GOVERNMENT DEGREE COLLEGE FOR WOMEN BEGUMPET
(AUTONOMOUS)

CHOICE BASED CREDIT SYSTEM
(CBCS)

SYLLABUS

For

B. Sc(Computer Science)
Under Graduate Program

PROGRAM OUTCOME

1. An ability to apply knowledge of computing and mathematics appropriate to the program's student outcomes and to the discipline. An ability to analyze a problem, and identify and define the computing requirements appropriate to its solution.

2. An ability to design, implement, and evaluate a computer-based system, process, component, or program to meet desired needs.

3. An ability to function effectively on teams to accomplish a common goal.

4. An understanding of professional, ethical, legal, security and social issues and responsibilities. An ability to communicate effectively with a wide range of audiences.

5. An ability to analyze the local and global impact of computing on individuals, organizations, and society.

6. Recognition of the need for and an ability to engage in continuing professional development.

7. An ability to use current techniques, skills, and tools necessary for computing practice.

8. An ability to apply mathematical foundations, algorithmic principles, and computer science theory in the modeling and design of computer-based systems in a way that demonstrates comprehension of the tradeoffs involved in design choices.

9. An ability to apply design and development principles in the construction of software systems of varying complexity.

PROGRAMME SPECIFIC OUTCOME

1. Ability to apply the knowledge gained during the course of the program from Mathematics, Basic Computing, Basic Sciences and Social Sciences in general and all computer science courses in particular to identify, formulate and solve real life complex engineering problems faced in industries and/or during research work with due consideration for the public health and safety, in the context of cultural, societal, and environmental situations.

2. Ability to provide socially acceptable technical solutions to complex computer science engineering problems with the application of modern and appropriate techniques for sustainable development relevant to professional engineering practice.

3. Ability to apply the knowledge of ethical and management principles required to work in a team as well as to lead a team. Ability to comprehend and write effective project reports in multidisciplinary environment in the context of changing technologies.

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(AUTONOMOUS)

BEGUMPET, HYDERABAD

DEPARTMENT OF COMPUTER SCIENCE & APPLICATIONS

ALLOCATION OF CREDITS

S.No	Semester	Nature of Module	Name of Module	Hours	Max. Marks	Credits
1	Paper-I(A)	Core -1	PROGRAMMING IN C	4	100	3
2	Practicals		PROGRAMMING IN C	3	50	1
3	Paper-I(B)	Core - 2	PROGRAMMING IN C++	4	100	3
4	Practicals		PROGRAMMING IN C++	3	50	1
5	Paper-II(A)	Core - 3	OOPs with JAVA	4	100	3
6	Practicals		OOPs with JAVA	3	50	1
7	Paper-II(B)	Core - 4	JAVA WITH DS	4	100	3
8	Practicals		JAVA WITH DS	3	50	1
9	Paper-III(A)	Core- 5	MDBMS-I	4	100	3
10	Practicals		SQL	3	50	1
11	Paper-IV(A)	Advanced – 1 Elective – 1 or Elective - 2	WEB TECHNOLOGIES-I Or OPERATING SYSTEM-I	4	100	02*
12	Practical		WEB TECHNOLOGIES-I Or OPERATING SYSTEM-I	3	50	1
13	Paper-III(B)	Core- 6	MDBMS-II	4	100	3
14	Practical		PL/SQL	3	50	1

15	Paper-IV(B)	Advanced – 2 Elective – 1 or Elective - 2	WEB TECHNOLOGIES- II Or OPERATING SYSTEM-II	4	100	02*
16	Practical		WEB TECHNOLOGIES- II Or OPERATING SYSTEM-II	3	50	1
17	PROJECT WORK					1
18	Trans Disciplinary		Web Designing (Sem-III & IV)	1	50	2

Government Degree College for Women Begumpet, Hyderabad-500016

(An Autonomous college of Osmania University)
Re-Accredited by NAAC with 'B+' Grade
B.SC I Year Examination
Semester – I
Subject: Computer Science
Paper- I–Programming in C

Theory	4 Hours/Week	4 credits

COURSE CODE:CS101

Course Outcome

1. Able to implement the algorithms and draw flowcharts for solving Mathematical and Engineering problems.

2. Demonstrate an understanding of computer programming language concepts. To be able to develop C programs on Linux platform.

3. Ability to design and develop Computer programs, analyzes, and interprets the concept of pointers, declarations, initialization, operations on pointers and their usage.

4. Able to define data types and use them in simple data processing applications also he/she must be able to use the concept of array of structures.

5. Student must be able to define union and enumeration user defined data types. Develop confidence for self education and ability for life-long learning needed for Computer language.

SYLLABUS

Unit – I
Computer Fundamentals: Introduction of Computers, Classification of Computers, Anatomy of a Computer, Memory Hierarchy, Introduction to OS.
Program Fundamentals: Generation and Classification of Programming Languages, Writing First C Program.
Algorithms: Definitions, Different Ways of Stating Algorithms (Step-form, Pseudo-code, Flowchart), Strategy for Designing Algorithms.
Basics of C: Overview of C, Developing Programs in C, Parts of Simple C Program, Structure of a C Program, Comments, Program Statements, C Tokens, Keywords, Identifiers, Data Types, Variables, Constants, Operators and Expressions, Type Conversions.

Unit – II
Input-Output: Non-formatted and Formatted Input and Output Functions, Escape Sequences,
Control Statements: Selection Statements – if, if-else, nested if, nested if-else, comma operator, conditional operator, switch; Iterative Statements–while, for, do-while; Special Control Statement–go to, break, continue, return, exit.
Arrays and Strings: One and Two Dimensional Arrays, Character Arrays, Functions from ctype.h, string.h.

Unit – III

Functions: Concept of Function, Using Functions, Call-by-Value Vs Call-by-reference, Passing Arrays to Functions, Score of Variables, Storage Classes, Inline Functions, and Recursion.
Pointers: Introduction, Address of Operator (&), Pointer, Uses of Pointers, Arrays and Pointers, Pointers and Strings, Dynamic Memory Allocation.

Unit – IV

User-Defined Data Types: Declaring a Structure (Union) and its members, Initialization Structure (Union), Accessing members of a Structure (Union), Structures verses Unions, Enumeration Types.
Files: Introduction, UsingFiles, Working with Text Files and Binary Files, File Management Functions.

Text
Pradip Dey, Manas Ghosh, Computer Fundamentals and Programming in C (2e)

References
1. Ivor Horton, Beginning C
2. Herbert Schildt, the Complete Reference C
3. Paul Deitel, Harvey Deitel, C How To Program
4. Byron S. Gottfried, Theory and Problems of Programming with C
5. Brian W. Kernighan, Dennis M. Ritchie, The C Programming Language

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B.SC I Year Examination
Semester – I
Subject: Computer Science
Paper- I–Programming in C

COURSE CODE:CS102

Credit :1

Course Outcome:

1. Know concepts in problem solving ·
2. To do programming in C language ·
3. To write diversified solutions using C language.

C LAB(SEMESTER –I)

1. Write a program to find the largest two numbers using if and conditional operator.

2. Write a program to calculate arithmetic operations of two numbers using switch.

3. Write a program to print the reverse of a given number.

4. Write a program to print whether the given number is a prime or not.

5. Write a program to find largest and smallest elements in a given list of numbers.

6. Write a program to find the sum of two matrices.

7. Write a program to find the product of two matrices.

8. Write a program to print the reverse of a given string.

9. Write a program to find the factorial of a positive integer using iteration and recursion.

10. Write a program to find the GCD of two positive integers using iteration and recursion.

11. Write a program to demonstrate the call by value and the call by reference concepts.

12. Write a program to illustrate the use of Enumeration data type.

13. Write a program to illustrate the use of structure concept.

14. Write a program to illustrate the use of union concept.

15. Write a program to write content into a file and display contents of a file

16. Write a program to copy content of one file into another file and display the content of new file.

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B.SC I Year Examination
Semester – II
Subject: Computer Science
Paper- Programming in C++

COURSE CODE:CS201

Course Outcome:

1. To understand how C++ improves C with object-oriented features.

2. To learn how to write inline functions for efficiency and performance.

3. To learn the syntax and semantics of the C++ programming language.

4. To learn how to design C++ classes for code reuse.

5. To learn how to implement copy constructors and class member functions.

6. To understand the concept of data abstraction and encapsulation.

7. To learn how to overload functions and operators in C++.

8. To learn how containment and inheritance promote code reuse in C++.

9. To learn how inheritance and virtual functions implement dynamic binding with polymorphism.

10. To learn how to design and implement generic classes with C++ templates.

11. To learn how to use exception handling in C++ programs.

SYLLABUS

Unit – I
Introduction to C++: Applications, Example Programs, Tokens, Data Types, Operators, Expressions, Control Structures, Arrays, Strings, Pointers.
Functions: Introduction, Prototype, Passing Data by Value, Passing data by reference, Inline Functions, Default Arguments, Overloading Functions, Passing Arrays to Functions.
Object Oriented Programming: Procedural Programming verses Object-Oriented Programming, Benefits, OOP Languages, and OOP Applications.

Unit – II
Classes: Introduction, Defining an Instance of a Class, Private Members, Class Specification, Inline Member Functions, Constructors, Passing Arguments to Constructors, Destructors, Overloading Constructors, Private Member Functions, Arrays of Objects, Instance and Static Members, Friend function, Copy Constructors, Operator Overloading, Aggregation.

<u>**Unit – III**</u>
Inheritance: Introduction, Access Specifiers, Base Class ,Derived Class, Types of Inheritance Constructors and Destructors in Base and Derived Classes, Polymorphism,Virtual Member Functions, Abstract Base Classes , Pure Virtual Functions, Multiple Inheritance.
C++ Streams: Stream Classes, Unformatted I/O Operations, Formatted I/O Operations.

<u>**Unit – IV**</u>
Exceptions: Introduction, Throwing an Exception, Handling an Exception, Object-Oriented Exception Handling with Classes, Multiple Exceptions, Re-throwing an Exception.
Templates: Function Templates–Introduction, Function Templates with Multiple Type, Overloading with Function Templates, Class Templates – Introduction, Defining Objects of the Class Template.

Text Tony Gaddis, Starting out with C++: from control structures through objects (7e)
References
B. Lippman, C++ Primer
Bruce Eckel, Thinking in C++
K.R. Venugopal, Mastering C++
Herbert Schildt, C++: The Complete Reference
Bjarne Stroustrup, The C++ Programming
Language
Sourav Sahay, Object Oriented Programming with C++

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B.SC I Year Examination
Semester – II
Subject: Computer Science
Paper- II–Programming in C++

COURSE CODE:CS201

Course Outcome:

1. Creating simple programs using classes and objects in C++.
2. Implement Object Oriented Programming Concepts in C++.
3. Develop applications using stream I/O and file I/O.
4. Implement simple graphical user interfaces.
5. Implement Object Oriented Programs using templates and exceptional handling concepts.

PRACTICAL QUESTION BANK

1. Write a program to print the sum of digits of a given number
2. Write a program to check whether the given number is Armstrong or not
3. Write a program to check whether the given string is Palindrome or not
4. Write a program to read student name, roll no, marks and display the same using class and object.
5. Write a program to find area of a rectangle, circle, and square using class and object.
6. Write a program to implement inline function inside and outside of a class for
   a. Finding the area of a square
   b. Finding the area of a cube
7. Write a program to implement friend function and friend class
8. Write a program to implement constructor and destructor with in a class.
9. Write a program to demonstrate hierarchical inheritance.
10. Write a program to demonstrate multiple inheritances.
11. Write a program to demonstrate the constructor overloading.
12. Write a program to demonstrate static polymorphism.
13. Write a program to demonstrate dynamic polymorphism.
14. Write a program to implement polymorphism using pure virtual functions.
15. Write a program to demonstrate the function templates and class templates.
16. Write a program to demonstrate exception handling using try, catch, and finally.

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B.Sc II YEAR
Semester-III
Subject: Computer Science
Paper-II (A): OOPs with Java

COURSE CODE:CS301

P.P.W: 7(4Th+3Pr)
Credits: 3Th+1Pr

Course Outcome:

1. Use object oriented programming concepts to solve real world problems.
2. Explain the concept of class and objects with access control to represent real world entities.
3. Demonstrate the behavior of programs involving the basic programming constructs like Control structures, constructors, string handling and garbage collection
4. Use overloading methodology on methods and constructors to develop application programs.
5. Demonstrate the implementation of inheritance (multilevel, hierarchical and multiple) by using extend and implement keywords.
6. Describe the concept of interface and abstract classes to define generic classes.
7. Use dynamic and static polymorphism to process objects depending on their class.
8. Illustrate different techniques on creating and accessing packages (fully qualified name and import statements).
9. Understand the impact of exception handling to avoid abnormal termination of program using checked and unchecked exceptions.

SYLLABUS

UNIT-I :

Java Fundamentals: Fundamentals of OOPs(OOPs), Object Oriented paradigm, basic concepts of OOPs, Benefits of OOPs, Applications of OOPs.
Java Evolution: Java Features, How java differs from C and C++, Java and Internet, Java and World Wide Web, Web Browsers, Hardware and Software Requirements, Java Environment.
Overview of Java Language: Simple Java Program, Java Program Structure, Java Tokens, Java Statements, Implementing a Java Program, Java Virtual Machine, Command Line Arguments.

UNIT – II:

Constants, Variables and Data Types: Constants, Variables, Data Types, Declaration of variables, giving values to variables, Scope of Variables, Symbolic Constants, Type Casting.
OOPs Concepts in Java: Operators and expressions-Arithmetic Operators, Relational Operators, Logical Operators, Assignment Operators, Increment and Decrement Operators, Conditional Operators, Bitwise, Special Operators, Arithmetic Expressions, Evolution of Expressions, Precedence of Arithmetic Operators, Operator precedence and Associativity.
Decision Making and Branching: Decision Making with IF Statement, Simple IF

Statement, IF-ELSE Statement, Nested IF-ELSE Statement, ELSE-IF Ladder, The Switch statement.

UNIT - III:

Decision Making and Looping: The While Statement, The do statement, the For Statement, Jump Statements.

Class Object and Methods: Defining a Class, Fields Declaration, Methods Declaration, Creating Objects, Accessing Class Members, Constructors, Method Overloading, Static Members, Nesting of Methods, Inheritance, Overriding Methods, Final Variables and Methods, Final Classes, Abstract Methods and Classes, Visibility Control.

UNIT - IV:

Arrays, Packages and Interfaces in Java: Arrays, Strings and Vectors: creating an Array, One Dimensional Arrays, Two dimensional Arrays, Strings, Vectors, Wrapper Classes, and Enumerated Types.

Interfaces: Multiple Inheritance: Defining Interfaces, Extending Interfaces, Implementing Interfaces, Accessing Interface Variables.

Packages: Java API Packages, Using System Packages, Naming Conventions, Creating Packages, Accessing a Package using Packages, Adding a Class to a Package, Hiding Classes, Static Import.

Suggested Books: Java Complete reference:
Java 2.0:Ivan Bayross
Java Tutorial: Sun microsystems
Special edition using Java 2:Joseph L.Weber

Prescribed Books:
Programming with Java A Primer fourth edition : Balagurusamy 4th edition
The Complete Reference Java 2.0:

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B.Sc. II Year Practical Question Bank
SEMESTER-III
Subject: Computer Science
Paper: II (A) OOPs with
Java

Course Outcome:

1. Understand fundamentals of programming such as variables, conditional and iterative execution, methods, etc.
2. Understand fundamentals of object-oriented programming in Java, including defining classes, invoking methods, using class libraries, etc.
3. Be aware of the important topics and principles of software development.
4. Have the ability to write a computer program to solve specified problems.
5. Be able to use the Java SDK environment to create, debug and run simple Java programs.

Practical Question Bank

1. Write a java program to determine the sum of the following harmonic series for a given value of 'n'.
   $1 + \frac{1}{2} + \frac{1}{3} + \ldots\ldots\ldots\ldots + 1/n$.

2. Write a program to perform the following operations on string through interactive input.
   i. Sort given Strings in alphabetical order.
   ii. Check whether one String is Sub String of another String or not.
   iii. Convert the Strings to uppercase.

3. Write a program to simulate on-line shopping.

4. Write a program to identify a duplicate value in vector.

5. Create two threads such that one of the thread print even no's and other prints odd no's up to a given range.

6. Define an exception called "Marks Out of Bound" Exception, that is thrown if the entered marks are greater than 100.

7. Write a Java program to shuffle the list elements using all the possible permutations.

8. Create a package called "Arithmetic" that contains methods to deal all arithmetic operations. Also, write a program to use the package.

9. Write an Applet program to design a simple calculator.

10. Write a program to read a text and count all the occurrences of a given word. Also display their positions.

11.   Write an applet illustrating sequence of events in an Applet.

12.   Illustrate the method of overriding in Java.

13.   Write a program to fill elements into a list. Also, copy them in reverse order into other list.

14.   Write an interactive program to accept name of person and validate it. If the name contains any numeric value throw an exception "Invalid Name".

15.   Write an applet program to insert the text at the specified position.

16.   Prompt for the cost price and selling price of an article and display the profit (or) loss percentage.

17.   Create an anonymous array in Java.

18.   Create a font animation application that change the colors of text as and when prompted.

19.   Write an interactive program to wish the user at different hours of the day.

20.   Simulate the library information system i.e. maintain the list of books and borrower's details.

GOVERNMENT DEGREE COLLEGE FOR WOMEN,BEGUMPET, HYDERABAD – 16
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Department Of Computer Science &
Applications Trans Disciplinary Elective

Semester-III
Subject: Web Designing
Paper-II (A)

COURSE CODE:CS302   **Th:15 Hrs**
                                                         Credits:2

Course Outcome:

1. Be able to use the HTML programming language.

2. Resolves written HTML codes.

3. Runs the page he/she has designed using HTML codes.

4. Be able to use the Design Programs.

5. Uses Microsoft Expression Web 4 programme.

6. Designs site and page via Microsoft Expression Web 4 programme.

7. Uses the program Web Page Maker.

SYLLABUS

UNIT-I:

Introduction to internet, applications of internet, Web Browser, various Web Browsers and Client-Server Techniques.

UNIT-II
Introduction to HTML:
Basics-Introduction to HTML (Hypertext markup language)-Structure of HTML-Formatting tags-Physical tags-Logical tags -Header tags.

UNIT-III
Creating tables:
Creating Tables-Adding Borders- Cell Padding- Cell Spacing- Spanning- Using Colors-Aligning Tables in web Pages- Using Images in tables- Nesting Tables.

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Re-Accredited by NAAC with 'B' Grade
B. Sc II YEAR
Semester-IV
Subject: Computer Science
Paper – II (B) Java with Data Structures

COURSE CODE:CS401

P.P.W: 7(4Th+3Pr)
Credits: 3Th+1Pr

Course Outcome:

1) Use multithreading concepts to develop inter process communication.

2) Understand and implement concepts on file streams and operations in java programming for a given application programs.

3) Describe the backend connectivity process in java program by using JDBC drivers.

4) Develop java application to interact with database by using relevant software component (JDBC Driver).

5) Understand the process of graphical user interface design and implementation using AWT or swings.

6) Use different layouts (Flow Layout, Boarder Layout, Grid Layout, Card Layout) to position the controls for developing graphical user interface.

7) Build the internet-based dynamic applications using the concept of applets.

8) Develop applets that interact abundantly with client environment and deploy on the server. 19. Knowledge on usage of graphical IDE for design and implementation of real time applications in java.

SYLLABUS

UNIT – I

Multithreaded programming and Applets: Multithreaded Programming, Creating Threads, Extending the Thread Class, Stopping and Blocking a Thread, Life Cycle of a Thread, Using Thread Methods, Thread Exceptions, Thread Priority, and Synchronization.
Managing Errors and Exceptions: Types of Errors, Exceptions Syntax of Exception Handling code, multiple Catch statements, Using Finally Statement, Throwing our own Exceptions, Using Exceptions for Debugging.

UNIT – II

Applet Programming: Introduction to Applets, How Applets Differ from Applications, Building an Applet Code, Applet Life Cycle, Designing a Web Page, Applet Tag, Adding Applet to HTML File, Running an Applet.

UNIT – III

Data Structures: Sorting, Bubbles Sort, Selection Sort, Insertion Sort, Quick Sort
Stacks and Queues: Stacks, Queues, Circular Queue, Deques, Priority Queue
Parsing Arithmetic Expressions.
Linked List: Simple Linked List,Finding and Deleting Specified Links, Double Ended list, Abstract Data types, Sorter List, Doubly Linked Lists.

UNIT – IV

Binary Trees: Tree Terminology, Finding a Node Traversing the tree, Finding Maximum and Minimum values, Deleting a Node, Efficiency of Binary Trees, Trees Represented as Arrays.
Graphs: Introduction to Graphs, Search, and Minimum Spanning Tree, Topological Sorting with Directed Graphs, Connectivity in Directed Graphs.

Suggested Books:
Programming with Java: E.Balagurusamy
Java Complete reference:
Java 2.0:Ivan Bayross
Java Tutorial:Sun microsystems
Special edition using Java 2:Joseph L.Weber

Prescribed Books:
Java with Data Structures: Revathi poonguzhali
Data Structures and Algorithms in Java:
Pearson

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B.Sc. II Year Practical Question Bank
Semester-IV
Subject: Computer Science
Paper: II (B) Java with Data Structures

COURSE CODE:CS401

Course Outcome:

1.   Understand fundamentals of programming such as variables, conditional and iterative execution, methods, etc.

2.   Understand fundamentals of object-oriented programming in Java, including defining classes, invoking methods, using class libraries, etc.

3. Be aware of the important topics and principles of software development.

4. Have the ability to write a computer program to solve specified problems.

5. Be able to use the Java SDK environment to create, debug and run simple Java programs.

PRACTICAL QUESTION BANK

1.   Program to create, insert, delete and display operations on single linked list.

2.   Program to create, insert, delete and display operations on double linked list.

3.   Program to create, insert, delete and display operations on circular single linked list.

4.   Program to split a single link list.

5.   Program to reverse a single linked list.

6.   Program to implement insertion sort.

7.   Program to implement PUSH and POP operations on Stack using array method.

8.   Program to implement PUSH and POP operations on Stack using Linked List method.

9.   Program to implement insert and delete operations on Queue using array method.

10.   Program to implement insert and delete operations on Queue using Linked List method.

11.   Program to implement insert and delete operations on Priority Queue.

12.   Program to implement insert and delete operations on Double Ended Queue.

13.   Program to evaluate postfix expression by using Stack.

14.   Program to construct Binary Search Tree and implement tree traversing techniques.

15.	Program to delete a leaf node from binary search tree.

16.	Program to implement Selection Sort.

17.	Program to implement Bubble Sort.

18.	Program to implement Operations on Circular Queue.

19.	Program to implement Quick Sort.

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Department Of Computer Science &Applications
Trans Disciplinary Elective
Semester-IV
Subject: <mark>Web Designing</mark>
Paper- II (B)

Th: 15
Credits: 1

Course Outcome:

1. Understand the principles of creating an effective web page, including an in-depth consideration of information architecture.
2. Become familiar with graphic design principles that relate to web design and learn how to implement theories into practice.
3. Develop skills in analyzing the usability of a web site.
4. Understand how to plan and conduct user research related to web usability.
5. Learn the language of the web: HTML and CSS.
6. Learn CSS grid layout and flexbox.
7. Learn techniques of responsive web design, including media queries.
8. Develop skills in digital imaging (Adobe Photoshop.)

SYLLABUS

UNIT-I

<mark>Working with Links and Lists:</mark>
Creating Hyperlinks-URL (Uniform Resource Locator)-Creating Image Maps-Creating List-Ordered list-Unordered List-Definition List.

UNIT-II

<mark>Working with Images:</mark>
Images in web pages-graphic formats-graphic color-Creating Images-Adding an Image to web page-Allocating space for Image-Adding Borders to Images-Aligning the Text and Images-Setting page background Images.

UNIT-III

<mark>Working with Frames & Forms:</mark>
Creating Frames- Vertical Frames- Horizontal Frames. Creating HTML Forms with Example.

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B.Sc III YEAR
Semester-V
Subject: Computer
Science Paper-III (A):

COURSE CODE:CS501

P.P.W: 7(4Th+3Pr)
Credits: 3Th+1Pr

Course Outcome:

1. Will be able to comprehend and evaluate the role of database management systems in information technology applications within organizations.
2. Effectively explains the basic concepts of databases and data models.
3. Explains the features of database management systems, architecture of database systems, and the role of database users.
4. Defines the basics of the relational data model.
5. Lists the database design process steps.
6. Will be able to design and implement properly structured databases that match the standards based under realistic constraints and conditions.
7. Develops an Entity-Relationship model based on user requirements.
8. Converts an Entity-Relationship diagram to Relational Schema.
9. Explains Functional Dependency and Functional Decomposition.
10. Applies various Normalization techniques for database design improvement.

UNIT-I :
Database Systems Introduction and Fundamentals: Database Systems: Introducing the database and DBMS, Why the database is important,
Historical Roots: Files and File Systems, Problems with File System Data Management, Database Systems.
Data Models: The importance of Data models, Data Model Basic Building Blocks, Business Rules, The evaluation of Data Models, Degree of Data Abstraction.

UNIT – II:
The Relational Database Model: A logical view of Data, Keys, Integrity Rules, The Data Dictionary and the system catalog, Relationships within the Relational Database, Data Redundancy , Indexes, Codd's relational database rules.
Entity Relationship Model: The ER Model, Developing ER Diagram-Database Design Challenges: Conflicting Goals.
UNIT - III:
Advanced Data Modeling: The Extended Entity Relationship Model-Entity Integrity: Selecting Primary keys, Design Cases: Learning Flexible Database Design Normalization of database tables: Normalization, The need for

Normalization, Types of normal forms-1NF, 2NF, 3NF, BCNF, Surrogate Key, High level Normal Forms-4NF, 5NF, Demoralization.

UNIT - IV:

Introduction to SQL: Data Definition language(DDL),Data Manipulation language(DML) ,Transaction control language(TCL),Data control language(DCL), Select queries, Virtual Tables, Joining Database Tables.

Suggested Books:

Peter Rob Carlos Coronel, Database Systems Design, Implementation and Management, Seventh Edition, Thomson (2007)

Prescribed Books:

C.J.Date, A.Kannan, S.Swamynathan, An Introduction to Database Systems, Eight Edition, Pearson Education (2006).

Raman A Mata – Toledo/Panline K Cushman, Database Management Systems, Schaum's Outline series, Tata McGraw Hill (2007).

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Re-Accredited by NAAC with 'B' Grade
B.Sc. III Year
SEMESTER-V
Subject: Computer
Science Paper: III (A)
MDBMS-I

Course Outcome:

1. Students get practical knowledge on designing and creating relational database systems.
2. Understand various advanced queries execution such as relational constraints, joins, set operations, aggregate functions, trigger, views and embedded SQL.
3. Use of various software to design and build ER Diagrams, UML, Flow chart for related database systems.
4. Students will be able to design and implement database applications on their own

PRACTICAL QUESTION BANK

Order tracking database

The order tracking database consists of the following defined six relation schemas.

Employees(eno,ename,zip,hdate)

Parts(pno,pname,qoh, price,level) (hint: qoh: quality on

hand) Customers(cno,cname,street,zip)

Orders(ono,cno,eno,received date,shipped date)

Odetails(ono,pno,qty)

Zipcodes(zip,city)

Solve the following queries

1. Get all pairs of customer numbers for customers based on same zip Code.
2. Get part numbers for parts that have been ordered by at least
   Two different Customers.
3. For each odetail row, get ono, pno, pname, qty and price values along with the total price for the item. (total price=price*qty)
4. Get customer name and employee pairs such that the customer With name has placed an order through the employee.
5. Get customer names living in fort dodge or liberal.
6. Get cname values of customers who have ordered a product with Pno 10506.
7. Get pname values of parts with the lowest price.

8. Get cname values of customers who have placed at least one Order through the employee with number 1000.

9. Get the cities in which customers or employees are located.

10. Get the total sales in dollars on all orders.

11. Get part name values that cost more than the average cost of all Parts.

12. Get part names of parts ordered by at least two different Customers.

13. Get for each part get pno,pname and total sales

14. For each part, get pno,pname, total sales, whose total sales exceeds 1000

15. Get pno, part names of parts ordered by at least two different Customers.

16. Get cname values of customers who have ordered parts from any one Employee based in wichita or liberal.

Shipment database

An enterprise wishes to maintain the details about his suppliers and

her corresponding details. For that it uses the following tables

Table s(sid,sname,address)

Primary key: sid

Table p(pid,pname,color)

Primary key: pid

Table cat(sid,pid,cost)

Primary key : sid+pid

Reference key: sid references s.sid

Pid references p.pid

Solve the following queries

1. Find the pnames of parts for which there is some supplier

2. Find the snames of suppliers who supply every part.

3. Find the snames of suppliers who suppy every red part.

4. Find the pnames of parts supllied by london supplier and by no one else 5

5. Find the sids of suppliers who charge more for some part other than the average cost of that part

6. Using group by with having clause get the part numbers for all the parts supplied by more than one supplier.

7. Get the names of the suppliers, who do not supply part p2.

8. Find the sids of suppliers who supply a red and a green part

9. Find the sids of suppliers who supply a red or a green part

10. find the total amount has to pay for that supplier by part located from London.

Employee database

An enterprise wishes to maintain a database to automate its operations. Enterprise divided into to
Certain departments and each department consists of employees. The following two tables
Describes the automation schemas
Dept (deptno dname, loc)
Emp (empno,ename,job,mgr,hiredate,sal,comm,deptno)

1. Create a view, which contain employee names and their manager names working in sales
   department.
2. Determine the names of employee, who earn more than theirManagers.
3. Determine the names of employees, who take highest salary in their departments.
4. Determine the employees, who located at the same place.
5. Determine the employees, whose total salary is like the minimum Salary of any department.
6. Update the employee salary by 25%, whose experience is greater than 10 years.
7. Delete the employees, who completed 32 years of service.
8. Determine the minimum salary of an employee and his details, who Join on the same date.
9. Determine the count of employees, who are taking commission and not taking commission.
10. Determine the department does not contain any employees.
11. Find out the details of top 5 earner of company.
12. Display those managers name whose salary is more than average Salary of his employees.
13. Display those employees who joined the company before 15th of the Month?
14. Display the manager who is having maximum number of employees working under him?
15. Print a list of employees displaying 'less salary' if less than 1500 ,if exactly 1500 display as
    'exact salary' and if greater than 1500 display 'more salary'?

University database

University wishes to computerise their operations by using the following relations.
Student (snum:integer, sname: string, major: string, level: string, Age: integer)
Class (name: string, hour:integer, room: string, fid: integer)
Enrolled (sum: integer, cname: string)Faculty (fid: integer, fname: string, deptid: integer)
Depart (deptid: integer, dname: string, loc: integer)
By using above schema definitions, resolve the following queries
1. Find the names of all juniors (level=jr) who are enrolled in a Class taught by smith.
2. Find the age of the oldest student who is either a history Major or is enrolled in the course of
   smith.

3. Find the names of all classes that either meet r128 or have five or more students enrolled.
4. Find the names of all students who are enrolled in two classes that meet at the same hour.
5. Find the names of faculty members who teach in every room in, which some class is taught.
6. Find the names of faculty members for whom the combined enrollment of the courses that they teach is less than five.
7. Print the level and average age of students for that level, for each level.

Government College for Women Begumpet, Hyderabad-500016
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B. Sc III
YEAR
Semester-V
Subject: Computer Science
Paper – IV (A) WEB-TECHNOLOGIES-I
SYLLABUS

COURSE CODE:CS502

Course Outcome:

1. History and development of the World Wide Web and associated technologies.
2. The client-server architecture of the World Wide Web and its communication protocol HTTP/HTTPS.
3. Formats and languages used in modern web-pages: HTML, XHTML, CSS, XML, XSLT, Javascript, DOM
4. Programming web pages with Javascript/DOM (client)
5. Good design, universal design, multi platform web applications Skill in: - Design and development of web-pages and web-applications
6. Use of development tools General competencies:
7. Use of web technology - Retrieval of information, use of documentation and standards

UNIT – I
Introduction: HTML, XML, and the World Wide Web.
HTML: Basic HTML, The Document body, Text, Hyperlinks, Adding more formatting, lists, Tables, Using colors and images, Images.
More HTML: Multimedia objects, Frames, Forms-towards interactivity, The HTML document Head in detail, XHTML- An evolutionary markup.

UNIT – II
Cascading Style Sheets: Introduction, Using styles: Simple examples, Defining your own styles, Properties and values in styles, Style sheets- A worked example, Formatting blocks of information, Layers

UNIT – III
An introduction to Java Script: What is dynamic html, Java Script, JavaScript—The basics, Variables, String manipulation, Mathematical functions, Statements, Operators, Arrays, Functions.

UNIT – IV
Objects in Java Script: Data and objects in java script, Regular expressions, Exception Handling, Built in objects, Events

Prescribed Books:

HTML,DHTML,JAVASCRIPT,PERL,CGI:Ivon bayross
The complete reference Webdesign:Thomas A.Powel

Reference Books:

Scripting Language and Webdesigning:R.singh,Mamatha varma.s.Mahindru

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B.Sc. III Year
**Semester-V**
Subject: Computer Science
**Paper: IV (A) WEB-TECHNOLOGIES-I**

Course Outcome:

1) Analyze a web page and identify its elements and attributes.
2) Create web pages using XHTML and Cascading Style Sheets.
3) Build dynamic web pages using JavaScript (Client side programming).
4) Create XML documents and Schemas.

PRACTICAL QUESTION BANK

1. Create a web page illustrating text formatting tags.
2. Create a web page to demonstrate font variations.
3. Prepare a sample code to illustrate three types of lists in HTML.
4. Using tables create your Curriculum Vitae.
5. Create a form that accepts the information from the subscriber of a mailing System.
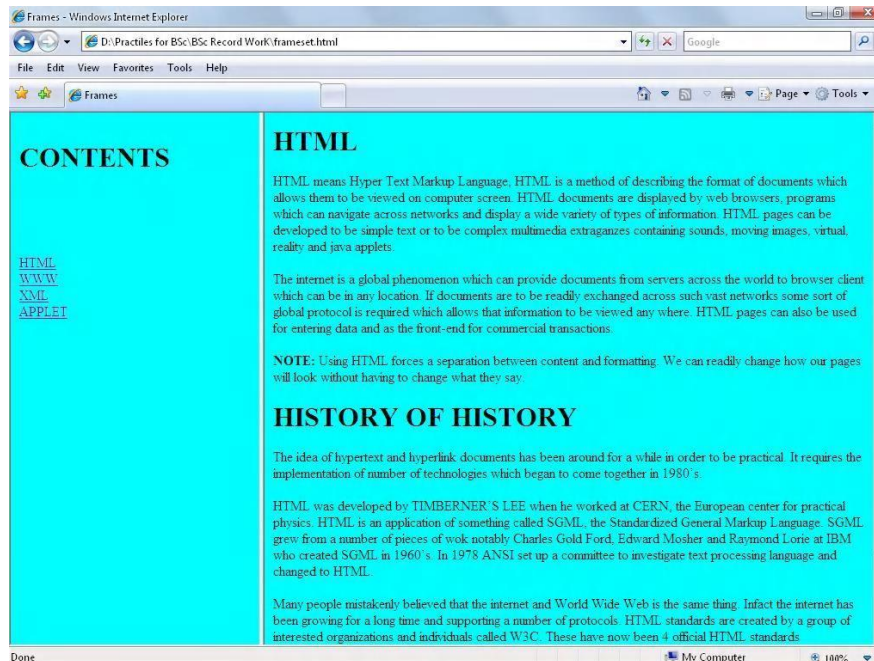6. Using Table related tags align the images
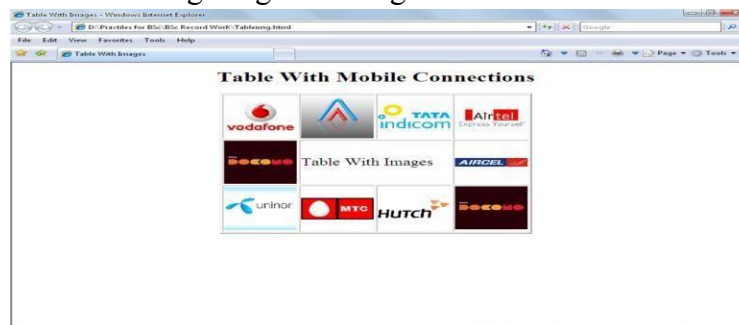
7. Using Frames Divide the web page as follows
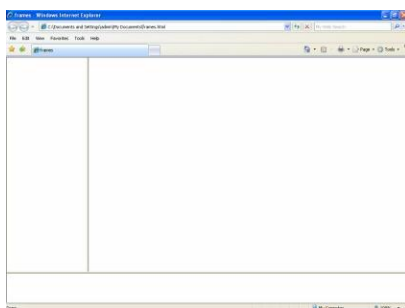
8. Design The page as follows
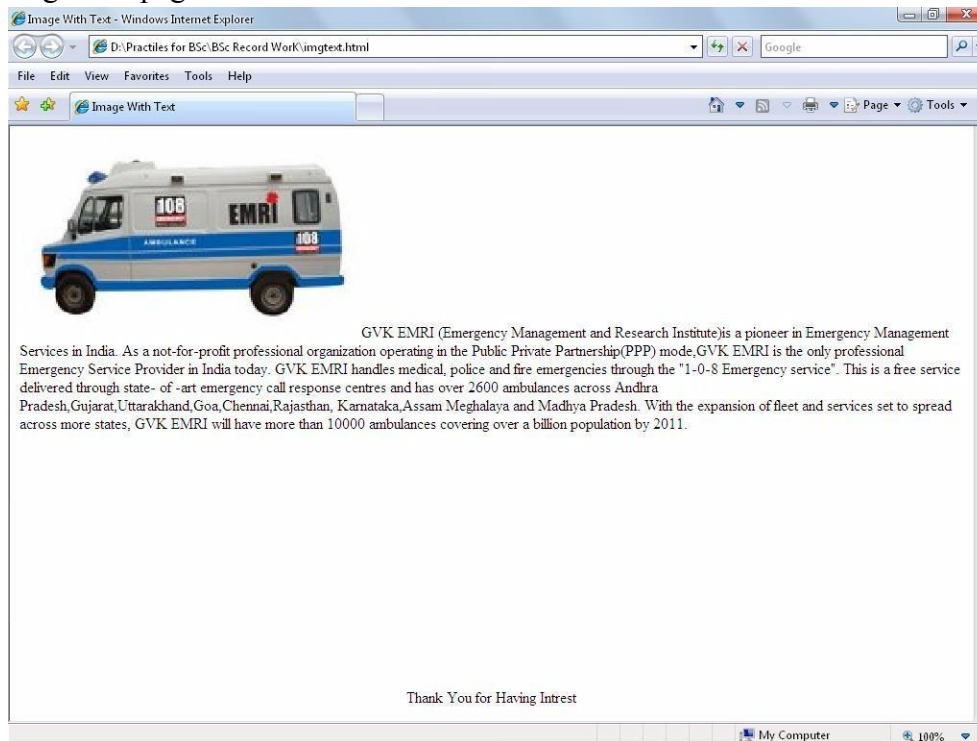
9. Explain hyper link example with target attribute as follows.

10. Illustrate with example the horizontal rulers in your page.

11. Create a java script program to accept the first, middle, last names of user and print them.

12. Evaluate the following

    : a. "10 "+ " 20"

    b. (10<8)?10:8

    c. J=(i++)+(--i)+(++i)+(i++) where i=2

13. Write a java script program to add two numbers.

14. Write a java script program to find the factorial of given number.

15. Write a java Script program to print all prime numbers.

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B.Sc III YEAR
Semester-VI
Subject: Computer
Science Paper-III (B):
MDBMS-II

COURSE CODE:CS601

P.P.W: 7(4Th+3Pr)
Credits: 3Th+1Pr

Course Outcome:

1. Explain the basic concepts of relational data model, entity-relationship model, relational database design, relational algebra and SQL.
2. Design ER-models to represent simple database application scenarios
3. Convert the ER-model to relational tables, populate relational database and formulate SQL queries on data.
4. Improve the database design by normalization.
5. Familiar with basic database storage structures and access techniques: file and page organizations, indexing methods including B tree, and hashing.

SYLLABUS

UNIT-I :

Advanced SQL Database design: Relational Set Operators, SQL Join Operators, Sub queries and correlated queries, SQL Functions, Oracle Sequences, Updatable Views, and Procedural SQL. Database Design: The Information System, The Systems Development Life Cycle, The Database Life Cycle, Database Design Strategies, Centralized Vs Decentralized design.

UNIT – II:
Transaction Management in DBMS Environment:
Transaction Management and Concurrency Control: Transaction, Concurrency control, Concurrency control with locking Methods-locks, types of locks, Two phase locking protocol, Deadlock-Detection and prevention, Concurrency control with time stamping methods, concurrency control with optimistic methods, database recovery management.

UNIT - III:
Distributed Database Management Systems: Distributed Database Management Systems, Characteristics of Distributed database management systems, DDBMS advantages and Disadvantages, DDBMS Components, Levels of Data and Process distribution, Distributed Transparency, Transaction Transparency, Performance Transparency and Query Optimization, Distributed Database Design, Client Server.

UNIT - IV:

Data Warehouse Concepts and Database Administration:

The Data Warehouse: The need for data analysis, Decision support systems, the data warehouse, online analytical processing, Star schemas, Data mining.

Database Administration: Data as a Corporate asset, the need for and role of databases in an organization, the database environment's Human Component, The DBA at work: Using Oracle for Database Administration.

Suggested Books:

Peter Rob Carlos Coronel, Database Systems Design, Implementation and Management, Seventh Edition, Thomson (2007)

Prescribed Books:

C.J.Date, A.Kannan, S.Swamynathan, An Introduction to Database Systems, Eight Edition, Pearson Education (2006).

Raman A Mata – Toledo/Panline K Cushman, Database Management Systems, Schaum's

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B.Sc. III Year
SEMESTER-V
Subject: Computer
Science Paper: III (B)
MDBMS-II

Practical Question Bank

Course Outcome:

    a. Apply the basic concepts of Database Systems and Applications
    b. Use the basics of SQL and construct queries using SQL in database creation and interaction.
    c. Design a commercial relational database system (Oracle, MySQL) by writing SQL using the system
    d. Analyze and Select storage and recovery techniques of database system.

PL/SQL PROGRAMS:

1. Write a pl/sql program to check the given number is strong or not.
2. Write a pl/sql program to check the given string is palindrome or not.
3. Write a pl/sql program to swap two numbers without using third variable.
4. Write a pl/sql program to generate multiplication tables for 2,4,6
5. Write a pl/sql program to display sum of even numbers and sum of Odd Numbers in the given range.
6. Write a pl/sql program to check the given number is palindrome Or not.
7. The hrd manager has decided to raise the employee salary by 15%.
   Write a Pl/sql block to accept the employee number and update the salary Of that Employee. Display appropriate message based on the existence of the Record in emp table.
8. Write a pl/sql program to display top 10 rows in emp table based on Their job and salary.
9. Write a pl/sql program to raise the employee salary by 10%, for Department number 30 people and also maintain the raised details in the Raise table.
10. Write a procedure to update the salary of employee, who are not Getting Commission by 10%
11. Write a pl/sql procedure to prepare an electricity bill by using Following table Table used: (Select Name null? Type
               Mno not null number(3)
               Cname varchar2(20)
               Cur_read number(5)
               Prev_read number(5)
               No_units number(5)
               Amount number(8,2)
               Ser_tax number(8,2)
               Net_amt number(9,2))
12. Write a pl/sql procedure to prepare an telephone bill by using following table. And print the monthly bills for each customer

Table used : phone.

```
Name null? Type
-----------------------------
Tel_no not null number(6)

Cname varchar2(20)
City varchar2(10)
Pr_read number(5)
Cur_read number(5)
Net_units number(5)
Tot_amt number(8,2)
```

13. Write a pl/sql program to raise the employee salary by 10%, Who are completed there 25 years of service.

14. Write a pl/sql procedure to evaluate the grade of a student with Following conditions:

   I.   For pass: all marks > 40

   II.   For i class: total%>59

   III.   For ii class: total% between >40 and <60

   IV. For iii class: total% =40

   And also maintain the details in abstract table. Tables used : Table std

   Sql> desc std

   ```
   Name null? Type
   -----------------------------
   No     not     null
   number      Name
   varchar2(10)  Intno
   number
   Class not null varchar2(10)
   M1 number
   M2
   number
   M3
   number
   M4
   number
   M5
   number
   ```

   Table abstract

   Sql> desc abstract

   ```
   Name null? Type
   -----------------------------
   Stdno number
   Stdname varchar2(10)
   Class varchar2(10)
   Intno number
   Tot number
   Grade
   varchar2(10)
   Percent number
   Dat_enter date
   ```

15. Write a procedure to update the salary of employee, who belongs to Certain department with a certain percentage of raise.

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B. Sc III
YEAR
Semester-VI
Subject: Computer Science
Paper – IV (B) WEB-TECHNOLOGIES-II

COURSE CODE:CS602

P.P.W: 7(4Th+3Pr)
Credits: 3Th+1Pr

Course Outcome:

1. Students are able to develop a dynamic webpage by the use of java script and DHTML
2. Students will be able to write a well formed / valid XML document
3. Students will be able to connect a java program to a DBMS and perform insert, update and delete operations on DBMS table.
4. Students will be able to write a server side java application called Servlet to catch form data sent from client, process it and store it on database
5. Students will be able to write a server side java application called JSP to catch form data sent from client and store it on database.

SYLLABUS

UNIT – I
Dynamic HTML with Java Script: Data validation, Opening a new window, Messages and Confirmations, The status bar, writing to a different frame, Rollover buttons, Moving images, Multiple pages in a single download, A text-only menu system, Floating logos.

UNIT – II
Active Server Pages and Java: Active Server Pages, Java.
XML: Defining Data for Web applications: Basic XML, Document type definition, XML Schema, Document Object Model, Presenting XML

UNIT – III
Good Design: Structure, Tables versus Frames, Accessibility, Internationalization, Exercises.
Useful Software: Web browsers, Perl, Web servers, mod_perl, Databases, Accessing your ISP, Exercises.

UNIT – IV
Protocols: Protocols, IP and TCP, Hyper Text Transfer Protocol, Common Gateway Interface, The Document Object Model, introducing the Document Object Model, Exercises

Prescribed Books:

HTML,DHTML,JAVASCRIPT,PERL,CGI:Ivon bayross

The complete reference Webdesign:Thomas A.Powel

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B.Sc. III Year
Semester-VI
Subject: Computer Science
Paper: IV (B) WEB-TECHNOLOGIES-II

Course Outcome:

1. Analyze a web page and identify its elements and attributes.
2. Create web pages using XHTML and Cascading Style Sheets. ·
3. Build dynamic web pages using JavaScript (Client side programming).
4. Create XML documents and Schemas.

PRACTICAL QUESTION BANK

1. Write a java script program to sort the array (Bubble Sort).

2. Write a java script program to evaluate the following mathematical

   Expression 1+2/2!+3/3!+   +n/n!.

3. Create an Online Bio-Data Form for the Current Employees in the organization

4. Design the simple Calculator.

5. Write a java script program to "Wish a user " at different hours of a day.

6. Prompt a user for the cost price and selling price of an article and output the

   profit and loss percentage.

7. Create a web page of customer profile for data entry of customer's in a Hotel, The

   profile should include Name, Address, Age, gender, Room Type (A/C, Non- A/C

   or Deluxe), Type of payment (Cash, Credit/Debit Card or Coupons).

8. Create an Online Bio-Data Form for the Current Employees in the organization.

9. Write DHtml program to give different colors for different heading tags.

10. Using CSS invert the behavior of the <h1> to <h6> tags.

11. Create a sample code to illustrate the Inline style sheet for your web page.

12. Create a sample code to illustrate the External style sheet for your web page.

13. Create a sample code to illustrate the embedded style sheet for your web page.

14. Create a sample code to illustrate the procedure of creating user defined classes in CSS.

15. Write a script to print all perfect numbers with in the given range.

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Subject: Computer Science

MODEL PAPER

Time: 2 1/2hrs   Max Marks: 75

SECTION-A

I. **Answer any 4 questions**.   4X10=40

1.   a) Question from Unit-I.
                 (OR)
b)   Question from Unit-I.

2.   a) Question from
                    Unit-II.
                 (OR)
b)   Question from Unit-II.
3.   a) Question from
                    Unit-III.
                 (OR)
b)   Question from Unit-III.
4.   a) Question from Unit-IV.
                 (OR)
         b) Question from Unit-IV.

II. **Answer any 5 Questions**.   5X5=25
         1) Question from Unit-I.
         2) Question from Unit-I.
         3) Question from Unit-II.
         4) Question from Unit-II.
         5) Question from Unit-III.
         6) Question from Unit-III.
         7) Question from Unit-IV.
         8) Question from Unit-IV.

SECTION-C

II. **Answer any 5 Questions**.   5X2=10
         1) Question from Unit-I.
         2) Question from Unit-I.
         3) Question from Unit-II.
         4) Question from Unit-II.
         5) Question from Unit-III.
         6) Question from Unit-III.
         7) Question from Unit-IV.
         8) Question from Unit-IV.

Trans Disciplinary Elective
PATTERN OF EXAMINATION

Question Paper Pattern for Assignments and Theory Examinations of Semester III &IVfor all combinations.

Assignments

1. 3 Assignments of 10 marks each and best 2 out of 3 will be considered.

Semester Examination

1. To be held in the month of October and March/April months.
2. The Time Duration of Semester examination is 2 hrs.
3. 30 marks are allotted for the main exam for each semester
4.   Section – A: 12 Multiple Choice Questions each carries 1 mark.
         12x1=12M B: 6 out of 9 questionseach question carries 3 marks
                                                              6x3=18M

Total marks=30 (End Semester Exam) + 20(Assignments)

Practical Examinations

1. Practical examinations will be held at the end of each Semester.
2. 50 marks are allotted for the Practical examination consisting of External and Internal Evaluation.
3. Practical Question Bank is prepared & provided to the students from which practical will be conducted.
4. Practical shall be conducted in each Semester as per the Syllabus and Time table.