CHEME OF EXAMINATION FOR B.Sc. (COMPUTER SCIENCE) SEMESTER SYSTEM (Regular Course) w.e.f. 2015-16

Scheme for B.Sc.-III

Semester-V

Sr. No.		Paper	Internal Assessment	External Marks	Exam Duration
1	Paper-I	Fundamentals of Data Base Systems	10	40	3 hrs.
2	Paper-II	Web Designing	10	40	3 hrs.
Semester-VI					
3	Paper-I	Relational Data Base Management System	10	40	3 hrs.
4	Paper-II	Computer Networks	10	40	3 hrs.
5	Paper-III	Practical Morning Session: (Web Designing using HTML) Evening Session: (SQL and PL/SQL)	----	100	6 hrs.(Two Sessions) Morning and Evening
Total(Semester I & II)			40	260	

Internal assessment will be based on the following criteria:

1. Two Handwritten Assignments : 5 marks

2. (Ist Assignment after one month & IInd Assignment after two months)

3. One Class Test   : 2.5 marks   (one period duration)

4. Attendance   : 2.5 marks

NOTE: Practical exam will be conducted annually in two sessions. However the workload will be distributed in both the semesters according to the relevant papers.

Paper-I: Fundamentals of Database Systems

Maximum Marks: 50   **External: 40**
Minimum Pass Marks: 18   **Internal: 10**
Time: 3 Hours

Note: Examiner will be required to set Nine Questions in all. First Question will be compulsory, consisting of objective type/short-answer type questions covering the entire syllabus. In addition to that eight more questions will be set, two questions from each Unit. Student will be required to attempt FIVE questions in all. Question Number 1 will be compulsory. In addition to compulsory question, student will have to attempt four more questions selecting one question from each Unit. All questions will carry equal marks.

UNIT – I

Basic Concepts – Data, Information, Records and files. Traditional file Based Approach-Limitations of Traditional File Based Approach, Database Approach-Characteristics of Database Approach, Database Management System (DBMS), Components of DBMS Environment, DBMS Functions and Components, Advantages and Disadvantages of DBMS.

UNIT – II

Actors on the Scene - Data and Database Administrator, Database Designers, End users Applications Developers and Workers behind the Scene.
Database System Architecture – Three Levels of Architecture, Schemas – External, Conceptual and Internal Level, Database Languages – VDL, DDL, SDL, DML, SQL, Mappings – External/ Conceptual and Conceptual/Internal, Instances, Data Independence – Logical and Physical Data Independence

UNIT – III

Data Models: High Level, Low Level and Representational – Records- based Data Models, Object-based Data Models, Physical Data Models and Conceptual Models
Entity-Relationship Model – Concepts, Entity Types, Entity Sets, Attributes, Relationships, Constraints, Keys , Degree, Cardinality etc.
ER Diagrams of any Database Organization- Inventory System, Payroll System, Reservation System, Online Book Store etc.

UNIT – IV

Classification of Database Management System, Centralized and Client Server architecture
Relational Data Model:-Brief History, Terminology in Relational Data Structure, Relations, Properties of Relations, Keys – Primary, Secondary, Composite, Candidate, Alternate and Foreign Key, Domains, Integrity Constraints over Relations.

TEXT BOOKS:
- Elmasri Ramez & Navathe Shamkant B., "Fundamentals of Database Systems", Addision & Weisely, New Delhi, 2007
- Date C.J., "Database Systems", Prentice Hall of India, New Delhi, 2004

REFERENCE BOOKS:
- Korth H.F. & Silverschatz A., "Database Concepts", Tata McGraw Hill, New Delhi, 2010
- Thomas Connolly Carolyn Begg, "Database Systems", 3/e, Pearson Education

Paper-II: Web Designing

Maximum Marks: 50   **External: 40**
Minimum Pass Marks: 18   **Internal: 10**
Time: 3 Hours

Note: Examiner will be required to set Nine Questions in all. First Question will be compulsory, consisting of objective type/short-answer type questions covering the entire syllabus. In addition to that eight more questions will be set, two questions from each Unit. Student will be required to attempt FIVE questions in all. Question Number 1 will be compulsory. In addition to compulsory question, student will have to attempt four more questions selecting one question from each Unit. All questions will carry equal marks.

UNIT – I
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

UNIT – II
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;

UNIT-III
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

UNIT – IV
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;

TEXT BOOKS:
- Bayross Ivan, "Web Enabled Commercial Applications Development using HTML, Javascript, DHTML & PHP", BPB Publication, 2005
- Powell Thomas, "The Complete Reference HTML & CSS", Tat Mc-Graw Hill, 2010

REFERENCE BOOKS:
- Wendy Willard, "HTML Beginners Guide", Tata McGraw-Hill
- Deitel and Goldberg, "Internet and World Wide Web, How to Program", PHI.

Paper-I: Relational Data Base Management System

Maximum Marks: 50   **External: 40**
Minimum Pass Marks: 18   **Internal: 10**
Time: 3 Hours

Note: Examiner will be required to set Nine Questions in all. First Question will be compulsory, consisting of objective type/short-answer type questions covering the entire syllabus. In addition to that eight more questions will be set, two questions from each Unit. Student will be required to attempt FIVE questions in all. Question Number 1 will be compulsory. In addition to compulsory question, student will have to attempt four more questions selecting one question from each Unit. All questions will carry equal marks.

UNIT – I
Relational Model Concepts, Codd's Rules for Relational Model, Hierarchical Data Model– Introduction, Features, Components, Example, Network Data Model– Introduction, Features, Components, Example, Differences between Hierarchical Data Model and Network Data Model Comparison of Relational Data Model with Hierarchical Data Model and Network Data Model Relational Algebra:-Selection and Projection, Set Operation, Join and Division.

UNIT – II
Relational Calculus: Tuple Relational Calculus and Domain Relational Calculus.
Functional Dependencies and Normalization -- Purpose, Data Redundancy, Update Anomalies, Partial/Fully Functional Dependencies, Transitive Functional Dependencies, Characteristics of Functional Dependencies, Decomposition and Normal Forms (1NF, 2NF, 3NF & BCNF).

UNIT – III
SQL: Data Definition and data types, Create Table, Insert Data, Viewing Data, Filtering Table Data, Sorting data, Creating Table from a Table, Destroy table, Update, View, Delete, Join, Concatenating data from Table Specifying Constraints in SQL; Primary Key, Foreign Key, Unique Key, Check Constraint, Using Functions

UNIT – IV
PL/SQL-Introduction, Advantages of PL/SQL
The Generic PL/SQL Block: PL/SQL Execution Environment; PL/SQL Character Set and Data Types, Declaration and Assignment of Variables
Control Structure in PL/SQL: Conditional Control, Iterative Control, Sequential Control

TEXT BOOKS:
- Elmasri Ramez & Navathe Shamkant B., "Fundamentals of Database Systems", Addision & Weisely, New Delhi, 2007
- Bayross Ivan, SQL, PL/SQL, "The Programming Language of Oracle", BPB Publication, 2002

REFERENCE BOOKS:
- Date C.J., "Database Systems", Prentice Hall of India, New Delhi, 2004

Paper-II: Computer Networks

Maximum Marks: 50   **External: 40**
Minimum Pass Marks: 18   **Internal: 10**
Time: 3 Hours

Note: Examiner will be required to set Nine Questions in all. First Question will be compulsory, consisting of objective type/short-answer type questions covering the entire syllabus. In addition to that eight more questions will be set, two questions from each Unit. Student will be required to attempt FIVE questions in all. Question Number 1 will be compulsory. In addition to compulsory question, student will have to attempt four more questions selecting one question from each Unit. All questions will carry equal marks.

UNIT – I
Introduction to Data Communication and Computer Networks; Uses of Computer Networks; Types of Computer Networks and their Topologies; Network Hardware Components: Connectors, Transceivers, Repeaters, Hubs, Network Interface Cards and PC Cards, Bridges, Switches, Routers, Gateways; Network Software: Network Design issues and Protocols; Connection-Oriented and Connectionless Services; OSI Reference Model; TCP/IP Model;

UNIT – II
Analog and Digital Communications Concepts: Analog and Digital data and signals; Bandwidth and Data Rate, Capacity, Baud Rate; Guided and Wireless Transmission Media; Communication Satellites; Switching and Multiplexing; Modems and modulation techniques;

UNIT - III
Data Link Layer Design issues; Error Detection and Correction methods; Sliding Window Protocols: One-bit, Go Back N and Selective Repeat; Media Access Control: ALOHA, Slotted ALOHA, CSMA, Collision free protocols; Introduction to LAN technologies: Ethernet, Switched Ethernet, Fast Ethernet, Gigabit Ethernet; Token Ring; Introduction to Wireless LANs and Bluetooth;

UNIT – IV
Routing Algorithms: Flooding, Shortest Path Routing, Distance Vector Routing; Link State Routing, Hierarchical Routing; Congestion Control; Traffic shaping; Choke packets; Load shedding; Application Layer: Introduction to DNS, E-Mail and WWW services; Network Security Issues: Security attacks; Encryption methods; Firewalls; Digital Signatures;

TEXT BOOKS:
- Andrew S. Tanenbaum, "Computer Networks", Pearson Education.
- Michael A. Gallo, William M. Hancock, "Computer Communications and Networking Technologies", CENGAGE Learning.

REFERENCE BOOKS:
- Behrouz A Forouzan, "Data Communications and Networking", McGraw Hill.
- Bhushan Trivedi, "Computer Networks", Oxford