

**DR. H. S. GOUR UNIVERSITY, SAGAR (M.P.)**

**Revised Structure & Syllabus of B.A./B.Com./B.Sc.  
(Computer Applications)**

**(w.e.f. from Session - July 2012)**

**B.A./ B.Com./B.Sc.  
(Computer Applications)  
I to III Year (1 to 6 SEMESTERS)**



**2012-13**

**DR. H. S. GOUR UNIVERSITY, SAGAR (M.P.)**

**SCHEME OF MARKS**  
**I Year (Semester - I)**

S.N.	Subject	Max. Marks
1.	Fundamentals of Computers	100
2.	Practical	050
	<b>TOTAL</b>	<b>150</b>

**I Year (Semester - II)**

S.N.	Subject	Max. Marks
1.	Operating System & Introduction to Programming	100
2.	Practical	050
	<b>TOTAL</b>	<b>150</b>

**II Year (Semester - III)**

S.N.	Subject	Max. Marks
1.	DBMS Concepts With SQL	100
2.	Practical	050
	<b>TOTAL</b>	<b>150</b>

**II Year (Semester - IV)**

S.N.	Subject	Max. Marks
1.	Object Oriented Programming using C++	100
2.	Practical	050
	<b>TOTAL</b>	<b>150</b>

**III YEAR (Semester - V)**

S.N.	Subject	Max. Marks
1.	Computer Networks & E- Commerce	100
2.	Practical	050
	<b>TOTAL</b>	<b>150</b>

**III YEAR (Semester - VI)**

S.N.	Subject	Max. Marks
1.	Internet And Web Page Design	100
2.	Practical	050
	<b>TOTAL</b>	<b>150</b>

**DR. HARI SINGH GOUR UNIVERSITY, SAGAR**  
**B. A./B.COM./B.SC.(COMPUTER APPLICATIONS)**  
**I YEAR (SEMESTER- I) 2012-13**  
**FUNDAMENTALS OF COMPUTERS**

**Time : 3.00 Hours**

**Maximum Marks : 100**

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- UNIT- I :** **Introduction of Computer:** Computer and its components; Characteristics of Computer, Generation of Computer, Software, Hardware and Firmware. Types of Computer, Language data processing, Number system; Binary, Octal, Hexadecimal and decimal number system and their conversion, Binary Arithmetic: Addition, subtraction, multiplication, Division and I/O devices.
- UNIT- II :** **Storage devices:** Semiconductor Memory and its types - Primary V/s Secondary memory, Registers, RAM, DRAM, SRAM, ROM, PROM, EPROM, EEPROM, CACHE Memory, Secondary Memory, Magnetic tape, Magnetic disk, Compact disk.
- UNIT- III:** **PC Package:** Introduction to Word Processing, Advantages of word processing, Creating, Saving and Editing a document: Selecting, Deleting, Replacing Text, Copying text to another file. Formatting Text and Paragraph: Using the Font Dialog Box, Paragraph Formatting using Bullets and Numbering in Paragraphs, Checking Spelling, Line spacing, Margins, Space before and after paragraph.
- UNIT- IV :** Introduction to spreadsheet, Entering information: Numbers, Formula, Editing Data in a cell, Excel functions, Using a Range with SUM, Moving and copying data, Inserting and Deleting Row and Columns in the worksheet, Using the format cells Dialog box, Using chart wizard to create a chart.
- UNIT: V :** Introduction of slide presentation, Slide show, Formatting, Creating a Presentation, Inserting clip Arts, Adding Objects, Applying Transitions, Animation effects, formatting and checking text. **Database:** Introduction to database, Functions of Database, creating and manipulating database.

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**REFERENCE BOOKS:**

1. Xavier, C "Introduction to Computers and Basic Programming" New age International,
  2. Sinha P. K. "Computer Fundamentals, BPB.
  3. Will Train, Gini Corter, Annette Marquis "Microsoft Office" BPB
  4. R. K. TAXALI "PC Software for Windows 98, Made Simple" TMH.
  5. Sanjay Saxena, "MS Office 2000 for every one" Vikas Publishing House PVT LTD.
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**DR. HARI SINGH GOUR UNIVERSITY, SAGAR**  
**B. A./B.COM./B.SC.(COMPUTER APPLICATIONS)**  
**I YEAR (SEMESTER- I) 2012-13**  
**PRACTICAL (FUNDAMENTALS OF COMPUTERS)**

**Maximum Marks : 50**

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1. Introduction to various components of a computer.
2. Define page size and margins for a document.
3. Insert graphics (a picture for example) in a document.
4. Prepare your bio-data in one A-4 size page.
5. Prepare a document with at least three fonts and four different font sizes.  
Include superscript and subscript.
6. Explain the use of spell check.
7. Prepare a presentation (three to five slides) to identify yourself.
8. Prepare a presentation to show infrastructure about your department/Institution.
9. Insert a slide in a slide show.
10. Change slide layout color and background.
11. Apply animation and slide transition.
12. Prepare a presentation to give information about top ten software companies (In India / world).
13. Open a work sheet, name it and save it.
14. Change the width of a column/ range of columns.
15. Enter text and change its size and font in a cell.
16. Delete/insert a row/ column in a worksheet.

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**DR. HARI SINGH GOUR UNIVERSITY, SAGAR**  
**B. A./B.COM./B.SC.(COMPUTER APPLICATIONS)**

**I YEAR (SEMESTER- II) 2012-13**

**OPERATING SYSTEM &INTRODUCTION TO PROGRAMMING**

**Time : 3.00 Hours**

**Maximum Marks : 100**

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- UNIT - I:** Introduction: Introduction to operating system, Evolution of operating system  
Various functions of operating system, Booting process, DOS internal & External  
commands, Basic Commands of windows.
- UNIT - II:** Process Management- Process concept, Process model, CPU Scheduling, Memory  
Management Concept. File management- File, File Management systems, Function  
of file management.
- UNIT-III:** Introduction & features of C, Structure of 'C' programs, C Tokens: Character Set,  
identifiers, keywords, constants, string, Operators Arithmetic, Logical, relational,  
Increment, Decrement, Assignment, Conditional and Bitwise operators,  
Precedence and Associativity of operators. Data type, Escape sequence, header  
files.
- UNIT - IV:** Single Character Input/Output: getch(), getche(), getchar(), putchar(). Formatted  
I/O: printf(), scanf().Control Structures: Decision control structure: if, if-else, else if  
ladder, nested if. Loop control structure: Loops, while, do...while, for, nested loop,  
break and continue statements, Case control structure: switch, goto statement.
- UNIT - V:** Array: Single and multidimensional arrays, array declaration and initialization of  
Arrays. Function - what is a function, why use function, library functions, user-  
defined functions, function declaration and prototype.
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**REFERENCE BOOKS:**

1. Jain, Chaturvedi and Sahu, "Overview of Operating Systems", Pragya Pub. Mathura.
  2. William Stalling, "Operating Systems", PHI.
  3. Yashwant Kanitkar, 'Letus C', BPB New Delhi
  4. Balaguruswami, 'Ansi C', TMH, Delhi
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**DR. HARI SINGH GOUR UNIVERSITY, SAGAR**  
**B.A./B.Com/B.Sc. (Computer Applications)**  
**I Year (Semester - II) 2012-13**  
**PRACTICAL**  
**(OPERATING SYSTEM & INTRODUCTION TO PROGRAMMING)**

**Maximum Marks : 50**

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1. Introduction to DOS.
2. Various types of files in DOS.
3. Internal Commands of DOS:- MD, CD, RD, COPY, DEL, REN, PATH, TYPE, PROMPT, VER, DATE, TIME, LABEL, COPY CON.
4. External Commands of DOS:- FORMAT, XCOPY, DISKCOPY, MORE, BACKUP, RECOVER, SORT, UNFORMAT, ATTRIB, MOVE, HELP, RESTORE, TREE.
5. Write a program to find out greatest number among three numbers using C.
6. Write a program to find out a number is prime or not.
7. Write a program to convert a temperature from Celsius to Fahrenheit, Fahrenheit to Celsius.
8. Write a program to print pyramid of Stars (\*)
9. Write a program to find out whether a number is even or odd.
10. Write a program to find out sum of digit of given number.
11. Write a program to reverse a number.  
Hint if the input is 3456 the out put should be 6543.
12. Write a program to reverse a string.
13. Write a program using for loop to print table of any number.
14. Write a program using While loop to find out sum of number from 1 to n.

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**DR. HARI SINGH GOUR UNIVERSITY, SAGAR**  
**B. A./B.COM./B.SC.(COMPUTER APPLICATIONS)**  
**II YEAR (SEMESTER- III) 2012-13**  
**DBMS CONCEPTS WITH SQL**

**Time : 3.00 Hours**

**Maximum Marks : 100**

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- UNIT - I: Database System & Evolution of Database technology:** Evolution of Database technology, File-Oriented System, Database System, Client Server Platforms.  
**Database System in the Organization:** Databases and Data sharing, Strategic database planning, Management control, Risks and cost of database, Logical and Physical data representation.
- UNIT- II: Database Design:** Database Development Life Cycle(DDLC), Principles of Conceptual Database Design, Objects, Specialization, Generalization, Relational ship, Cardinality, Attributes.  
**Relational data model:** Fundamental Concepts, Normalization process (1NF, 2NF, 3NF, BCNF, 4NF ), Transforming Conceptual Model to a Relational Model..
- UNIT-III: Relational Database Implementation:** Relational Algebra, Relational implementation with SQL, Introduction, Data Definition language (DDL), data Manipulation Language (DML), Data control Language (DCL), Transaction Control Language(TCL), , Schema and table definition, SQL functions: Mathematical functions, Group functions, View definition: Introduction, Command to create a view.
- UNIT - IV: Physical Database System-** Physical, storage media, Disk performance factors Data storage format file organization and addressing methods implementing, Managing the Data base environment - Database administration and Control, DBA functions, goals, integrity, security and recovery.
- UNIT - V: Structured query language using ORACLE** -Create Tables, manipulate Tables , Database Query processing, Functions, Integrity, Indexing, View's.

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**REFERECE BOOKS:**

1. Hansen G. W. & Hansen J. V. "Database Management & Design".
  2. Silberschqtz, Korth & sudarshan Database System Concepts " 5<sup>th</sup> Edition "PHI"
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**DR. HARI SINGH GOUR UNIVERSITY, SAGAR**  
**B.A./B.Com/B.Sc. (Computer Applications)**  
**II Year (Semester - III)**  
**Practical (DBMS CONCEPTS WITH SQL)**

**Maximum Marks : 50**

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1. Create table for student information like name, age, add, phone, class, college, etc. Using create table command.
2. Insert data into tables using both types of insert command.
3. Add another column into data base using modify command.
4. Select particular type of data using select command using like, functions etc.
5. Create another table from old table.
6. Run commands like, DROP table, ROLLBACK, EDIT, DESC, /, etc.
7. Apply nested queries by joining two tables & select particular data item from both tables.
8. Arrange columns data items in ascending or descending order.
9. Create view & Indexes on table.
10. Join tables using join Command.

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**B. A./B.COM./B.SC.(COMPUTER APPLICATIONS)**  
**II YEAR (SEMESTER- IV) 2012-13**  
**Object Oriented Programming using C++**

**Time : 3.00 Hours**

**Maximum Marks : 100**

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- UNIT-I :** Procedure oriented programming vs. object oriented programming, Principles of OOP, basic concepts, advantages, application of OOPs, object oriented languages. Beginning with C++ - structure of C++ program, creating, compiling, linking & executing a C++ program, Tokens, expressions & control structures, keywords, identifiers, basic data types, user-defined data types, derived data types, symbolic constants, type compatibility, variable declaration, dynamic initialization of variables, reference variables and operators in C++.
- UNIT-II :** Scope resolution operator, memory management operators, manipulators, type cast operators, operator precedence, control structures. Main function, function prototyping, call by reference, call by value, inline functions, default arguments, constant arguments, function overloading. Introduction to constructors and destructors, operator overloading & type conversion
- UNIT-III:** Specifying a class, defining member functions, making an outside function inline, private member function; array within a class, memory allocation for objects , static data members, static member functions, array of objects, objects as function arguments, returning objects.
- UNIT-IV:** Friend functions, Inheritance and its various types along with programs, introduction to pointers, pointers to object, pointers to derived classes, virtual functions and polymorphism, this pointer.
- UNIT V:** Managing console I/O operations: introduction, C++ streams, C++ stream classes, unformatted I/O operations, formatted console I/O operations, managing O/P with manipulators, Working with Sequential Data Files: Introduction, opening, closing a file, detecting EOF, sequential input & output operations.
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**REFERECE BOOKS :**

1. Object oriented programming with c++ by E. Balaguruswamy.
  2. Programming in C++ by Robert Lafore
  3. C++ - The complete reference by Herbert Schildt (TMH)
  4. Programming with C++ - Schaum Series
  5. OOP's concepts by David Parson.
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**DR. HARI SINGH GOUR UNIVERSITY, SAGAR**  
**B.A./B.Com/B.Sc. (Computer Applications)**  
**II Year (Semester - IV)**  
**Practical (Object Oriented Programming using C++)**

**Maximum Marks : 50**

1. Write a C++ program to display "Hello Computer" on the screen.
2. State the order of evaluation of the operations in each of the following C++ statements and implement them to show the value of x after each statement.  
 $x = 7 + 3 * 6 / 2 - 1;$   
 $x = 2 \% 2 + 2 * 2 - 2 / 2;$   
 $x = ( 3 * 9 * ( 3 + ( 9 * 3 / ( 3 ) ) ) );$
3. Write a C++ program to display Your Name, Address and City in different lines
4. Write a C++ program to find the area of a circle using the formula:  $\text{Area} = \text{PI} * r^2$
5. Write a C++ program to find the area and volume of sphere. Formulas are:  
 $\text{Area} = 4 * \text{PI} * R * R$   $\text{Volume} = 4 / 3 * \text{PI} * R * R * R.$
6. Write a C++ program to print the multiply value of two accepted numbers
7. Write a C++ program to convert centigrade into Fahrenheit. Formula:  $C = (F - 32) / 1.8.$
8. Write an C++ program that declares 5 integers, determines and prints the largest and smallest in the group. .
9. Write an C++ program that declares two integers, determines whether the first is a multiple of the second and print the result. [ Hint : Use the remainder operator.]
10. Write a C++ program to find the maximum from given three nos.
11. Write a C++ program to find that the accepted no is Negative, Positive or Zero
12. Write a C++ program to convert decimal to binary
13. Write a C++ program to convert decimal to octal
14. Write a C++ program to find the sum of first 100 natural nos.
15. Write a C++ program to display first 25 Fibonacci nos
16. Write a C++ program to find the sum of digits of accepted no
17. Write a C++ program to print the accepted no and its reverse no.
18. Write a C++ program to find all the prime number between two given number
19. Create a class called *Employee* that includes three pieces of information as instance variables -
  - (A) a first name (type String), a last name (type String) and a monthly salary (double) - Create a constructor in above class to initialize the three instance variables. Provide a get method for each instance variable.-
  - (B) Create two employee objects and display each object's yearly salary.
  - (C) Give each employee a 10% raise and display each Employee's yearly salary again..
20. Write a C program that manipulates the above text file. The program must implements the operation to modify a record, delete a record and append new records.

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**B. A./B.COM./B.SC.(COMPUTER APPLICATIONS)**  
**III YEAR (SEMESTER- V) 2012-13**  
**COMPUTER NETWORKS & E- COMMERCE**

**Time : 3.00 Hours**

**Maximum Marks : 100**

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<b>Unit - I</b>	<b>Communication and network concepts:</b> Evolution of Networking, uses of computer networks, Direction of Transmission : Simplex, Half Duplex, Full Duplex, switching techniques. <b>Reference Models:</b> OSI Reference Model, TCP/IP Reference Model, Comparison of the OSI and TCP/IP Reference Models.
<b>Unit - II</b>	<b>Physical Layer: Guided Transmission media-</b> twisted pair cable, coaxial cable, optical fiber, <b>Wireless Transmission</b> -infrared, radio link, microwave link and satellite link. <b>Network devices:</b> Modem-working and Characteristics, Ethernet Card, Network Interface Card, Bridger, HUB, Routers, Repeater, Switch, Gateways. <b>Different Topologies:</b> Bus, Star, Ring, Tree, Mesh, Hybrid, Concepts of LAN, WAN, MAN. <b>Network Security Concepts:</b> Cyber Law, Firewall, Cookies, Hackers and Crackers.
<b>Unit - III</b>	<b>Data link layer:</b> data link layer design issues, Error Detection and Correction, Elementary data link protocols. <b>Medium access control sub layer:</b> IEEE standards 802 for LANS and MANS. <b>Network layer-</b> Network layer Design issues, Routing algorithms, Inter networking, Network layer in the Internet. <b>Transport layer-</b> The Transport Service, Transport protocols. <b>The Application layer-</b> DNS, Email, www
<b>Unit - IV</b>	<b>E- Commerce:</b> what is E - Commerce, Brief history of E- Commerce, advantages & disadvantages of E-Commerce, area of E-Commerce, Inter organizational E-Commerce Intra Organizational E-Commerce and Consumer to Business Electronic Commerce, Architectural framework, Network infrastructure for E-Commerce, Access Equipment, Electronic Payments - Overview of Electronics payments, Digital Token based Electronics payment system, smart cards, credit card, debit card based EPS, Home Banking, online banking.
<b>Unit - V</b>	<b>Mobile Commerce :</b> Introduction, Growth, Success stories of mobile commerce, Technologies for M. C. WAP & its basics, WAP Programming Model, other wireless Technology, GSM V/s CDMA, Security issues, M-commerce in India.

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**REFERENCE BOOKS:**

1. Tanenbaum A. S., "Computer Networks", PHI.
  2. Uyles Black, "Computer Networks", PHI.
  3. Ravi Kalakota, Andrew Whinston, "Frontiers of Electronic Commerce", Addison Wesley
  4. Denial Amor, "The E-Business Revolution", Addison Wesley
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**DR. HARI SINGH GOUR UNIVERSITY, SAGAR**  
**B. A./B.COM./B.SC.(COMPUTER APPLICATIONS)**  
**III YEAR (SEMESTER- V) 2012-13**  
**PRACTICAL (COMPUTER NETWORKS & E- COMMERCE)**

**Maximum Marks : 50**

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1. Study the physical media of connectivity.
2. Study the pin-structure of cross-over cable.
3. Study the different LAN Technologies.
4. Study the functioning of a Switch.
5. Study the Functioning of a Router.
6. Establishing LAN (Star topology) for your LAB using Hubs
7. Study and install the media converting using optical fiber.
8. Install and configure the LAN card.
9. Install and configure window NT (2000 & 2003) Server.
10. Study and implement the virtual network.

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**B. A./B.COM./B.SC.(COMPUTER APPLICATIONS)**  
**III YEAR (SEMESTER- VI) 2012-13**  
**INTERNET AND WEB PAGE DESIGN**

**Time : 3.00 Hours**

**Maximum Marks : 100**

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<b>UNIT - I:</b>	Internet–Evolution, Protocols, Interface concept, Internet, Application. E-mail- concept, POP and WEB based E-mail, Advantages of E-mail, Address of E-mail, Basics of Sending and Receiving E-mail. File Transfer Protocols & Telnet - Data Transmission Protocols, Client/Server Architecture & its Characteristics, FTP and its uses, Telnet concept, Remote Login,. World Wide Web – History, Working of the Web, Web Browser and its functions,
<b>UNIT II:</b>	Introduction to Webpages, Browser and HTML, HTML tags: paired tags, singular tags. Structure of an HTML: Document Head and Document Body, Titles and Footers, using <Meta> in Document Head. Basic Text formatting: Paragraph breaks, Line breaks, heading styles, drawing lines. Text styles: Bold, Italics, Underlines. Other text effects: Centering, Spacing.
<b>UNIT III:</b>	List: Unordered List, Ordered List, Definition Lists. Using special tags: <Marquee>, <Block quote> and <Address> Using common character entities starting with & Adding graphics to HTML documents: using the attributes – Border, Width and Height attribute, align and ALT attribute.
<b>UNIT IV</b>	Tables: introduction, using the width, border, cell padding, cell spacing, Bgcolor, colspan, rowspan attributes. Linking documents: Links, External and Internal Documents References, Hyper linking to a HTML file, linking to a particular location in a separate document, Images as hyperlinks, Image Maps. Frames: introduction, frameset and frame tag.
<b>UNIT V</b>	Forms used by a website: form object, form object’s methods, properties and methods of Form elements. Text elements, password element, button element, submit and reset button elements, checkbox element, radio element, text area element, select and option element. Dynamic HTML: Cascading Style Sheets: Font attribute, Color , background , Text, Border, Margin related attributes ,List Attributes. Layers – Concept of layers, Positioned and Inflow Layers.

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**REFERENCE BOOKS:**

1. Internet for Everyone, Alexis Leon and Mathews Leon, Vikas Publishing House Pvt. Ltd, New Delhi.
  2. ‘O’ Level Module M1.2 Internet & web page designing, VK. Jain, BPB Publication, New Delhi.
  3. HTML, DHTML, JavaScript , Perl CGI by Ivan Byross
  4. The Complete reference HTML by Thomas Powell.
  5. World Wide Web Design with HTML – by C Xavier.
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**DR. HARI SINGH GOUR UNIVERSITY, SAGAR**  
**B.A./B.Com/B.Sc. (Computer Applications)**  
**III Year (Semester - VI)**  
**PRACTICAL (INTERNET AND WEB PAGE DESIGN)**

**Maximum Marks : 50**

1. Describe the structure of an HTML Document.
2. Create a web page with information on the following topics. :
  - (a) Your Name
  - (b) Address
  - (c) Date of Birth
  - (d) Hobbies
  - (e) Favorite pastime
  - (f) Ideals
  - (g) Favorite Music
  - (h) Favorite Films
3. Create an HTML document with the paragraph using <P> <H1>, <STRONG> for the first word of every sentence.
4. Create an HTML document to describe Unordered and Ordered list and their features.
5. Create a Web page for the following :

WELCOME TO SAGAR UNIVERSITY STUDENTS DETAILS

S.No.	SNAME	BRANCH	SEM	Marks		
				M1	M2	M3

6. Create an HTML document to include an image. Use the width and height attributes of the <img> tag to
  - (a) Increase the image size by 100%.
  - (b) Increase the image size by 50%.
  - (c) Change the width-to-height ratio to 2:1.
7. Create a Link of each of the following :
  - (a) Index, html, located in the files directory.
  - (b) Index, html, located in the text subdirectory of the files directory.
  - (c) A link to the presidents email address (<http://www.dhsgsu.nic.in>)
  - (d) An FTP link to the file named README in the pub directory of ftp.cdrom.com
8. Specify the HTML tags to accomplish the following :
  - (a) Insert a framed web page with the first frame extending 300 pixels across the page from the left side.
  - (b) Insert an ordered list that will have numbering by lowercase roman numerals.
  - (c) Insert a scrollable list in a form that will always displays four entries of the list.
  - (d) Insert an image map into a page using an image and map with Name = "hello" as the image map, and have "hello" be the alt text.
9. Create a home page of your own using HTML tags.
10. Using the tags of HTML forms, create a form to reserve a ticket in the southern Railways in the source and destination places are given.
11. Write an HTML document to provide a form that collects names and telephone numbers. Write basic steps for hosting a web site.

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