

**Swami Ramanand Teerth Marathwad University,
Nanded**

B.Sc Third Year
Computer Application (Optional)

(Semester Pattern)

(W.E.F. – June 2011)

| Paper No | Paper Title | Teaching Periods / week | Marks University Evaluation) | Marks (Internal Evaluation) | Total Marks | Total Periods | Duration of Examination |
|--|---|---------------------------|------------------------------|-----------------------------|-------------|-----------------------|-------------------------|
| Semester - V | | | | | | | |
| XII | Relational Database Management System and SQL-I | 03 | 40 | 10 | 50 | 40 | 03 Hours |
| Elective (any one) XIII-A | Programming In Visual Basic-I | 03 | 40 | 10 | 50 | 40 | 03 Hours |
| XIII-B | OR Programming In JAVA-I | 03 | 40 | 10 | 50 | 40 | 03 Hours |
| Semester - VI | | | | | | | |
| XIV | Relational Database Management System and SQL- II | 03 | 40 | 10 | 50 | 40 | 03 Hours |
| Elective (any one) XV-A | Programming In Visual Basic -II | 03 | 40 | 10 | 50 | 40 | 03 Hours |
| XV-B | OR Programming In JAVA-II | 03 | 40 | 10 | 50 | 40 | 03 Hours |
| Annual Practical Papers | | | | | | | |
| XVI | Computer Lab-4 (Annual Practical based on Paper XIII & XIV (RDBMS and SQL-I & II And Selected Elective Paper) | 01 Practical (03 Periods) | 50 | | 50 | 20 Minimum Practicals | 03 Hours |
| XVII | Computer Lab-5 (Project work) | 01 Practical (03 Periods) | 50 | | 50 | 20 Minimum Practicals | 03 Hours |

B.Sc. III rd Year
[Computer Application]
Semester-V
Paper No.- XII
Relational Database Management System and SQL-I
(Theory)

Periods-40

Marks – 50

1. Introduction to Managing Data

- Basic Database concepts
- What is Database?
- What is Database Management System?
- Concept of Relational Database.
- What is Relational Database Management System?
- Characteristics of Relational Database Management System
- Codd's rules for a fully functional Relational Database Management System
- Advantage and disadvantage of DBMS
- Concept of domain, Tuple, cardinality.

2. Normalisation

- What is Normalisation ?
- Advantage and disadvantage of Normalisation
- 1 NF- 2NF- 3NF- BCNF rules with examples.

3. Integrity Constraints and Concurrency Controls

- Entity-Domain-referential integrity rules.
- Assertion and triggers concept
- Problem's of concurrent transaction
- Control mechanism's such as locks
- Time stamp's
- Optimistic scheduling and MVT.

4. Distributed Database & Security

- What is Distributed Database?
- Data Distributed Techniques
- Concept of Security

5. Structured Query Language

- Concept of Data Definition, Data Manipulation & Data Query Language
- Introduction to SQL* plus

- SQL(Oracle) Data types
- Creation of table
- Creation of table from another table

Recommended Books

- Databases system concept by **Korth**
- Database management system by **Bipin Desai**
- Commercial application development using ORACLE Developer 2000 by **Ivan Byrass**
- Understanding the new SQL – A complete guide by Jim Melton, Alan Simon
- Principles of Database management system by James Martin

Elective- Select any one from Paper No- XIII (A) & XIII (B)

**B.Sc. III rd Year
[Computer Application]
Semester-V**

(Elective)

**Paper No.- XIII (A)
Programming in Visual Basic –I
(Theory)**

(Marks-50)

(Periods-40)

1. Visual Basic Fundamentals

- An Introduction to visual basic
- Menu bar, tool bar, project explorer, toolbox, property window
- Form layout window, project types
- Designing applications
- Working with forms and controls-the anatomy of forms
- Form properties, form events, form methods
- Working of MDI forms

2. Study of various controls

- Study of properties, events and methods for following controls
Command button, Textbox, Label control, Option button,
Check box, Frame, List box, Combo box, Image control,
Picture box, Scroll bars, Drive list, Directory list, File list,
Timer control, Designing menu structure
- Designing other controls and working with it

3. Visual basic programming

- Using variables and procedures
- Variables and constants
- Sub and function procedures
- Code modules
- The selection structure
- The If-Then-Else & Select Case statement
- The repetition structure
- For-Next, Do-while loops
- Sequential and random access files
- Variable arrays
- Library functions

4. Database design with Visual Basic

- Creating and modifying database
- Working with records and Fields
- Incorporating visual basic controls
- Accessing data with data control
- Using data access objects
- Concept of jet engine, ODBC, ISAM
- Loading access database, foxpro database

5. Object programming with visual basic

- Characteristics of objects
- Creation of objects
- Using the object browser
- Working with collection

Recommended Books

- Mastering Visual Basic- PBP Publication
- Peter Norton's guide to Visual Basic – Peter Norton
- Visual Basic 6 From the ground up by – Gary Cornell

Elective- Select any one from Paper No- XIII (A) & XIII (B)

**B.Sc. III rd Year
[Computer Application]
Semester-V**

Paper No.- XIII (B)

**Programming in JAVA –I
(Theory)**

(Marks-50)

(Periods-40)

1. Fundamentals of Object Oriented Programming

- Introduction
- Benefits of OOP
- Applications of OOP
- How it differs from other programming languages?

2. Introduction to JAVA language

- Constants and variables
- Data types used in JAVA
- Scope of Variables
- Symbolic Constants
- Type Casting
- Standard default values

3. Overview of JAVA program

- Simple of JAVA program
- Concept of classes
- Application with two classes
- JAVA program structure
- JAVA tokens
- JAVA Virtual Machine
- Programming style

4. Study of operators and Expressions

- Study of Arithmetic, Relational, Logical, Assignment operators
- Study of Increment & Decrement operators
- Study of Conditional, Bitwise, Special operators
- Precedence of operators
- Type conversion in expressions

- Mathematical functions

5. Conditional branching and looping statements

- Decision making with if statement
- If-else statement
- Nested if statement
- Switch statement
- The ?: operators
- While, do, for statement

6. Arrays

- Definition of Arrays
- One dimensional and multidimensional arrays
- Strings

Recommended Books

- Programming with Java a primer(2nd Edition) by E.Balguruswamy The Tata McGrew- Hill Publication
- Java Developers reference by Mike Cohn, Bryan Morgan et. AI Sams net

B.Sc. III rd Year
[Computer Application]
Semester-VI
Paper No.- XIV

Relational Database Management System and SQL-II
(Theory)

(Marks-50)

(Periods-40)

1. Inserting , Deleting & updating the contents of Table

- Inserting a single row of data into table
- Inserting data into table from another table
- Inserting of selected data into a table from another table
- Deletion of all rows from table
- Deletion of selected number of rows from table
- Updating the contents of table (UPDATE)

2. The Many faces of select command

- Global data extract
- Retrieval of specific columns from a table
- Elimination of duplicates from the Select statement
- Sorting of data in a table
- Selecting a data set from table data

3. Modify, remove, delete, dropping tables

- Adding new columns to table
- Modifying existing columns
- Restriction of the ALTER TABLE
- Removing the tables
- Deleting the tables
- Dropping the tables

4. Data Constraints

- Column level and table level constraint
- Null value concepts
- Foreign key, primary key, unique key, default value concept
- CHECK integrity constraints
- Defining and dropping integrity constraints on ALTER TABLE command

5. Manipulating dates in SQL

6. Grouping data from table in SQL

7. Joins

- Joining multiple table (Equi-joins)
- Joining a table to itself(self joins)

8. Union intersect and minus clauses

9. Indexes, Views and Sequences

- Creating an index for a table
- Dropping indexes
- Creation of views
- Using views(Visual Concept)
- Selecting a data set from a view
- Updateable views
- Destroying a view
- Creating sequences
- Referencing a sequence
- Altering a sequence
- Dropping a sequence

10. Granting Permissions

- Permission on the objects created by user
- Granting permissions using GRANT statement
- Object privileges
- With grant option
- Referencing a table belonging to another user
- Granting permissions to users when the granter has been given GRANT permission

Recommended Books

- Databases system concept by Korth
- Database management system by Bipin Desai
- Commercial application development using ORACLE Developer 2000 by Ivan Byrass
- Understanding the new SQL – A complete guide by Jim Melton, Alan simon
- Principles of Database management system by James Martin

Elective- Select any one from Paper No- XV (A) & XV (B)

**B.Sc. III rd Year
[Computer Application]
Semester-VI
Paper No.- XV-A
Programming in Visual Basic –II
(Theory)**

(Marks-50)

(Periods-40)

1. Using API's in Visual Basic

- API Fundamentals
- Introduction to Dynamic link library (DLL)
- Handles
- Bitmaps and graphics
- API functions
- System API functions

2. Building reports in Visual Basic

3. Active X controls

- Creating ActiveX controls
- Advanced database development
- Using dynamic link libraries (DLL's)
- Declaring and calling DLL's
- Additional DLL information

4. Building internet applications through visual basic

- Using the web browser control
- Creating active documents
- Creating dynamic hypertext language applications.

Recommended Books

1. Mastering Visual Basic- PBP Publication
2. Peter Norton's guide to Visual Basic – Peter Norton
3. Visual Basic 6 From the ground up by – Gary Cornell

Elective- Select any one from Paper No- XV (A) & XV (B)

**B.Sc. III rd Year
[Computer Application]
Semester-VI
Paper No.- XV-B
Programming in JAVA –II
(Theory)**

(Marks-50)

(Periods-40)

1. Classes, Objects, Methods and Interface

- Defining a class
- Adding variables and methods to class
- Creating Objects
- Accessing class members
- Constructors
- Methods overloading
- Static members
- Inheritance: Extending a class
- Overriding methods
- Final classes and finalizer methods
- Visibility controls
- Abstract method and classes
- Introduction to interface
- Defining interface
- Extending and implementing interfaces
- Accessing interface variables

2. Package: Putting classes together

- Introduction
- JAVA API packages
- Using system packages
- Naming convention
- Creating packages
- Accessing a package
- Adding class to a package
- Hiding classes

3. Multithreaded programming

- Introduction to threads
- Creating threads
- Extending the thread class
- Stopping and blocking a thread

- Life cycle of a thread
- Using thread method
- Thread Exceptions
- Thread priority
- Synchronization

4. Exception Handling

- Introduction
- Type of errors
- Exceptions
- Syntax for exception handling code
- Multiple catch statement
- Using Finally statement

5. Introduction to applet programming using Java

- Introduction to applet
- How applet differs from applications
- Preparing to write applets
- Applet life cycle

Recommended Books

- Programming with Java a primer(2nd Edition) by E.Balguruswamy The Tata McGrew- Hill Publication
- Java Developers reference by Mike Cohn, Bryan Morgan et. AI Sams net

B.Sc. III rd Year
[Computer Application]
(Practical Papers are Annual)

Paper No: XVI (Practical)
Comp.Lab-4

Annual Practical based on Paper No RDBMS and SQL- I & II & Selected Elective - At least 20 practical exercises

B.Sc. III rd Year
[Computer Application]
Paper No: XVII
Computer Lab-5
(Project Work)

About Project Work

- Maximum a group of 03 students are allowed to work on a project.
- Project Synopsis should be submitted by the students to their concern faculty also a declaration should be submitted by the students regarding the originality of work.
- Project report should prepared by the students & it should be certified by concern faculty & Head of the department.
- Students should submit one hardcopy of report to the department.

Distribution of marks for project is as

- | | |
|-----------------------|-----------|
| • Project Work | 30 |
| • Project Viva | 10 |
| • Project Report | 10 |
| Total Marks: - | 50 |