Jyotiba Phule Govt. College, Radaur

Lesson Plan ODD SEM 2024-25

Name of the Assistant Professor – Dr. Nancy Sharma

Subject : Computer Science

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| **Month** | **BA 5TH Sem** | **BCA IST Sem** | **BCA &B.A 5TH Sem** | **BCA 3RD Sem** |
| JULY -AUGUST | Basic Concepts – Data, Information, Records, Files, Schema and Instance etc. Limitations of File Based Approach,  Characteristics of Database Approach, Database Management  System (DBMS), Components of DBMS Environment, DBMS  Functions and Components, Database Interfaces, Advantages  and Disadvantages of DBMS.  Assignment  Test | Number Systems: Binary, Octal, Hexadecimal etc. Conversions from one number system to another, BCD Number System. BCD Codes: Natural Binary Code, Weighted Code, Self Complimenting Code, Cyclic Code. Error Detecting and Correcting Codes. Character representations: ASCII, EBCDIC and Unicode. Number Representations: Integer numbers - sign-magnitude, 1’s & 2’s complement representation. Real Numbers normalized floating point representations.  ASSIGNMENT: CONVERSION  TEST | Introduction to Internet and World Wide Web; Evolution and History of World Wide Web; Basic  Features; Web Browsers; Web Servers; Hypertext Transfer Protocol; URLs; Searching and Web-  Casting Techniques; Search Engines and Search Tools  ASSIGNMENT  TEST | Basic Concepts – Data, Information, Records, Files, Schema and Instance etc. Limitations of File Based Approach, Characteristics of Database Approach, Database Management System (DBMS), Components of DBMS Environment, DBMS Functions and Components, Database Interfaces, Advantages and Disadvantages of DBMS.Database Users: Data and Database Administrator, Role and Responsibilities of Database Administrator, Database Designers, Application Developers etc. Database System Architecture – 1-Tier, 2-Tier & Three Levels of Architecture, External, Conceptual and Internal Levels, Schemas, Mapping and Instances,  ASSIGNMENT  TEST |
| SEPT | Database Users: Data and Database Administrator, Role and Responsibilities of Database Administrator, Database Designers, Application Developers etc. Database System Architecture – 1-Tier, 2-Tier & Three Levels of Architecture,  External, Conceptual and Internal Levels, Schemas, Mappings and Instances, Data Independence – Logical and Physical Data  Independence. | Binary Arithmetic: Binary Addition, Binary Subtraction, Binary Multiplication, Binary Division using 1’s and 2’s Compliment representations, Addition and subtraction with BCD representations. Boolean Algebra: Boolean Algebra Postulates, basic Boolean Theorems, Boolean Expressions, Boolean Functions, Truth Tables, Canonical Representation of Boolean Expressions: SOP and POS, Simplification of Boolean Expressions using Boolean Postulates & Theorems, Kaurnaugh-Maps (upto four variables), Handling Don’t Care conditions. 10  ASSIGNMENT 2:K MAP  TEST | Steps for Developing Website; Choosing the Contents; Home Page; Domain Names; Internet Service  Provider; Planning and Designing Web Site; Creating a Website; Web Publishing: Hosting Site;  TEST | Data Independence – Logical and Physical Data Independence.  Data Models: Hierarchical, Network and Relational Data  Models.  Entity-Relationship Model: Entity, Entity Sets, Entity Type,  Attributes: Type of Attributes, Keys, Integrity Constraints,  Designing of ER Diagram, Symbolic Notations for Designing  ER Diagram  ASSIGNMENT  TEST |
| OCT | Data Models: Hierarchical, Network and Relational Data  Models.  Entity-Relationship Model: Entity, Entity Sets, Entity Type, Attributes: Type of Attributes, Keys, Integrity Constraints, Designing of ER Diagram, Symbolic Notations for Designing ER Diagram  ASSIGNMENT  TEST | Logic Gates: Basic Logic Gates – AND, OR, NOT,  Universal Gates NAND, NOR, Other Gates – XOR, XNOR etc. Their symbols, truth tables and Boolean expressions. Combinational Circuits: Design Procedures, Half Adder, Full Adder, Half Subtractor, Full Subtracor, Multiplexers, Demultiplexers, Decoder, Encoder, Comparators, Code Converters.  Mid Term TEST | Introduction to HTML; Hypertext and HTML; HTML Document Features;  HTML Tags; Header, Title, Body, Paragraph, Ordered/Unordered Line, Creating Links; Headers; Text  Styles; Text Structuring; Text Colors and Background; Formatting Text; Page layouts; Insertion of  Text, Movement of Text | SQL: Meaning, Purpose and Need of SQL, Data Types, SQL Components: DDL, DML, DCL and DQL, Basic Queries, Join Operations and Sub-queries, Views, Specifying Indexes.  Constraints and its Implementation in SQL.  Relational Algebra: Basic Operations: Select, Project, Join,Union, Intersection, Difference, and Cartesian Product etc.  Relational Calculus: Tuple Relational and Domain Relational Calculus. Relational Algebra Vs. Relational Calculus.  Mid Term TEST |
| NOV | Relational data Model  Structure, Relations, properties,keys,domains,integrity constraints, tables and views  TEST  REVISION | Sequential Circuits: Basic Flip- Flops and their working. Synchronous and Asynchronous Flip –Flops, Triggering of FlipFlops, Clocked RS, D Type, JK, T type and Master-Slave Flip-Flops. State Table, State Diagram and State Equations. Flip-flops characteristics & Excitation Tables. Sequential Circuits: Designing registers –Serial-In Serial-Out (SISO), Serial-In Parallel-Out (SIPO), Parallel-In Serial-Out (PISO) Parallel-In Parallel-Out (PIPO) and shift registers.  TEST  REVISION | Images: Types of Images, Insertion of Image, Movement of Image, Ordered and Unordered lists;  Inserting Graphics; Table Handling Functions like Columns, Rows, Width, Colours; Frame Creation  and Layouts; Working with Forms and Menus; Working with Buttons like Radio, Check Box;  TEST  REVISION | Relational Model: Functional Dependency, Characteristics,  Inference Rules for Functional Dependency, Types of  Functional Dependency,  Normalization: Benefits and Need of Normalization, Normal  Forms Based on Primary Keys- (1NF, 2NF, 3NF, BCNF),  Multi-valued Dependencies, 4 NF, Join dependencies, 5 NF,  Domain Key Normal Form.  TEST  REVISION |