

**NIZAM COLLEGE
(AUTONOMOUS)**

**OSMANIA UNIVERSITY
HYDERABAD – 500 001**

**B.Sc.
COMPUTER SCIENCE SYLLABUS
(w.e.f from AY – 2018-19)**



**Department of Physics
Nizam College (Autonomous)
Osmania University
Hyderabad – 500 001**

w.e.f. AY 2018-19
B.Sc.(Computer Science Syllabus)
(w.e.f. AY 2018-19)
Course Structure

Theory			Practicals			
Sem.	Paper	Title	No. of hours/ week	Total No. of hours	Lab. work	No.of hrs/ week
I	1	Programming Methodology (C - Language)	4	48	C – Programs	3
II	2	Object Oriented Programming (C++)	4	48	C++ - Programs	3
III	3	Data Structures	4	48	DS Programs (using C/C++)	3
IV	4	Operating Systems, Computer Orgn & Networking	4	48	Shell Programs	3
V	5	Java Programming)	3	36	Java Programs	3
V	6	SAD & Internet Prog (SAD,HTML,VBScript & ASP) (Elective – I)	3	36	Html Prog VBScript & ASP Programs	3
		Office Automation Tools & OS (Elective – II)	3		Programms on Office Automation	3
VI	7	DBMS Pracs. & Project-Plan	3	36	DBMS – SQL –	3
VI	8	RDBMS & VB (Elective – I)	3		VB Practicals & Project execution	3
		Python Programming (Elective – II)	3	36	Software lab using python	3

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B.Sc. COMPUTER SCIENCE SYLLABUS
(w.e.f. from AY 2018-19)

I SEMESTER
Paper – 1
Programming Methodology (C - Language)
(48 hours @ 4 hrs per week)

UNIT – I Introduction (14 hours)

Introduction to C Programming language-historical development, what is c, where c stands-C preprocessor-features of C-preprocessor.

C programming language concepts-character set, variables and constants, datatypes, Arithmetic, relational and logical operators and their hierarchy and associativity- expressions and statements. control statements - if-else and else-if. Switch. Loops -while, for, do-while and break, exit and continue statements, goto and labels.

UNIT – II Functions and Arrays (12 hours)

Functions –What is a function, uses of functions, function prototypes, passing parameters, standard library functions and user-defined functions, types of functions, Recursive functions, uses of Recursive functions.

Arrays – Introduction, declaration and processing of array- types of arrays, passing arrays as parameters to functions- programs such as Bubble Sort, Linear Search, Matrix Multiplication, addition and Transpose of a Matrix using arrays and functions.

Unit III Strings and Pointers (10 hours)

String manipulation –Introduction, declaration, initialization and basic string functions with examples.

Pointers-Introduction, declaration and uses of pointers - pointer arithmetic- Macro Expansion-macro with arguments.

Dynamic Memory allocation- Malloc, Calloc, Realloc functions- array manipulation using pointer notation, pointers and function arguments.

UNIT-IV Structures, Unions and Files (12 hours)

Structures and Unions – Introduction, declaration and processing - difference between structures, arrays and unions. Structures and functions - Pointers to structures - typedef.

FILES: I/O and file system defining, opening and closing a file- file commands - input/output operations on files.

Practicals: @ 3 hours per week.

C-Programs using the Turbo C Compiler covering the concepts given in Appendix – I.

Suggested reading:

1. Programming with C : E.Balaguruswamy (TMH)
2. Programming using C language –Venugopal
3. Programming using C language- Byron Gottfried McGraw Hill (Schaum's series)
4. Let us C –Yashwanth Kanetker

II SEMESTER
Paper – 2
OBJECT ORIENTED PROGRAMMING (C++)
(48 hours @ 4 hrs per week)
(w.e.f. from AY 2018-19)

UNIT–I OOP Basics, C++ Basics, Functions (12 hours)

OOP:- paradigm, comparison with procedure oriented programming(POP)-basic concepts, benefits, OOP languages, applications.

C++ :- Introduction, applications, example program, Tokens, data types, constants, operators, precedence, associativity, expressions, type conversions, Control Structures, Arrays, Strings, Pointers.

Functions:-Introduction, prototype, reference variables, value and reference address parameters, inline functions, default arguments, const arguments, function overloading, passing arrays to functions.

UNIT–II Classes, Dynamic Objects and Operator overloading (12 hours)

Classes - Introduction, specification, class objects, accessing class members, defining member functions, access specifiers, pointers in a class, passing objects as arguments, returning objects from functions, memory allocation for objects, static data members, static member functions- public, private & protected data members, and member functions, array of objects, friend functions, friend classes, dynamic memory allocation.

Constructors - default, parameterized, multiple constructors - constructors with default arguments - dynamic initialization of objects, copy constructor, dynamic constructor, Destructors.

Dynamic Objects:- Introduction, pointers to objects, creating and deleting dynamic objects, pointers to object members, this pointer.

Operator Overloading - Introduction, operator function, overloading unary, binary operator, overloading binary operators using friend function, rules for overloading operators - Type Conversion.

UNIT–III Inheritance, Polymorphism, C++ Streams (12 hours)

Inheritance - Introduction, base class and derived class, types of Inheritance(single, multiple, hierarchical, multilevel, hybrid and multipath inheritance), overriding base class members, public, protected and private inheritance, constructors and destructors in derived classes, Virtual base classes, abstract class, usage, benefits and costs of inheritance.

Polymorphism - pointers to derived classes, virtual functions, rules for virtual functions, pure virtual function.

C++ Streams:-stream classes, unformatted I/O operations, formatted I/O operations, manipulators.

UNIT-IV Templates, Files and Exception Handling (12 hours)

Templates-class templates and class templates with multiple parameter, function template and function template with multiple parameters, overloading template functions, member function templates, non-type template arguments.

Files Introduction, opening and closing, detecting end of file, file modes, file pointers, sequential I/O operations, updating a file random access.

Exception Handling-basics, exception handling mechanism, throw, catch, rethrowing exception, specifying exception.

Practicals : @ 3 hours per week.

C ++ Programs using the Turbo C ++ Compiler covering the concepts given in Appendix – I.

Suggested Reading:

1. Mastering C++: Venugopal, Sudarshan
2. Object Oriented Programming with C++: E Balaguruswamy (TMH)

III SEMESTER
Paper – 3
DATA STRUCTURES
(48 hours @ 4 hours Per week)
(w.e.f. from AY 2018-19)

UNIT – I Introduction (12 hours)

Introduction to data structures- types of data structures – liner & non linear structures, examples -Arrays- operations such as insertion, deletion, searching- traversing - combining arrays – representation of stacks and queues using arrays - programs.

Stack Applications - Infix, Postfix, Prefix concepts, converting algebraic expressions from infix to postfix, infix to prefix - string manipulation.

UNIT - II Linked Lists (12 hours)

Linked Lists- dynamic storage management – types of lists - Single, double and circular Linked lists - creation of single and double linked list, operations like insertion, deletion, traversing - representation of stacks and queues using single linked lists – programs.

UNIT III Trees (12 hours)

Trees – Binary tree – definition – terminology. Tree traversal – in-order, pre-order, post-order, creation and traversal of binary tree – programs.

UNIT IV Graphs (12 hours)

Graphs – Representation of a graph, graph traversal, depth-first and breadth-first - concepts.

Sorting -types of sorting - bubble, selection, insertion, merge, quick - programs - heap sort – differences between sort techniques.

Searching – linear and binary search – programs using arrays.

Practicals : @ 3 hours per week.

Programs in Data Structures using C/C ++ language using the Turbo C ++ Compiler covering the concepts given in Appendix – I.

Suggested Reading:

Data Structures using C and C++, Aaron M Tenenbaum , PHI

Data structures: Seymour, Lipschutz , Schum's Series, McGraw Hill

Data Structures using C++ - Sahani

Data Structures using C++ - Yashwanth Kanetker.

IV SEMESTER
paper – 4
Operating Systems, Computer Organisation and Networks
(48 hours @ 4 hrs per week)
(w.e.f. from AY 2018-19)

UNIT I Fundamentals of OS (12 hours)

Operating System – Introduction, what is an OS, History, OS Concepts, structure of OS, Functions of OS.
 Process management – Introduction to Process, process Model, Implementation of process.
 Memory Management – Swapping, Paging – Page replacement Algorithms, Virtual Memory.
 File System- Files.
 Input – Output - Principles of Input- Output, Input –Output Software.

UNIT II UNIX OPERATING SYSTEM (12 hours)

Introduction to Unix operating system - Salient features of UNIX - Unix system organizations -Types of shells – sh , ksh , rsh, csh-Unix commands- UNIX file system- Redirection & piping.
 Vi-Editor - Mode of operation - Block commands - Find and replace, search, delete, yank and paste- Command line options in vi.
 Shell Programming - First step to shell programming including if-else structure, loop control structure.

Unit III COMPUTER ORGANISATION (12 hours)

Introduction to computers - history of computer generations – Block diagram of a computer-CPU-Memory - ROM , RAM, Input/Output Devices.
 Computer system- bus interconnection, internal memory, cache, external memory – magnetic tapes and disks, optical memory.
 Input/Output – External devices – programmed I/O, Interrupt-driven-I/O, DMA
 CPU – structure, processor, register organization, instruction cycle, instruction sets, instruction formats - addressing modes.

UNIT IV NETWORKS (12 hours)

Introduction to Data Communication-Basic concepts of networking hardware, protocols
 OSI Reference Model, TCP/IP.
 Interfaces–DTE,DCE-Interfaces.
 Types of Signals, Analog & digital data transmission, Modems, Transmission media.

Practicals : @ 3 hours per week.

Shell Programs using Unix operating system covering the concepts given in Appendix – I.

Suggested Reading:

1. Operating System – Modern Operating System – Andrew.S Tenenbaum
2. Unix – Shell Programming in Unix – Yashwanth Kanitker
3. Networks - Data Communication and Networks - Behrouz Forouzan
4. Computer Organization and Architecture – William Stallings

V SEMESTER
Paper - 5
Java Programming
(36 hours @ 3 hrs per week)
(w.e.f. from AY 2018-19)

Unit I Java Genesis & overview, Classes (8 hours)

Java Genesis-creation of java, java's importance, to the Internet, java's bytecode, java buzzwords. Java Overview- OOP, OOP principle, a first simple program, datatypes (Integers, floating-point, characters, Boolean), variables, type casting(automatic, explicit), arrays, Operators (arithmetic, bitwise, relational, logical, assignment, conditional), operator precedence, control statements-selection (if, switch), iteration (while, do...while, for), jump statements (break, continue, return). Classes-fundamentals, objects, object reference variable, method, method overloading, constructors, overloading constructors, this keyword.

UNIT II Inheritance, Package, Interface, Exception handling (10 hours)

Inheritance-basics, using super keyword, multilevel hierarchy, constructors, method overriding, Dynamic Method Dispatch, abstract classes, final keyword.

Packages-introduction, access protection, importing packages.

Interfaces-defining and implementing interfaces, applying interfaces, variables in interfaces, Extending interface.

Exception Handling - fundamentals, exception types, using try and catch, multiple catch clauses, nested try statements, throw, throws, finally, java's built-in exception.

UNIT III: AWT (12 hours)

Applet-applet tag, applet life cycle methods, drawing graphics in applet.

Event Handling- delegation event model, event classes, sources of events, event listener interfaces, Action Listener interface, Mouse Listener interface.

AWT-Introduction, AWT classes, adding controls to applets: text field, labels, buttons.

Layout Managers-border, flow, grid, gridbag, card.

Frame-creating frame windows.

UNIT IV JDBC and Servlets (8 hours)

JDBC-basics, drivers, type of statements(statement, prepared statement, callable statement), create table, insert records, select, update record, delete record.

Servlet-Introduction, life cycle, a simple servlet, servlet API, HTTP get and post methods,

Cookies, session tracking, using JDBC in servlets.

Practicals: @ 3 hours per week.

Java Programs using Java Development Kit (JDK) 1.4 covering the concepts given in Appendix – I.

Suggested Reading:

1. The Complete Reference Java2 – Herbert Schildt (third edition)
2. Java2 Programming Black Book—Steven Holzner (dreamtech press)

V SEMESTER
Paper – 6 (Elective I)
SYSTEM ANALYSIS DESIGN AND INTERNET PROGRAMMING
(36 hours @ 3 hrs per week)
(w.e.f. from AY 2018-19)

Unit I System Analysis and Design (10hours)

Introduction to SAD - Model of a system, System Development Life Cycle(SDLC)-Tools of Analysis – Data flow diagrams (DFD) – Symbols, drawing DFD's with Examples, Physical and logical DFD's - examples using DFDs, Decision Trees, Decision Tables and Data Dictionaries -
 Structured Design - Qualities of a good design. Modularity - cohesive and coupling properties.
 Structured Charts-Top Down and Bottom Up Methods.

Unit II HTML (8 hours)

Introduction To HTML - HTML elements - tags and attributes - head, base, meta, title, script and styles – body of html - paragraph div, hr, br.
 Lists - UL and OL. Nested lists, Images - types of format - inserting images - attributes. Tables - table rows, table data, cell and its attributes - table attributes - column span, row span, Style Sheets, Hypertext Anchors - links to objects.

Unit III VB SCRIPT (8 hours)

VB Script Variables, Operators. Control Structures - if then else.
 Loops in VB Script - for next, do –while, while. Identifiers, Objects, Properties, Methods & Events in VB Script. VB Script functions with Examples.

UNIT IV ASP (12 hours)

Introduction to ASP, Introduction to IIS, Global.asa file.
 Cookies- Working with cookies, Purpose of cookies, Application of cookies.
 Application object-Methods, lock, Unlock, Events- OnEnd, OnStart.
 Session Objects-Properties-SessionId, Timeout, Methods-Abandon.
 Request Object -Collections -Query String, Form, Cookies and Server Variables.
 Response Object- Methods–write, redirect, Collections, cookies, Properties-expires.
 Server Object- Methods-Create object, Execute, Map-Path.

Practicals : @ 3 hours per week.

HTML, VB script, ASP Programs covering the concepts given in Appendix – I.

Suggested Books:

1. **System Analysis and Design** E.M. Awad (Galgotia)
2. **HTML Black Book**—Steven Holzner
3. **VBScript**-- Techmedia
4. **Mastering Active Server Pages**-A.Russell Jones

V SEMESTER
PAPER – 6 (Elective-II)
Office Automation Tools & OS
(36 hours @ 3 hrs per week)
(w.e.f. from AY 2018-19)

UNIT - I

Introduction to open office/MS office/Libre office (2L)

Word Processing: Formatting Text, Pages, Lists, Tables (6L)

UNIT - II

Spreadsheets: Worksheets, Formatting data, creating charts and graphs, using formulas and functions, macros, Pivot Table (5L)

Presentation Tools: Adding and formatting text, pictures, graphic objects, including charts, objects, formatting slides, notes, hand-outs, slide shows, using transitions, animations (3L)

UNIT - III

Linux (8L)

- Basics of operating system, services,
- What is linux Operating systems, Kernel, API, cli, gui,
- Difference between linux and other operating systems
- Features and Architecture
- Linux features, advantages, disadvantages

UNIT - IV

Windows (8L)

- Windows as operating system, history, versions.
- PC hardware, BIOS, Devices and drivers,
- Kernel Configuration and building
- Server services and Client services
- Difference between WindowsXP/windows7 and windows server 2003/2008

Books Recommended:

1. Aileen Frisch , Essential System Administration: Tools and Techniques for Linux and Unix O'Reilly Media,2002
2. Mark G. Sobell, A Practical Guide to Linux, Addison Wesley, 1997
3. Tom Adelstein, Bill Lubanovic, Linux System Administration, O'Reilly Media,2007
4. Tom Carpenter, Microsoft Windows Operating System Essentials , John Wiley,2012

VI SEMESTER
Paper – 7
DBMS
(36 hours @ 3 hours Per week)
(W.e.f. from AY 2018-19)

UNIT I: INTRODUCTION TO DATA BASE (8 hours)

Database Environment - Basic Concepts and definitions, File processing System, Advantages of Database approach, Components of Database Environment.

Data Development Process – database Development with in Information Systems Development - Database Development process, Three Schema Architecture for Database development - Three- Tier database location Architecture.

UNIT II MODELLING THE DATA BASE (8 hours)

Modeling Data in the Organization -Modeling the rules of organization, The E-R Model , E-R Model

Constructs, Relationships- the Enhanced E-R Model- Representing Super types and Sub types - Specifying Constraints in Super Type/Sub Type relationship.

UNIT III LOGICAL DATA BASE DESIGN (8 hours)

Logical Database Design and Relational Model - The Relational Data model, Integrity Constraints,

Transforming EER – Diagrams into relations, Introduction to Normalisation, The basic Normal Forms, BCNF, 4NF.

Physical Database Design and performance - Physical Database Design process, Designing fields, Designing physical records and Denormalisation, Designing physical files, Using and selecting Indexes, Designing Databases.

UNIT IV SQL (8 hours)

SQL - The SQL Environment, Defining the Database in SQL, Inserting , Updating and Deleting Data, Internal Schema Definition in RDBMS, Processing Single Tables, Processing Multiple Tables, Ensuring Transaction Integrity, Data Dictionary Facilities.

SQL-99 enhancements and extensions to SQL.

Create student, bank, tables. Create library information, insert, delete, update, alter and modify student, bank and library data.

Practicals: @ 3 hours per week.

SQL Programs covering the concepts given in Appendix – I.

Suggested reading:

Modern Database Management Systems-- Jeffery Hoffer, Mc Fadden, Mary B. Prescott.

2. Database system concepts – H.F. Korth

VI SEMESTER
Paper – 8 (Elective – I)
Visual Programming And RDBMS
(36 hours @ 3 hours Per week)
(w.e.f. from AY 2018-19)

- UNIT I: Visual Programming (10 hours)
 Visual Basic - Introduction to Visual Basic, GUI, IDE.
 Types of Variables - public and private variable - declaration of variables.
 Control Statements - if, if-else, goto.
 Loops – with - endwith, for-next, do-while, while - wend, do-until etc.
 Creating user interfaces with windows common Controls - labels - textbox - command button - combo box, list box, check box, option button - scroll box(horizontal/vertical) etc.
- UNIT II Data Connectivity and Active X Control (10 hours)
 Data Bound Controls - DB combo, DB list, DB grid, MS flex grid.
 Access methods such as Data Access Objects (DAO), Remote Data Objects (RDO), Active Data Objects (ADO) - crystal (Data) reports.
 Active X Controls. Reports – Crystal Reports.
- UNIT III The Client/Server Database Environment (8 Hours)
 Client/Server Architectures, III Tier Architectures, Partitioning and Application,
 Role of the Main Frame using parallel computer architectures, Using middleware, Establishing client server security, Client Server Issues.
- UNIT IV Data and Database Administration (8 hours)
 The roles of data and database administrators, Modelling Enterprise Data, Planning for Databases, Managing Data security, Backing-up Databases, Controlling concurrent access , Managing Data Quality, Data Dictionaries and repositories, Overview of Tuning the database for performance.
Practicals : @ 3 hours per week.
 VB Programs covering the concepts given in Appendix – I.

Suggested reading

Mastering VB, BPB Publications.

2. Visual Basic 6.0 , Julia Case Bradley, Anitha

3. Modern Database Management Systems-- Jeffery Hoffer, Mc Fadden, Mary B. Prescott.

VI SEMESTER
PAPER – 8(Elective – II)
Python Programming
(36 hours @ 3 hrs per week)
(w.e.f. from AY 2018-19)

UNIT – I

Overview of Programming : Structure of a Python Program, Elements of Python (4L)

Introduction to Python: Python Interpreter, Using Python as calculator, Python shell, (4L)

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 - II

Creating Python Programs :Input and Output Statements, Control statements(Branching, (8L)

Looping, Conditional Statement, Exit function, Difference between break, continue and pass.), Defining Functions, default arguments, Errors and Exceptions.

UNIT - III

Iteration and Recursion: Conditional execution, Alternative execution, Nested conditionals, (8L)

The return statement, Recursion, Stack diagrams for recursive functions, Multiple assignment, The while statement, Tables, Two-dimensional tables

UNIT - IV

Strings and Lists: String as a compound data type, Length, Traversal and the for loop, String slices, (8L)

String comparison, A find function, Looping and counting, List values, Accessing elements, List length, List membership, Lists and for loops, List operations, List deletion. Cloning lists, Nested lists

Books and Study Material Recommended:

1. P. K. Sinha & Priti Sinha , “Computer Fundamentals”, BPB Publications, 2007.
2. Dr. Anita Goel, Computer Fundamentals, Pearson Education, 2010.
3. T. Budd, Exploring Python, TMH, 1st Ed, 2011
4. Python Tutorial/Documentation www.python.org
5. Allen Downey, Jeffrey Elkner, Chris Meyers.How to think like a computer scientist learning with Python / 1st Edition,2012 – Freely available online.
6. <http://docs.python.org/3/tutorial/index.html>
7. <http://interactivepython.org/courselib/static/pythonds>
8. <http://www.ibiblio.org/g2swap/byteofpython/read/>

APPENDIX - I
I SEMESTER

Paper – 1(C - Language Practicals)
(3 hours per week.)

List of C Programs using Turbo C compiler covering the following concepts:-

Practice on few Dos commands.

Simple programs on data types.

Input / Output statements.

Various Control statements.

Programs on all loops.

Programs on break and exit statement.

Programs using functions.

At least same five Programs using iteration and Recursive Functions using concepts like –factorial, Fibonacci, sum of n-numbers, displaying array elements using recursive functions, display first n numbers.

Arrays (Matrix operations).

Pointers and structures.

Program on typedef.

12. Handling array elements using pointers.

13. Swapping of two numbers using pointers and a function.

14. Sorting of an array using pointers and functions.

15. Pointer Arithmetic.

16. Sorting and array of structures.

17. Passing of individual elements of a structure to a function

18. Passing an entire structure to function.

19. Structures-Arrays-Pointers.

II SEMESTER

Paper – 2 (C++ - Practicals)

(3 hours per week)

List of C++ Programs using Turbo C++ compiler in the following concepts (USING CLASSES):-

Data types, Operators

Selection statements

Iteration statements

Pointers

Call by value, Reference and Address

Inline Function

Function Overloading

Passing 1-D & 2-D arrays to functions

Classes

Constructors, Destructors

Static Members

Friend Function, Friend Class

Dynamic Memory Allocation using new and delete

Pointer to object

Overloading unary operator, Overloading binary operators

Overloading binary operators using Friend function

Single and Multilevel Inheritance, Multiple Inheritance, Hierarchical Inheritance

Constructors and Destructors in derived classes

Virtual Function

Class Template, Function Template

Sequential access, random access

Reading and Writing class objects

III SEMESTER
Paper – 3(DATA STRUCTURES – Practicals)
(3 hours per week.)

List of Data Structure Programs using Turbo C++ and C/C++ language compiler in the following concepts (USING CLASSES) :-

1. Operations on Arrays - insertion, deletion, traversal, searching.
2. Implementation of Stacks and Queues (using Arrays).
3. Implementation and operations on single linked lists & double linked lists (Use structures).
4. Operations on stack using linked lists.
5. Operations on queue using linked lists.
6. Binary tree (creation and traversal using recursive procedure)
7. Programs on Sorting techniques
8. Programs on Searching techniques
9. Infix to Postfix, Infix to prefix

IV SEMESTER

Paper – 4(Shell Programming Practicals)
(3 hours per week.)

List of Shell Programs using Unix OS in the following concepts :-

1. Unix Commands
2. Pipes and Filters
3. Redirection
4. Vi – editor commands
5. Shell Programs Using selection structure
6. Shell Programs Using loops
7. Execution of the following C programs in Unix

Factorial program

Fibonacci program

Prime number

Input and output to a file

Student marks average

V SEMESTER
Paper – 5(Java - Practicals)
(3 hours per week.)

List of Java Programs using JDK 1.4 in the following concepts:-

simple applications

data types, arrays, operators

selection statement, iteration statement

classes, method overloading

constructor overloading

static, final

strings, user input

Inheritance

method overriding

dynamic method dispatch

Packages, Interfaces, Exception Handling

Applet, frame

layout managers(border, flow, grid)

JDBC : create table, insert, select, update, delete records

Servlet, DB interaction using servlets

Paper – 6(Elective-I)
Internet Programming (HTML, VBScript, ASP Practicals)
(3 hours per week.)

List of Programs in the following concepts:-

HTML

HTML elements, tags and attributes

Head, base, meta

Styles, body, paragraph

lists, images, tables, anchors

style sheets

VB Script

Variables, Arrays, Control Structure

Loops, Objects

Methods, events

properties

ASP

1. Programs on Response object
2. Program on Request objects
3. Program on Session Object
4. Program on Application object
5. Programs on User interaction with form elements
6. Create a cookie

PAPER – 6 (Elective-II)

Office Automation Tools & OS

(36 hours @ 3 hrs per week)

(w.e.f. from AY 2018-19)

Computer Lab Based on Office Automation:

Practical List for Text Editor:

1. Create a telephone directory.

- The heading should be 16-point Arial Font in bold
- The rest of the document should use 10-point font size
- Other headings should use 10-point Courier New Font.
- The footer should show the page number as well as the date last updated.

2. Design a time-table form for your college.

- 3• The first line should mention the name of the college in 16-point Arial Font and should be bold.
- The second line should give the course name/teacher's name and the department in 14-point Arial.
- Leave a gap of 12-points.
- The rest of the document should use 10-point Times New Roman font.
- The footer should contain your specifications as the designer and date of creation.

4. Create the following one page documents.

- (a) Compose a note inviting friends to a get-together at your house, including a list of things to bring with them.
- (b) Design a certificate in landscape orientation with a border around the document.

5. Create the following document: A newsletter with a headline and 2 columns in portrait orientation, including at least one image surrounded by text.

6. Convert following text to a table, using comma as delimiter

Type the following as shown (do not bold).

Color, Style, Item

Blue, A980, Van

Red, X023, Car

Green, YL724, Truck

Name, Age, Sex

Bob, 23, M

Linda, 46, F

Tom, 29, M

7. Prepare a grocery list having four columns (Serial number, the name of the product, quantity and price) for the month of April, 06.

- Font specifications for Title (Grocery List): 14-point Arial font in bold and italics.
- The headings of the columns should be in 12-point and bold.
- The rest of the document should be in 10-point Times New Roman.
- Leave a gap of 12-points after the title.

9. Enter the following data into a table given on the next page.

Salesperso	Dolls	Trucks	Puzzles
n			
Amit	1327	1423	1193
Shivi	1421	3863	2934
Om	5214	3247	5467
Ananya	2190	1278	1928
Anupama	1201	2528	1203
Maharshi	4098	3079	2067

Add a column Region (values: S, N, N, S, S, S) between the Salesperson and Dolls columns to the given table

Sort your table data by Region and within Region by Salesperson in ascending order:

Practical List for Spreadsheet

Q1. Create a student worksheet containing roll numbers, names and total marks. Open a document in Word and insert the excel worksheet using:-

- i) Copy/Paste
- ii) Embedding
- iii) Linking

Q2. The term wise marks for APS class of 20 students are stored in 3 separate sheets named term1, term2 and term3. Create 4th worksheet that contains student names and their total and average marks for the entire year. Give proper headings using headers. Make the column headings bold and italic. The 4th worksheet should contain college name as the first line. Make it bold, italic and center it.

Q3. Consider the following employee worksheet:-

Full Name (First Last)	Grade	Basic 1/2/3	HRA	PF	Gross Salary	Net Vehicle	(VA) Allowance
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HRA is calculated as follows:

Grade	HRA % (of Basic)
1	40%
2	35%
3	30%

Gross = Basic + HRA + VA

Net = Gross – PF

PF is 8% for all Grades

VA is 15000, 10000 and 7000 for Grades 1, 2 and 3.

- i) Find max, min and average salary of employees in respective Grade
- ii) Count no. of people where VA>HRA
- iii) Find out most frequently occurring grade.
- iv) Extract records where employee name starts with “A” has HRA>10000
- v) Print Grade wise report of all employees with subtotals of net salary and also grand totals. Use subtotal command.
- vi) Extract records where Grade is 1 or 2 and salary is between 10000 and 20000 both inclusive.

Q4. Plot the chart for marks obtained by the students (out of 5) vs. frequency (total number of students in class is 50).

Q5. Create the following worksheet(s) containing an year wise sale figure of five salesmen in Rs.

Salesman	2002	2003	2004	2005
MOHAN	10000	12000	20000	50000
MITRA	15000	18000	50000	60000
SHIKHA	20000	22000	70000	70000
ROHIT	30000	30000	100000	80000
MANGLA	40000	45000	125000	90000

Apply the following Mathematical & Statistical functions:

- i) Calculate the commission for each salesman under the condition :-
 - a) If total sales is greater than Rs. 3, 00,000/-, then commission is 10% of total sale made by the salesman.
 - b) Otherwise, 4% of total sale.
- ii) Calculate the maximum sale made by each salesman.
- iii) Calculate the maximum sale made in each year.
- iv) Calculate the minimum sale made by each salesman.
- v) Calculate the minimum sale made in each year.
- vi) Count the no. of sales persons.

Q10. Consider the following worksheet for APS 1st year students:-

S.No.	Name	PH	CH	BY	MT	CS	Total Marks	%	Grade
1									

Grade is calculated as follows:-

- If % >=90 Grade A
- If % >=80 & <90 Grade B
- If % >=70 & <80 Grade C
- If % >=60 & <70 Grade D

Otherwise students will be declared fail.

- i) Calculate Grade using if function
- ii) Sort the data according to total marks
- iii) Apply filter to display the marks of the students having more than 65% marks.
- iv) Draw a pie chart showing % marks scored in each subject by the topper of the class.
- v) Draw the doughnut chart of the data as in (iv)
- vi) Enter the S.No. of a student and find out the Grade of the student using VLOOKUP.
- vii) Extract all records where name
 - a) Begins with "A"
 - b) Contains "A"
 - c) Ends with "A"

Practical List for presentation:

1. Create five Power point slides. Each slide should support different format. In these slides explain areas of applications of IT. Make slide transition time as 10 seconds.
2. Create five Power Point slides to give advantages/disadvantages of computer, application of computers and logical structure of computer.
3. Create five Power Point slides detailing the process of internal assessment. It should be a self running demo.

VI SEMESTER
Paper – 7 (DBMS -SQL Practicals and project planning)
(3 hours per week.)

List of SQL Queries using Oracle 8i in the following concepts:-

DDL Commands, DML Commands, DCL Commands

Integrity Constraints, Joins

Creation of Project Tables

Creation of Project E-R Diagrams

VI SEMESTER
Paper – 8 (Elective-I)
(Visual Basic Practicals and Project Execution)
(3 hours per week.)

List of Visual Basic 6.0 programs in the following concepts:-

1. VB Simple Programs

2. Controls, Forms, DB Controls

DB Connectivity using ADO'S, DAO'S, RDO's

Active X Controls

Reports Generation

8 . Project Execution : Project Forms, Connectivity to Database, Report Generation, Demo

VI SEMESTER
Paper – 8 (Elective-II)
Software Lab using Python:

Section: A (Simple programs):

1. Write a menu driven program to convert the given temperature from Fahrenheit to Celsius and vice versa depending upon user's choice.
2. WAP to calculate total marks, percentage and grade of a student. Marks obtained in each of the three subjects are to be input by the user. Assign grades according to the following criteria :

Grade A: Percentage ≥ 80

Grade B: Percentage ≥ 70 and < 80

Grade C: Percentage ≥ 60 and < 70

Grade D: Percentage ≥ 40 and < 60

Grade E: Percentage < 40

3. Write a menu-driven program, using user-defined functions to find the area of rectangle, square, circle and triangle by accepting suitable input parameters from user.
4. WAP to display the first n terms of Fibonacci series.
5. WAP to find factorial of the given number.

Section: B (Visual Python):

(All the programs should be written using user defined functions, wherever possible.)

1. Write a menu-driven program to create mathematical 3D objects
 - I. curve
 - II. sphere
 - III. cone
 - IV. arrow
 - V. ring
 - VI. Cylinder.
2. WAP to read n integers and display them as a histogram.
3. WAP to display sine, cosine, polynomial and exponential curves.
4. WAP to plot a graph of people with pulse rate p vs. height h. The values of p and h are to be entered by the user.