. Machine Instruction and programs: Memory location and addresses, Memory Operations, Instructions and instruction Sequencing, Addressing mode, Assembly Language, Basic Input Output operations.

Basic processing Units:- Multibus organization, Hardwired control, Micro programmed control, Memory System: Cache Memory, Performance. Virtual Memories, Memory Management requirement.

Unit-4 8085 Microprocessor Architecture: Instruction Sets, Addressing modes, Memory Interfacing.

Assembly Language Programming:-

8086 Microprocessor Architecture: Instruction Sets, Addressing modes, Memory Interfacing, Assembly Language Programming.

Text Book:

1. Digital Logic and Computer Design, by M. Morries Mana, Pearson Edu. India.
2. Computer Organization Carl Hamacher, Zvonkovranesic, Safwat Iaky, Mc Graw Hill.
3. Microprocessor Architecture, Programming and application with 8085, R.S. Gaonkar.

Reference Book:

1.Computer System Architecture: Morris M. Mano PHI New Delhi.

[GE-2] DATA COMMUNICATION AND COMPUTER NETWORK Mark=15+60+25=100

Unit-1 Overview of Data Communications and Networking

Physical Layer:

Analog and Digital data, Analog and Digital Signals, Analog versus Digital, Data Rate Limit, Transmission Impairment, More about signals.

Digital Transmission: Line coding, Block coding, Sampling, Transmission mod Analog Transmission: Modulation of Digital Data: Telephone modems, modulation of Analog signals. Multiplexing: FDM, WDM, and TDM. Transmission Media: Guided Media, Unguided Media

(wireless), Circuit switching and Telephone Network: Circuit Switching, Telephone network

Unit-2 Data Link Layer:

Error Detection and Correction: Types of Errors, Detection, Error Correction, Data Link Control and Protocols: Flow and error control, Sop-and -wait-ARQ, Go-Back-N ARQ, selective Repeat, ARQ HFLC. Point-to-Point Access: PPP. Multiple Accesses, Random Access, Controlled Access, Channelization. Local area Network: Ethernet, Traditional Ethernet, Fast Ethernet, Gigabit Ethernet.

Unit-3 Network Layer:

Host to Host Delivery:

Internetworking, Addressing and Routing, Network Layer Protocols: ARP, IPV4, ICMP, IPV6 and ICMPV6,

Unit-4 Transport Layer & Application Layer:

Process to Process Delivery: UDP, TCP, TCP Header, UDP Header, congestion control and Quality of service.

Client Server Model. Domain Name System (DNS): Electronic Mail (EMAIL), SMTP and file transfer (FTP), HTTP and WWW, Security, Cryptography Message Security.

Text Book

1. Data Communication and Networking: Third Edition. Behrouz A. “Tata McGraw-Hill Publishing Company Limited.

Reference Book

1. Computer Networks: Third Edition. A system Approach. Larry L, Peterson And Bruce S. Davie ELSEVIER.
2. Computer Networks. A. S. Tannenbum PHI.

[GE-2] Practical of Computer Network: -

1. LAN connection between two systems to sharing of information.
2. Using switch and router to make a network.
3. TCP/IP protocol suite.
4. Simulate even parity & odd parity checker using c programming.
5. Simulate Hamming code method using c program.
6. Simulate cyclic redundancy check (CRC) error detection algorithm for noisy channel.
7. Working of different commands available in Computer networking.

PRACTICAL

Operating system Lab : As per the theory paper - 25 Marks
DCCN Lab : As per the theory paper - 25 Marks

THIRD SEMESTER

[SEC-1] COMMUNICATIVE ENGLISH (CE) Mark=20+80=100

UNIT 1: Introduction

(i) What is communication?

(ii) Types of communication (Horizontal, Vertical, Interpersonal, Grapevine), (iii)Uses of Communication, Inter-cultural communication, Communication today:

(iv) Distinct features of Indianisation, alternative texts of language learning, global English and English in the print and electronic media in India.

UNIT 2: The Four Skills and Prospect of new material in language learning

(i) Listening-Passive and active, Speaking effective, intelligibility and clarity

(ii) Methods and techniques of reading such as skimming, scanning and searching for information; Reading to understand the literal, metaphorical and suggested meaning of a passage,

(iii)Identifying the tone (admiring, accusatory, ironical, sympathetic, evasive, indecisive, ambiguous, neutral etc.) of the writer and view-points.

(iv) Cohesive and Coherent writing

UNIT 3: Grammatical and Composition Skills

(i) Doing exercises like filling in the blanks, correcting errors, choosing correct forms out of alternative choices, joining clauses, rewriting sentences as directed, and replacing indicated sections with single words / opposites / synonyms, choosing to use correct punctuation marks, getting to understand and use formal and informal styles, learning to understand the usages of officialese, sexism, racism, jargon.

(ii) Learning to understand information structure of the sentence such as topic-focus relationship; strategies of thematization, postponement, emphasis, structural compression (deletion of redundant parts, nominalization, cleft and pseudo-cleft sentences, elliptical structures etc.), Logical Connectors between sentences, Methods of developing a paragraph, structure of an essay and methods of developing an essay

UNIT 4: Exercises in Written Communication

(i) Précis writing

(ii) Note-taking skills (iii)Writing reports

(iv)Guidelines and essentials of official correspondence for making enquiries, complaints and replies

(v) Making representations; writing letters of application for jobs; writing CV, writing letters to the editor and social appeals in the form of letters/pamphlets.

Reference Books:

- *Ways of Reading: Advanced reading Skills for Students of English Literature*. Martin Montgomery et al. London: Routledge, 2007.
- *Applying Communication Theory for Professional Life: A Practical Introduction*. Dainton and Zelley, http://tsime.uz.ac.zw/claroline/backends/download.php?url=L0ludHJvX3RvX2NvbW11bmljYXRpb25fVGhlb3J5LnBkZg%3D%3D&cidReset=true&cidReq=MBA563
- *Literature and the art of Communication*, Cambridge University Press.
- *Vistas and Visions*. Orient Black Swan (writing and grammar exercises at the end of lessons are recommended) From *Remapping An Anthology for Degree Classes*, ('Writing Skills'), Orient Black Swan.

- *Indian English through Newspapers (*Chapter 4,5 and 6), Concept, New Delhi,2008.
- *Contemporary Communicative English,* S Chand
- Technical Communication: A Reader Centred Approach. P.V. Anderson. Wadsworth, Cengage.

[C-5] DATA STRUCTURES (DS)

Mark: 15+60+25=100

Unit-1 INTRODUCTION AND OVERVIEW

Introduction, Basic Terminology; Elementary Data Organization, Data Structures, Data Structure Operations, Algorithms: Complexity, Time-Space Tradeoff, Solved problems. Control structures, Complexity of Algorithms, STRING PROCESSING:

Basic Terminology, Storing Strings, Character Data Types, ARRAYS, RECORDS AND POINTERS: Linear Arrays, Representations of Linear Arrays in Memory, Traversing Linear Arrays, Inserting and Deleting, Multidimensional Arrays, Pointer; Pointer Arrays,

Unit-2 LINKED LIST, SORTING & SEARCHING

Introduction, Linked lists, Representation of Linked Lists in Memory, Traversing a Linked List, searching a Linked List, Memory Allocation; Garbage Collection, Insertion into a Linked List, Deletion from a Linked List, Header Linked Lists, Two-way List.

Introduction to Sorting, Insertion sort, Selection Sort, Merging, Merge-sort, Radix sort, Searching and Data Modification, Hashing.

Unit-3 STACKS, QUEUES, RECURSION

Introduction, Stacks, Array Representation of Stacks, Lined Representation of Stacks, Arithmetic Expression, Polish Notation, Quick sort, An Application of Stacks, Recursion, Towers of Hanoi, Implementation of Recursive Procedures by Stacks, Queues, Linked Representation of queues, Deques, Priority Queues, Solved Problems, Supplementary Problems, Programming Problems.

Unit-4 TREES

Introduction, Binary Trees, Representing Binary Trees in Memory, Traversing Binary Trees, Traversal Algorithms Using Stacks, Header Nodes, Threads, Binary Search Trees. Searching and Inserting in Binary Search Trees, Deleting in a Binary Search Tree, B Trees, Searching, Inserting and Deletion in a B-Tree, Heap, Heap sort, Path Lengths; Huffman's Algorithm, General Trees, Solved Problems Supplementary Problems Programming Problems.

Text Books:

1. Data Structure, Schaumi Outlines, Author-Seymour Lipchitz, McGraw Hill
2. Data Structure using C & C++, Authour-Yedidyah Lanscam, M J Augenstein, Aaron M Tenebaum, PHI.

[C-5] Practical of Data Structure: -

1. To insert and delete elements from appropriate position in an array.
2. To search an element and print the total time of occurrence in the array.
3. Array implementation of Stack.
4. Array implementation of Linear Queue.
5. Array implementation of Circular Queue.
6. To implement linear linked list and perform different operation such as node insert and delete, search of an item, reverse the list.
7. To implement circular linked list and perform different operation such as node insert and delete.
8. To implement double linked list and perform different operation such as node insert and delete.

9. Linked list implementation of Stack.
10. Linked list implementation of Queue.
11. To implement Binary Search Tree.
12. To perform binary search operation.
13. To perform Bubble sort.
14. To perform merge sort.
15. To perform Insertion sort.
16. To perform Quick sort.

[C-6] ARTIFICIAL INTELLIGENCE [AI] **Mark=20+80=100**

UNIT -1 DEFINITION OF AI

Characteristics of AI problems, AI problem solving approaches, State space search, problem reduction, search techniques, Breadth first and Depth first techniques, Heuristic search techniques, Hill climbing, best first search.

UNIT -2 KNOWLEDGE REPRESENTATION IN AI

Propositional logic, Semantic nets, Frames, and Scripts. Handling uncertainty in AI problems, Probabilistic reasoning, Bayesian Belief networks

UNIT -3 LEARNINGS & TYPES OF LEARNING

Artificial Neural networks, ANN structures, Feed forward networks, Back propagation network, Applications of ANN.

UNIT -4 NATURAL LANGUAGE PROCESSING

Levels of knowledge used in language understanding, parsing, top-down and bottom-up parsing, transition networks Expert systems, ES architecture, need for ES, steps for developing an expert system.

TEXT BOOKS:

1. Artificial Intelligence: A Practical Approach – Rajiv Chopra, S. Chand publications
2. Introduction to Artificial Intelligence and Expert Systems – D W Patterson, PHI

[C-7] QUANTITATIVE TECHNIQUE (QT)

Mark=20+80=100

Unit-1 Matrices & Transformations

Introduction, Definitions, Matrix Algebra, Solutions of systems of equations, Transformations, Translations Enlargement, Reflection, Rotation, Shearing, Stretching.

Unit-2 Calculus

Limits of Functions, Continuity, Differentiation & Integration of algebraic, logarithmic & exponential functions Applications of Calculus, Applications of Differential Calculus, Area under a Curve,

Unit-3 Statistics & Probability Distribution

Probability distribution, Binomial Poisson & Normal distribution, Area under normal curve, Correlation & Regression, Coefficients of coordinates & Regression lines. Test of hypothesis & Significance, Test Based on F, chi-square & z.

Unit-4 Network Analysis & Graph Theory

Basic terminology, A typical network, Rules, Conventions, Time Analysis, Objectives, Basic Definitions, Time estimates, Symbol/notation, Float, Pert (Program Evaluation and Review Technique), Cost scheduling.

Introduction, Graph Theory Terminology, Sequential Representation of Graph; Adjacency Matrix; Path Matrix, Warshall's Algorithms; Shortest Paths, Linked Representation of a

Graph, Operation on Graph, Traversing a Graph, Posets; Topological Sorting, Solved Problems, Supplementary problems, Programming Problems .

Text Book:

Mathematics for Management by Raghabacharya, Statistics for Management by Levin Rubin, PHI

[GE-3] DATABASE MANAGEMENT SYSTEM (DBMS)

Mark: 15+60+25=100

UNIT -1 CONCEPT OF DATABASE AND DBMS

Characteristics of database approach, Role of DBMS, Data models (Relational, Hierarchical, network and Object-oriented), Layered architecture of DBMS, Data independence.

UNIT -2 ENTITY RELATIONSHIP (ER) MODELLING

Entity types, relationships, constraints. Relational data model, relational constraints, Mapping ER models to relational database, Relational algebra, SQL queries

UNIT -3 DATABASE DESIGN

Data dependencies (functional transitive, and multi-valued), Normal forms (INF, 2NF, and 3NF), Database transactions: Transaction Processing, ACID properties.

Introduction to Transaction Processing, Transaction and System Concept, Serializability and Recoverability. Two Phase Locking for Concurrency Control Technique.

UNIT -4 RDBMS

Relational data Model and SQL: Relational Model Concepts, Basic SQLs, SQL Data Definition and Data types, Constraints in SQL, Retrieval Queries in SQL, INSERT, DELETE, UPDATE Statements in SQL, Relational Algebra and Relational Calculus: Unary Relational Operations: SELECT and PROJECT, Binary Relation: JOIN and DIVISION.

TEXT BOOKS:

1. Database Systems Concepts - A. Silberschatz, H. F. Korth, S. Sudarshan (McGraw Hill)
2. Fundamentals of Database Systems - Elmsari and Navathe (Addision Wesley)
3. Database Management Systems – Rajiv Chopra, S Chand

REFERENCE BOOK: C.J.Date- An Introduction to Database systems, Pearson Education.

[GE-3] Practical of DBMS:

- Data definition in SQL (CREATE, ALTER & DROP)
- Different datatypes available in Library.
- Draw ER diagram and convert entities and relationships to relation table.
- Perform the following: viewing database,creating database,viewing all tables in database, creating tables.inserting/updating/deleting records in a table.Saving (Commit) and Undoing (Rollback).
- Perform the following: Altering table,Dropping table,Renaming table, Restoring databse.
- For a given set of relation schemes, create table & perform the following: simple queries, queries with aggregate function (group by & having clause), queries involving Date function, string function and math function.
- Join queries – Inner join, Outer join,.
- Subqueries- with IN clause, with EXISTS clause.
- For a given relation table perform the following operation:- create views(with or without check option), dropping views, selecting from view.
- Introduction to PL/SQL , If…Else and Looping structure in PL/SQL.
- Write a PL/SQL program using FOR loop to insert 10 rows in to a databse table.

PRACTICAL

Data Structures lab: As per the theory paper) —25 Marks
DBMS lab: As per the theory paper) —25 Marks

FOURTH SEMESTER

[SEC-2] QUANTITATIVE APTITUDE - DATA INTERPRETATION & LOGICAL REASONING

Mark: 20+80=100

I.	Unit-1	Whole numbers, integers, Rational & irrational numbers, Fractions, square roots and cube roots, surds and indices, problems on numbers divisibility.	
		Steps of long division method for finding square roots	
	Unit-2	Basic concepts, different formulae of percentage, profit and loss, Discount, simple interest, Ratio and proportions, Mixture	
	Unit-3	Time and work, pipes and cisterns, basic concepts of Time, Distance and speed; relationship among them.	
	Unit-4	Concept of Angles, different polygons like triangles, rectangle, square, right-angled triangle, Pythagorean theorem, perimeter and area of triangles, Rectangles, circles.	
	Unit-5	Raw and Grouped data, Bar Graphs, pie charts, Mean, Median and Mode, Events and sample space, Probability	
II.	**LOGICAL REASONING**		
	Unit-1	Analogy basing on kinds of relationships, simple ANALOGY: Pattern and series of numbers, letters, Figures, Coding-Decoding of numbers, Letters, symbols(figures), Blood relation.	
	Unit-2	Logical statements-Two premise argument, more than two premise argument using connectives.	
	Unit-3	Venn diagrams, Mirror images, problems on cubes and Dices.	

REFERENCE BOOK:

Quantitative and Logical thinking developed by Odisha state higher education council, Bhubaneswar.

[C-8] Object Oriented Programming Structure (OOPS) Mark: 15+60+25= 100

Unit-1 Fundamentals:

Data types, Operators, Preprocessor directives, Declarations, Input & Output, control structures, functions and arrays. Objects and Classes: Structures and Classes, Unions and Classes, Data hiding and encapsulation, Private and public members, Member functions, Accessing class members, Objects as function parameters, Static data and member functions, friend functions and friend classes.

Unit-2 Object Initialization:

Constructors, Parameterized, constructors, Destructor, Constructor overloading, Constructors with default arguments, Constructors with dynamic operations.

Unit-3 Function and Operator Overloading:

Function overloading, functions with default arguments, Inline functions, Unary operator overloading, Operator returning value, Binary operator overloading, Overloading arithmetic, relational and assignment operators.

Inheritance:

Derived and base class, protected members, Overriding functions, Private, protected, and public inheritance. Derived class constructors, Levels of inheritance and multiple inheritance.

Virtual Functions, Pure Virtual Functions, Abstract Classes, Using Virtual Functions, Early verses late binding, Error handling.

Unit-4 Arrays, Pointers and References:

Array of Objects, Initialized and Uninitialized Arrays, Pointer to Object? This pointer, Pointer to derived type· Pointer to Class Member, Reference Parameters, Passing Reference to Objects, Returning References, Independent References, Dynamic Allocation Operators, Allocating Objects.

Text Books:

1. Object Oriented Programming with C++ by E. Balagurusamy, McGraw-Hill Education (India)
2. ANSI and Turbo C++ by Ashoke N. Kamthane, Pearson Education

Reference Books:

3. C++: The Complete Reference- Schildt, McGraw-Hill Education (India)
4. Object Oriented Programming with C++ - Rajiv Sahay, Oxford
5. Mastering C++ - Venugopal, McGraw-Hill Education (India)

[C-8] Practical of C++ :

1. Write a Program to find greatest among three numbers using nested if…else statement.
2. Write a Program to check a number is prime or not.
3. Write a Program to find the GCD and LCM of two numbers.
4. Write a program to print the result for following series: 1!+2!+3!+4!+5!
5. Write a program to print multiplication table from 1to10.
6. Write a Program to find square and cube of a number using inline function
7. Write a Program to find the factorial of a number
8. Write a Program to find reverse of a number.
9. Write a Program to find area of circle, triangle and rectangle using function overloading.
10. Write a program to show the ways of calling constructors and destructors.
11. Write a program to perform ++operator overloading using member function.
12. Write a program to perform ++operator overloading using friend function.
13. Write a program to perform single inheritance.
14. Write a program to perform multiple inheritance.
15. Write a Program for Swapping of two numbers using pass by value.
16. Write a Program for Swapping of two numbers using pass by address.
17. Write a program to create an integer array using new operator and find the sum and average of array elements.
18. Write a program to Copy the contents of one file to other.

[C-9] SOFTWARE ENGINEERING (SE) **Mark: 20+80=100**

Unit-1 Introduction:

The problem domain, software engineering challenges. Software process models: Water fall model, prototypes, spiral and reuse oriental development. Comparison of models. Project management process, risk management.

Unit-2 Software requirement analysis and specification:

Needs for SRS, requirement engineering, requirement elicitation and analysis, characteristics of a SRS, components of an SRS, structures of a requirement document. Function specification with use cases. Requirement validation.

Software reliability and quality management:

Hardware vs software reliability, reliability metrics, software quality and its management, Software re-engineering and reverse engineering. Maintenance process models.

Unit-3 Software design:

What is a good design, software design principles- cohesion and coupling and their types?

Software design approaches-function oriented software design: structured analysis and structure design, DFD, structure chart, detailed design.

Unit-4 Coding and Testing:

Programming principles and guidelines, coding process. Code review and verification: Code inspection, static analysis, Proving correctness, unit testing, combining different techniques. Size, measurements. Black box testing, white box testing, cyclomatic, complexity, integration testing, system testing.

Text Books:

1. Software Engineering by Pankaj Jalot, Narosa

Reference:

1. Software Engineering by Rajiv Malia - PHI
2. Software Engineering by Soomerville – Pearson

[C-10] MANAGERIAL ECONOMICS (ME) Mark: 20+80=100

Unit -1Introduction to Demand Analysis & Forecasting-I:

Meaning of Managerial Economics, Firm, Its Objectives & Constraints, Decision Process, Basic Principles.

Meaning of Demand, Demand function, Demand Elasticity, Demand Forecasting, Forecasting Methods, Accuracy of Forecasting, Production and Cost Analysis, Meaning of Production, Production Function, Least Cost Combination of Inputs, Return to Scales, Statistical Production Function, Cobb-Douglas,

Unit-2 Demand Analysis & Forecasting-II

Cost Concepts, Accounting Costs & Economic Costs, Determinant of Costs, Cost output Relationship- Short Run & Long Run Cost Function, Economics & Diseconomies of scale.

Unit-3 Pricing

Determinants of Price, Pricing Under different Objectives Pricing Under different Market Studies, Monopoly, Oligopoly, Monopoly is the Competition, Perfect Competition-selling & Promoting Express, Joint Product Price Discrimination.

Unit-4 Capital Budgeting

Nature of Capital Expenditure Decision,Capital Expenditure selection Process, Capital Budgeting and Risk, Estimating the Firms Cost of Capital, Determining the optimal capital budget and the marginal cost of capital.

TEXT BOOK:

Managerial Economics By G S Gupta, Tata McGraw Hill, Managerial Economics - concepts & Cases by V L Mote, Samuel Paul & G S Gupta, Tata McGraw Hill.

REFERENCE BOOK:

Managerial Economics by Joel Dean, Prentice Hall of India,

Managerial Economics by R N Carshney & K N Maheshwari, Sultan Chand & Sons, New Delhi

[GE-4] PYTHON PROGRAMMING **Marks=15+60+25=100**

Unit-1 Planning the Computer Program:

Concept of problem solving, Problem definition, Program design, Debugging, Types of errors in programming, Documentation. Flowcharting, decision table, algorithms, Structured programming concepts, top-down and bottom-up programming.

Unit-2 Introduction to Python:

Features of Python, installing python for windows and setting up paths, writing and executing a simple python program. Comparison between C, JAVA, Python. Comments, Docstrings, How python see variables, Datatypes in python, built-in types, sequences in python, sets, literals in python, user defined data types, identifiers & reserved words, Naming convention in python.

Unit-3 Overview of Programming:

Structure of a Python Program, Elements of Python Introduction to Python: Python Interpreter, Using Python as calculator, Python shell, Indentation. Atoms, Identifiers and keywords, Literals, Strings, Operators (Arithmetic operator, Relational operator, Logical or Boolean operator, Assignment, Operator, Ternary operator, Bit wise operator, Increment or Decrement operator)

Unit-4 Creating Python Programs:

Input and Output Statements, Control statements (Branching, Looping, Conditional Statement, Exit function, Difference between break, continue and pass.), Defining Functions, default arguments.

Text Books

1. T. Budd, Exploring Python, TMH, 1st Ed, 2011 35
2. Python programming for absolute beginners, Michael Dawson, CENGAGE Learning.

Reference Books

1. Allen Downey, Jeffrey Elkner, Chris Meyers , How to think like a computer scientist : learning with Python , Freely available online.2012

[GE-4] Practical of Python programming:

1. Create a list and perform the following methods- insert(), remove(), append(), len(), pop(), clear().
2. Write a python program to add two numbers.
3. Write a python program to print a number is positive or negative using if..else.
4. Write a python program to find largest number among three numbers.
5. Write a python program to read a number and display corresponding day using if..elif..else.
6. Write a program to create list, tuple dictionary & set in python program.
7. Write a python program to check whether the given string is palindrome or not.
8. Write a python program to find the factorial of a given number using function.
9. Write a python function that takes two lists and returns True if they are equal otherwise returns false.
10. Write a python program to open and write “hello world” in to a file.
11. Write a python program to print date, time using date and time function.
12. Write a python program which accepts the radius of a circle from user and computes the area (using math module).
13. Write a Program to display the first n terms of Fibonacci series.
14. Write a python program to read a csv file using pandas and print the first and last five lines of a file.

PRACTICAL

C++ LAB:	As per the theory paper -25 Marks
Python programming lab:	As per the Subjects - 25 Marks

FIFTH SEMESTER

[C-11] JAVA PROGRAMMING **Mark: 15+60+25=100**

Unit – 1 : INTRODUCTION TO JAVA PROGRAMMING

OOP concepts.JAVA introduction. Java Features. Basic of Java Environment. Java Development Kit. Java Virtual Machine (JVM),Just in time (JIT),Java Standard Library (JSL), Differences between C++ & Java, Java Tokens – Key words, Data Type,Variable, The first step in writing java application,Basic java application,Primary application components,Class code block, Data(variables),Methods code block (main in example programme), Using semicolons and braces, Compiling and running a programme,Debugging, Operators, Control statements, Arrays, Type conversion and casting.

Unit – 2 : CLASS OBJECTS & STRINGS

Class, Creating objects, Methods,Method Overloading, Constructors, Constructors Overloading, Static class members, Access Modifiers / Control, This keyword, Argument passing, Command line arguments,Recursion, Nested class & Inner class, Strings – String class,String Buffer class, String Tokenizer class, Garbage collection

Unit – 3 : INHERITANCE , INTERFACES & PACKAGES

Inheritance, Types of Inheritances, Defining subclass,Member access rules, Super keyword, Method overriding, Abstract class, Final keyword, Object class, Final keyword, Object class, Array of objects, Dynamic method dispatch Interfaces, Implementing interfaces, Various forms of interface implementations, Multiple inheritance, Hybrid inheritance. Packages, Defining a package, Sub packages, Access protection,Class path.

Unit – 4 : EXCEPTION HANDLING & MULTI THREADING

Exception, Exception handling – Try block, Catch block, Finally block, Methods of exception object, Multiple catch statement, Nested try statement, Throw statement,Throws statement, Userdefined exception. Multithreading, Thread life cycle, Thread class constructiors, Methods, Main thread, Creating new thread, Thread priorities.

APPLETS & AWT: Introduction to applet, Applet life cycle, Introduction AWT.

TEXT BOOKS:

JAVA Programming Black BOOK – Dream tech publication, Java

Complete Reference, Tata McGraw Hill, Pure Java2, Sams, Tec media,

REFERENCE BOOKS: Mastering Java, BPB Publication

[C-11] Practical of Java:-

1. To find the factorial of a given number.
2. To convert a decimal to binary number.
3. To check if a number is prime or not, by taking the number as input from the keyboard.
4. Write a program that show working of different functions of string and stringBuffer class like setCharAt(), setLength(), append(), insert(), concat(), & equals().
5. Write a program to show that during function overloading.
6. Write a program to show the difference between public and private acees specifier.
7. Write a program to show the use of static functions and to pass variable length arguments in a function.
8. Write a program to implement different graphics method .
9. Write a program to implement nested try statements.

10. Write a program to handle exception using try catch block.
11. Write a program to create a thread and implements Runnable interface.
12. Write a program to create a menu using frame.
13. Write a program to create a dialog box.
14. Write a program to create car by using different graphics methods.

[C-12] ORGANIZATIONAL BEHAVIOR (OB) **Mark: 20+80=100**

Unit-1 ORGANISATION BEHAVIOR

Nature of Organisation, Concept of Organisation, Features of Organisation, Types of Organisation, Organisational Goals, Organisational and individual goalS.

Unit-2 PERCEPTION & PERSONALITY

Concept of perception, Perception process, Perceptual Selectivity, Managerial Implication of perception.

Concept, Theories of Personality, Determinants of personality, Personality & Behavior, Inter Personal Behaviour, Transactional Analysis, Ego states, Transactions, Stroking, Application of Transactional analysis,

Unit-3 MOTIVATION & LEADERSHIP

Definition of Motivation, Theories of Motivation, Maslow's need Hierarchy, Herzberg's motivation, McClelland's Need theory, Motivational Pattern in Indian Organisation, Concept of Leadership, Theories of Leadership Trail theory, Behaviour theory, Situational theory, Leadership styles, Styles based on Authority, Managerial Grid Tridimensional Grid.

Unit-4 ORGANISATIONAL CONFLICT CHANGE & DEVELOPMENT

Inter Personal conflicts, Group conflicts, Intra group conflicts, Inter group conflicts, Organizational Change, Reasons for organizational change, Objective & process of charge, Organizational development, Need and steps of OD, OD interventions.

TEXT BOOK:

Organisational Behaviour by - L M Prashad, Stepher P. Robbins,

REFERENCE BOOKS :

Organisational Behavior by Fred Luthans, Organizational Behaviour by John W. Newstrom/ Keith Davis, Organizational Development by Wendell L French, Cecil H Bell.

[DSE-1] HTML/CSS/PHP **Mark: 15+60+25=100**

Unit-1 HTML

Web Essentials: Clients, Servers and Communication: The Internet – Basic Internet protocols – The WWW, HTTP request message – response message, web clients web servers – case study. Introduction to HTML: HTML, HTML domains, basic structure of an HTML document – creating an HTML document, mark up tags, heading, paragraphs, line breaks, HTML tags. Elements of HTML, working with text, lists, tables and frames, working with hyperlink, images and multimedia, forms and controls

Unit-2 CSS

Introduction to cascading style sheets: Concepts of CSS, creating style sheet, CSS properties, CSS styling (background, text format, controlling fonts), working with the block elements and objects. Working who lists and tables, CSS ID and class. Box model (introduction, border properties, padding properties, margin properties), CSS colour, groping, Dimensions, display, positioning, floating, align, pseudo class, Navigation bar, image sprites.

Unit-3 JAVA SCRIPT

Java scripts: Client side scripting, what is java script, simple java script, variables, functions, conditions, loops and repetitions. Java scripts and objects, java script own objects, the DOM and web browser environment, forms and validations. DHTML: Combining HTML, CSS, java scripts, events and buttons, controlling your browser.

Unit-4 PHP

PHP: Starting to script on server side, PHP basics, variables, data types, operators, expressions, constants, decisions and loop making decisions. Strings – creating, accessing strings, searching, replacing and formatting strings. Arrays: Creation, accessing array, multidimensional arrays, PHP with Database.

Text Book: 1. Web Technologies – Black Book – DreamTech Press

2. Matt Doyle, Beginning PHP 5.3 (wrox-Willey publishing)

3. John Duckett, Beginning HTML, XHTML, CSS and Java script.

[DSE-1] PRACTICAL OF HTML/CSS/PHP

1. Acquaintance with elements, tags and basic structure of HTML files.
2. Practicing basic and advanced text for formatting.
3. Practice use of image, video and sound in HTML documents.
4. Designing of web pages- Document layout, list, tables.
5. Practicing Hyperlink of web pages, working with frames.
6. Working with forms and controls.
7. Acquaintance with creating style sheet, CSS properties and styling.
8. Working with background, text, font, list properties.
9. Working with HTML elements box properties in CSS.
10. Develop simple calculator for addition, subtraction, multiplication and division operation using java script.
11. Create HTML page with java script which takes integer number as a input and tells whether the number is odd or even.
12. Create HTML page that contains form with fields name, Email, mobile number, gender, favourite colour and button; now write a java script code to validate each entry. Also write a code to combine and display the information in text box when button is clicked. 26
13. Write a PHP program to check if number is prime or not.
14. Write a PHP program to print first ten Fibonacci numbers.
15. Create a MySQL data base and connect with PHP.
16. Write PHP script for string and retrieving user information from my SQL table.

a. Write a HTML page which takes Name, Address, Email and Mobile number from user (register PHP).

b. Store this data in MySQL data base.

c. Next page display all user in HTML table using PHP (display .PHP).

[DSE-2] ASP. Net **Mark: 15+60+25=100**

Unit -1 INTRODUCTION:

Introduction to ASP.NET, What is ASP.NET, .Net framework 2.0, Compile Code, Code Behind and Inline Coding, The Common Language Runtime, Object Oriented Concepts, Event Driven Programming.

Unit - 2 Server Control:

Post back, Data binding, Grid View, List Box, Data list, Data binding Events, Repeater, Form view, Web Server Control, Html Server Control (basic HTML Server Control), Validation Control, Master Page, and Themes & CSS.

Unit -3 Database Access:

Introduction about ADO.NET, Introduction about Provider, Adapter, Reader, Command Builder, Database Access using ADO.NET.

Unit 4: Client Server Communication:

Communications with Web Browser, Response Object, Cookies, Query String, Session Management and Scope of Variable.

Text Book and Reference:

1 Professional ASP.NET 1.1 Bill Evjen , Devin Rader , Farhan Muhammad, Scott Hanselman , Srivakumar Wrox

2 Introducing Microsoft ASP .NET 2.0 Esposito PHI

3 Professional ADO.NET Bipin Joshi,Donny Mack, Doug Seven , Fabio Claudio Ferracchiati, Jan D Narkiewiez Wrox

4 Special Edition Using ASP.NET Richard Leineker Person Education

5 The Complete Reference ASP.NET Matthew MacDonald TMH

6 ASP.NET Black Book DreamTech

7 Beginning ASP.NET 3.5 in C# and VB Imar Spaanjaars Wrox

[DSE-2] Practical of ASP.Net :

1. Write a console application that obtains four int values from the user and displays the product.
2. If you have two integers stored in a variable var1, var2, then what Boolean test can you perform to see if one or the other (but not both) is grater that 10.
3. Write an application that includes the logic from (ques-1), obtains two numbers from the user and displays them, but rejects any input where both numbers are greater than 10 and ask for two new number.
4. Write a console application that places double quotation marks around each word in a string.
5. Write an application that uses two command line arguments to place values into a string and an integer variable respectively. Then display these values.

PRACTICAL

Java Programming Lab: As per the theory paper —25 Marks

HTML/CSS/PHP Lab: As per the theory paper—25 Marks

ASP.Net LAB : As per the theory paper—25 Marks

SIXTH SEMESTER

[C-13] COMPUTER GRAPHICS (CG) **Marks=15+60+25=100**

Unit-I Conceptual Framework for interactive Graphics. Scan conversion for lines, circles, filing of rectangles, Polygons, Pattern filling. Chipping lines, Circles, Polygons, Antialiasing.

Unit-II Geometrical Transformations: 2D transformations homogenous coordinates composition of 2D transformation. The window to view port transformation, efficiency, Matrix representation and composition of 3D transformation viewing in 3D projections, specifying an arbitrary 3D view examples of 3D viewing, planner geometric projections, co-ordinate systems.

Unit-III Parametric cubic curves : B spline curves, rational cubic polynomial cubic curve segment, Subdividing curves, Drawing curves. Parametric bicubic surfaces Be / ier surface, B-spline surfaces, Displaying bicubic surfaces

Unit-IV Light and colour, Achromatic light, colour models for raster graphics, Using colour in computer graphics. Visible surface determination, Techniques for efficient visible surface algorithms, The Z-buffer algorithm.

Illumination and shading, Phong illumination model, Gourand and Phong shading Texture mapping and shadows.

Textbook

1. Computer Graphics with Virtual Reality System, Rajesh K.Maurya, Wiley-Dreamtech.
2. Computer Graphics, D. Hearn and M.P. Baker (C Version), Pearson Education

[C-13] Practical of Computer Graphics: Use C/C++ for implementation of the following Problems.

1. To draw a line using simple DDA algorithm.
2. To draw a line using Bresenham's line algorithm.
3. To draw a circle using Bresenham's circle algorithm.
4. To draw a circle using mid point circle algorithm.
5. To implement point clipping.
6. To translate any object.
7. To scale any object.
8. To rotate any object.

[C-14] MANAGEMENT INFORMATION SYSTEM (MIS) **Mark: 20+80=100**

Unit-1 Foundation of Information System

Information System Resources & Technology, Fundamentals of Information System, Information system Resources, People Resources, Hardware Resources, Software Resources, Data Resources, Network Resources, Information System Activities, Input of Data Resources, Processing of Data into information Output information Product, Storage of Data, Resources, Control of System Performance,

Unit-2 Information Systems: Components

Operation Support System, Transaction Processing Systems, Process Control System, Enterprise Collaboration System, Management Support System, Decision support System, Executive information system, Expert systems, Knowledge Management System, Strategic Information System, Business Information System, Integrated information system

Unit-3 Information System for Business Operations

Cross Functional Information System, Marketing Information system, Manufacturing Information System, Computer Integrated Manufacturing, Collaborative Manufacturing Networks.

Process Control, Robotics, Human Resources Information System, Training & Development, Compensation Analysis, Government Reporting. Accounting Information System, Online Accounting System, Order Processing. Inventory Control, Financial Information system, Financial Forecasting Planning, Transaction Processing System, The Transaction processing Cycle, The Data Entry Process, Source Data Automation.

Unit-4 Database Maintenance, Document & Report Generation, Inquiry Processing, Managerial Decision Support, Internet Reporting, Online Analytical processing, Decision Support System, DSS models, What - if Analysis, Sensitivity Analysis, Goat Seeking Analysis, Optimization Analysis, Executive Information System.

TEXT BOOKS

Management Information System, Author: Davis Olson, McGraw Hill Pub

REFERENCE BOOKS:

Management Information System, Author: James Obrin, Tata McGraw Hill

[DSE-3] OPERATION RESEARCH (OR) **Mark: 15+60+25=100**

Unit-1 Introduction:

Introduction, Nature of OR, Phases of OR, Classifications of Problems, OR Techniques, OR & Modern Business Management, Limitations & Scope of OR, Problem formulation and modeling, Problem Formulation, Measures of Performance, Modeling in OR, Deriving a solution, Question of Error, Updating the Model.

Linear Programming:

Basic Concepts of Linear Programming, Assumptions of Linear, Programming Linear Programming Model, Simplex Solutions, Non-Feasible Solution, Unbounded solution, Multiple

Optimal solutions, Transportation, N.W. Corner Rule, VAM Method, Transportation Problems, Assignment Problems,

Unit-2 Combinatorial & Sequential Decisions

Combinatorial Decisions, What are Combinatorial Problems, Branch & Bound Technique, Applications of Branch & Bound Technique, Sequential Decisions, Introduction, Dynamic Programming, Optimality Function, Application of Dynamic Programming to situations, Sequencing Problems, Introduction, Elements of sequencing Problems, Assumption for Simple

Sequencing, Gantt Chart, Graphical Technique for solving Sequencing problems,

Unit-3 Queuing simulation & Decision Theory Queuing

What is a Queue?, Queue Objects, Queuing Models, Queuing Problems, Erling's model,

Fixed Arrival and , Random Arrival Models, Simulation, Meaning of Simulation, Methods of Simulation, Monte Carlo method of Simulation, Application of Monte Carlo Method, Decision Theory,

What is Decision Theory?

Determination of alternatives action plans, Different decision models, Factors for

Decision Making under Risk situation, Marginal Analysis, Decision Trees, Posterior Analysis, Utility Functions

Unit-4 Risk Analysis, Value Analysis & Statistical Quality Control

Risk Analysis, Investment Decisions, Appraisal techniques, Analysis of Risk Factors, Risk Measurement Decision making approaches under risk situation, Sensitivity analysis, Value

analysis, Purpose of Value analysis, VA Tools, Techniques for VA, Application of VA, Statistical quality Control, Process Control, Control Charts for Variables, Control Charts for Attributes, Product Control, Sampling Techniques, Acceptance sampling plan, Operating Characteristic Curve, AOQ & AOQL.

Production Management

Concept, Function, Production Planning & Control, Quality Control, Inventory, Purchasing, PERT? CPM

TEXT BOOK:

Operation Research By Kanti Swaroop, P K Gupta & Manmohan, S Chand Pub, Operation Research By H.A. Taha.

[DSE-3] Practical of Operation Research:

Use C/C++ for implementation of the following Problems.

1. Mathematical formulation of L.P.P and solving the problem using graphical method.
2. Mathematical formulation of L.P.P and solving the problem using Simplex technique.
3. Allocation problem using Transportation model
4. Allocation problem using Assignment model
5. Networking problem using CPM and PERT

[DSE-4] PROJECT: (Record + Viva**) / Internet and Web Technology (IWT)** (Theory+lab) **100 marks**

PRACTICAL

Computer Graphics lab—25 marks

Operation Research lab:(As per the theory paper)—25 Marks

[DSE-4] INTERNET AND WEB TECHNOLOGY (IWT) Mark: 15+60+25=100

Unit-1 UNDERSTANDING HTML

The components of HTML, A short history of HTML and the World Wide Web, keeping up with HTML, standard extensions and difference, HTML documents life cycle, developing documents, publishing documents, testing published documents, maintaining documents, creating your first HTML document, understanding basics of HTML tools, entering tags and attributes, applying structures tag, applying common tags and attributes including fancier formatting. Linking your documents, URL anatomy, types of URL's, Constructing link anchors Inserting E-mail links Using Style sheets, Implementing style sheets, including images, developing images, adding images, using images as links, creating image maps, using background images, developing tables, creating basic table, spanning rows and columns, adding captions, formatting tables, adding and formatting borders, using HTML table features.

HTML Forms

Developing HTML forms, determining form content, creating forms, creating forms, understanding frames. deciding to use frames, creating frames, accommodating non framed browsers, enabling effective navigation adding java script, what is java script, adding java script to your document, adding event handler, tracking visitors, using cookies.

Unit-2 BRINGING PAGES TO LIFE WITH DHTML

What is DHTML? Creating collapsible document, converting documents to HTML, why convert? Selecting and using conversion tools, using validation services, why you need conversion services? Using related services, finding and using validation services, Generating HTML from

data base, Exploring your options, deciding to use database, choosing software, generating static HTML from Database, maintaining pages generating from database, making your web site searchable, choosing to let visitors search your site, using low-tech alternatives, enabling visitors to search within your site, finding and implementing search engines recommendations for searching solutions, leaving the work for internet search engines.

Unit-3 UNDERSTANDING AND USING WEB SERVERS

An overview of networking, web servers, getting access to a server, using a server, using implementing a coherent web site, including theme-bearing elements, making your site navigable, balancing flash with usability, web publishing, the evolution of DHTML, scripting, interactive documents and interaction with database, mathematics, multimedia, document modeling and style sheets, CSS, designing your page. Building the design, seek synergy, applying the design, moving elements: positioning for optimal functionality. Visual integrity efficient designing, suitable of size, gridded pages, working with frames, creating dynamic frame content with Java script, Preparing for interaction database: data binding, interacting with database under internet explorer, programming to manipulate database.

Unit-4 INTRO/GETTING STARTED

Client/Server, IIS Web Server, Hap Edit - ASP Editor, ASP Overview, Variables, Forms & Query string server variables, Sessions, Conditions/Control Flow,

Constructing Code

Arrays, Looping For/Loop and While/Next, Functions and Sub Procedures, VB Built In Functions, Coding Standards: Comments, Naming Conventions, Indenting, Modular, Debugging, Error Handling, includes/Organizing Code.

Text Books:

Mastering HTML, by - Ray, BPB Publication,

Web Programming: Building Internet Applications - Chris Bates, Wiley Dreamtech

Programming the World Wide Web - Robert W Sebesta, Pearson

Practical:

[DSE-4] IWT LAB:- HTML/CSS/JavaScript –As per theory paper--------25 marks.

Practical of IWT:

- Acquaintance with elements, tags and basic structure of HTML files.
- Practicing basic and advanced text for formatting.
- Practice use of image, video and sound in HTML documents.
- Designing of webpages- Document layout, list, tables.
- Practicing Hyperlink of webpages, working with frames.
- Working with forms and controls.
- Acquaintance with creating stylesheet, CSS properties and styling.
- Working with background, text, font, list properties.
- Working with HTML elements box properties in CSS.
- Develop simple calculator for addition, subtraction, multiplication and division operation using JavaScript.
- Create HTML page with java script which takes integer number as a input and tells whether the number is odd or even.