Scheme and Syllabus

of

B. Sc. (Computer Science)

I to VI Semester

w.e.f. July 2011
(2011 – 2014 Batch onwards)

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Proposed Syllabus & Scheme for B. Sc. (CS) SEMESTER SYSTEM
(Effective from July 2011 session for 2011-14 batch onwards)

CLASS /SEMESTER	B. Sc.(CS)	CCE	MIN. MARKS	TERM END EXAM	MIN. MARKS	TOTAL 100%	MIN. MARKS
FIRST SEM.	**CS/IT-1101**--Computer Organization	15	5	85	28	100	33
	CS/IT -1101P- Practical on Computer Org. & MS Office	---	---	---	---	50	17
SECOND SEM.	**CS/IT -1201**- Programming & Problem Solving through C.	15	5	85	28	100	33
	CS/IT -1201P- Practical on C Language	---	---	---	---	50	17
THIRD SEM.	**CS/IT -2301**-Data Structure using C Lang.	15	5	85	28	100	33
	CS/IT -2301P-Practical on Data Structure using C	---	---	---	---	50	17
FOURTH SEM.	**CS/IT -2401**-Data Base Management System	15	5	85	28	100	33
	CS/IT-2401P-Practical on Data Base Management System	---	---	---	---	50	17
FIFTH SEM	**CS/IT-3501** Object Oriented Programming using C++	15	5	85	28	100	33
	CS/IT-3501P-Practical on C++	---	---	---	---	50	17
SIXTH SEM	**CS-3601** Computer Networks	15	5	85	28	100	33
	CS- 3601P Practical on Computer Networks	---	---	---	---	50	17

PS :- CCE ----- CONTINUOUS COMPREHENSIVE EVALUATION, **INDIVIDUAL PASSING REQUIRED FOR THEORY AND PRACTICAL SUBJECTS**

CS/IT – 1101 COMPUTER ORGANIZATION
Commencing from 2011-12 onwards

UNIT I

Evolution of Computers and Computer Generations, Computer Classification Processing speed of a computer, Technology Trends, Measuring Computer Performance, MIPS.von Neumann Machine Architecture, Functional Units and Components in Computer Organization, Computers – Block diagram, Memory addressing capability of a CPU, Word length of a computer Basic components of a Digital Computer - Control unit, ALU, IO Subsystem of a Computer, Bus Structures, Uses of Program Development Tool, Editor, Compiler, Assembler, Interpreter)

UNIT II

Number systems – Decimal Number system, Binary number system and Hexa-decimal number system,1's & 2's complement, Representation of Positive and Negative Numbers Binary Fixed- Point Representation, Arithmetic operation on Binary numbers, Overflow & underflow. Floating Point Representation, Codes, ASCII Logic Gates, AND, OR, NOT GATES and their Truth tables, NOR, NAND & XOR gates. Counters, Registers, Shift Registers

UNIT III

Storing data and Program in Memory, Memory Hierarchy in a Computer Internal Organization of Semiconductor Main Memory Chips, Semiconductor Memory RAM and ROM Auxiliary Memory Peripheral Devices, Secondary Storage Memory, Magnetic Memories and Hard Disk Optical Disks and CD Memories

UNIT IV

Algorithm, Flowchart, Logic Development & Problem solving. Algorithms for simple problems involving conditional manipulation of memory variables The 8085 Programming Model, 8085 Hardware Model, Block Diagram and uses of Registers, Accumulator, Flag, Program counter and stack pointer How to write, assemble and execute a simple program: Illustrate Program –Adding two hexadecimal numbers.

UNIT V

Input Devices, keyboard, Mouse, Output Devices, CRT Monitor, LCD Displays, Touch Screen Displays Print Devices Multiprocessor and Multi core Architecture Flynn Classification SISD, SIMD, MISD, MIMD.

TEXT BOOK
Computer Fundamentals – B. Ram – New Age International Publishers
REFERENCE BOOKS
1. Rashid Sheikh, "**Computer Organization & Architecture**"
2. William Stallings, "**Computer Organization & Architecture**", Pearson.
3. BARTEE, *"Digital Computer Fundamentals"* TMH Publication
4. *MORRIS MANO, "Computer System Architecture"* PHI
5. W. Hayes, Computer Architecture, McGraw-Hill
Problems Solving Skills Book
1. Nicholas P Carter, Schaum Outline on Computer Architecture and Organization, TMH, Special Indian Edition Adaptation,, 2010

Note: Faculty teaching the subject will also given to students the besides 50 hours teaching the appropriate exercises and assignments. .

CS/IT-1101P - Practical on Comp. Org. and MS-Office

Practical Session -01 - Practical on MS-OFFICE:

WINDOWS
1. Creating folder, cut, copy, paste, managing file and folder in windows.
2. Arrange icons, set display properties
3. Adding and removing software and hardware
4. Setting date and time, screen saver and appearance.
5. Using windows accessories.
6. Settings of all control panel items
7. Search file

MS-Word
1. Creating & Editing Document
2. Formatting Document
3. Use of Auto-text, Autocorrect, Spelling and Grammar Tool,
4. Page Formatting, Page Border, Background,
5. Creation of MS-Word-Mail Merge, Macros, Tables.
6. Practice of Printing, page setup etc.

MS-Excel
1. Creating & Editing Worksheet, Fill Handle
2. Use Formulas and Functions
3. Preparing Charts

MS-PowerPoint
1. Creating, Manipulating & Enhancing Slides,
2. Inserting Organizational Charts, Excel Charts
3. Using Word Art

4. Putting Animations and Sounds
5. Inserting Animated Pictures
6. Inserting Recorded Sound Effect

Computer Organization
Practical Session 02 - Using Debug/MASM/TASM

To Study of DEBUG visit the following website:
http://kipirvine.com/asm/debug/Debug_Tutorial.pdf

Practical on Flip-flops, Logic Gates and Registers.

Do the following tasks: -

1. Add 3, 4 and 7 and display result in only AX register
2. Add 3, 8 and 9 using three different registers and show result of all registers
3. Take dump of location 110 and display
4. Add your name and date of birth at location 120. Move only the date of birth to location 200. Search through 100 to 300 to find the date
5. Move 3 to AX register and multiply it with 3 to show the result.
6. Use int 21 in all your assembled codes
7. Use comparison command to compare the date of birth at location 120 and 100.

Write complete assembly codes for the following tasks. Submit code and output trace:

1. A program that displays your name and date of birth.
2. A program that adds the following numbers
a. 1000
b. 4000
c. 1700

3. A program that does the following
a. Add two numbers X and Y
b. Multiply the result with C
c. Increment the result

4. A program that subtracts
a. Two numbers X and Y such that X>Y
b. Two numbers X and Y such that Y>X

5. A program that divides
a. Two numbers X and Y such that X%Y = 0
b. Two numbers X and Y such that X%Y != 0
c. Two numbers X and Y such that Y = 0

CS/IT – 1201- PROGRAMMING AND PROBLEM SOLVING THROUGH C
Commencing from 2011-12 onwards

UNIT I

Algorithm, Flowchart, Logic Development & Problem Solving. Structure of C program, C declarations, keywords, identifiers, constants, variables, Data types, type conversion,
Types of operators and expressions, Input and output functions in C.

UNIT II

Decision Statement – IF-ELSE statement, break, continue, goto, switch() case and nested IF statement. Loop Control Statements – For loop, While loop , Do-while loop and nested loops. Arrays – Definition, Initialization, characteristics, One, Two, Three and Multi-dimensional Arrays Working with scanf, printf, Strings & Standard Functions.

UNIT III

Pointers – Introduction, Features, Declaration & Arithmetic operations on pointers. Pointers and Arrays, Array of pointers. Pointers to pointers, pointers and strings, Void pointers Functions – Declaration, Prototype, Types of functions, Call by value and reference, Function with operators

UNIT IV

Function with decision statements, function with Loop statements. Function with Arrays and Pointers.
Types of Storage Classes. Introduction to Files, Streams and File Types, Steps for file operations, File IO,

UNIT V

Files – Streams and file types, file operations Write and Other file functions.Command line arguments, Application of Command Line Arguments Structure and Union – Declaration, Initialization, structure within structure. Array of structure, Enumerated data types, Union of structure

TEXT BOOKS
1. *E. Balaguruswamy, **"Programming In C "**, TMH Publications*
2. *Kanetkar,* **"Let Us C"** REFERENCES
BOOKS
1. Ashok N. Kamthane, "Programming with ANSI and Turbo C", Pearson
   Education
2. Ashok N. Kamthane et. al., Computer Programming and IT (for RTU), Pearson
   Education, 2011 (ISBN 978-81-317-5970-7)
3. *Mahapatra,* **" Thinking In C ",** *PHI Publications*
Problem Solving Skills Book:
1. *Gottfried, Schaums Outline Series,* **" Programming With C ",** *TMH Publications*

Note: Faculty teaching the subject will also given to students the besides 50 hours teaching the appropriate exercises and assignments. l.

(Effective from July 2011 session for 2011-14 batch onwards)

CS/IT – 1201P - Practical on C Language

(*Student Must Write 50 Programs including following 25 Programs in their Computer Practical Book with* **Algorithm/Flowchart)**

1. Write a program for swapping two variables without using third variable.
2. Write a program to calculate simple Interest and Compound Interest.
3. Write a program to convert temperature entered into centigrade to Fahrenheit.
4. Write a program to find maximum of three numbers.
5. Write a program to read in a three digit number produce following output
(assuming that
the input is 539)
5 hundreds
3 tens
9 units
6. Write a program to find sum of digits of accepted number.
7. Write a program to find student grade using IF-ELSE ladder
8. Write a program that prints given three integers in ascending order using IF- ELSE
9. Write a program for simple calculator using switch/case loop.
10. Write a program for print Fibonacci series up to N number.
11. Write a program to find sum of first 50 odd numbers and even numbers.
12. Write a program to find reverse of given number.
13. Write a program to find factorial of accepted number.
14. Write a program to find all prime number between two given numbers
15. Write a program to find minimum, maximum, sum and average of given one dimensional array.
16. Write a program for sparse matrix.

17. Write a program to find addition, subtraction, multiplication of matrix.
18. Write a program to print terms of each of the following series
i. Sin(x) ii. Cos(x)
19. Display the following output on the screen
a. b. c.
* 1 A
** 12 AB
*** 123 ABC
**** 1234 ABCD
***** 12345 ABCDE
20. Write a program to read and write a structure.
21. Write a program for factorial function.
22. Write a program to read a string and print its reverse.
23. Write a program to find a_b using Call by reference.
24. Write a program for create, open and append a file.
25. Write a program to copy the contents of one file to another.

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CS/IT-2301 DATA STRUCTURE USING C
Commencing from 2012-13 onwards

Unit- I
Introduction to Data Structures: Definition of Data structure and Abstract data type
Classification of Data structures: Linear, non-linear, homogeneous, non-homogeneous, static & dynamic.
Arrays: Definition & types of array, Memory representation of one & two dimensional array, Operations: Insertion , Deletion, Traversal
Sparse Matrix: Definition & memory representation.

Unit- II
Stack: Definition, Array implementation of stack (static stack) : Operations PUSH, POP, TRAVERSE.
Applications of stack: Infix, Prefix , Postfix representation and evaluation using stack, Use of stack in recursive implementation.
Queue: Definition, Array implementation of queue (static queue): Operations INSERT, DELETE, TRAVERSE.
Introduction to Circular queue: Definition & implementation, Priority queue, Double ended queue
Applications of queue

Unit- III
Introduction to Linked List: Definition, advantages, Types of linked list: single, doubly, circular linked list
Operations: Creation, insertion, deletion & traversal of linked list

Unit- IV
Complexity of Algorithms: Time & space complexity, Best-case, worst-case, average-case, Big –oh notation.
Searching Algorithm: Linear or sequential search, Binary search, Interpolation search using array.
Complexity of Linear search, Binary search, Interpolation Search
Sorting Algorithm: Bubble sort, Selection sort, Insertion sort, Merge sort
Complexity of sorting algorithm.

Unit- V
Introduction to Tree: Definition, Binary tree: Definition, representation
Operations: Traversal, insertion, deletion
Binary search Tree (BST): Definition and creation, Search using BST
Introduction to B-Tree & B+ tree.
Text Books:
1. Yedidyah Langsam Moshe J. Augenstein, Aaron M. Tenenbaum, "**Data Structures using C & C++",** PHI New Delhi, 2nd Edition.

Reference Books:
1. G.S.Baluja, "**Data Structures Through C**",Dhanpat Rai & Co.,4th Edition
2. Seymour Lipschutz,"**Data Structures**", Schaum's Outline Series, Tata Mc Graw Hill Publishing Company Ltd.
3. Adam Drodzek, "**Data Structures & Algorithm in C++**", 2nd Edition

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CS/IT-2301P Practical exercise on Data Structure using C

1. Write a program for address calculation of an element in one and two dimensional array (row major order and column major order).
2. Write a program for insertion, deletion and traversal of elements of an array.
3. Write a program for sparse matrix implementation.
4. Write a program for complete implementation of stack using array with push, pop and traversal operations.
5. Write a program for conversion of an infix expression into postfix representation and evaluation of that postfix form.
6. Write a program for complete implementation of queue using array with insertion, deletion and traversal operations.
7. Write a program for complete implementation of circular queue using array with insertion, deletion and traversal operations.
8. Write a program for complete implementation of double ended queue using array with insertion, deletion and traversal operations.
9. Write a program to create singly link list (creation, insertion, deletion and traversal).
10. Write a program to create doubly link list (creation, insertion, deletion and traversal).
11. Write a program to create circular singly link list (creation, insertion, deletion and traversal).
12. Write a program to create circular doubly link list (creation, insertion, deletion and traversal).
13. Write a program for complete implementation of stack using link list with push, pop and traversal operations.
14. Write a program for complete implementation of queue using link list with insertion, deletion and traversal operations.
15. Write a program for implementation of binary tree (creation, insertion, deletion), with preorder, inorder and postorder traversal.
16. Write a program for implementation of binary search tree (creation, insertion, deletion), with preorder, inorder and postorder traversal.
17. Write a program for implementing graphs and showing depth first search and breadth first search traversals.
18. Write a program for linear search.
19. Write a program for Binary search.
20. Write a program for interpolation search.
21. Write a program for bubble sort.
22. Write a program for selection sort.
23. Write a program for insertion sort.
24. Write a program for merge sort.
25. Write a program for quick sort.

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CS/IT-2401 DATA BASE MANAGEMENT SYSTEM
Commencing from 2012-13 onwards

Unit – 1
Fundamentals of DBMS: Data, Information, Database & Computers, DBMS Definition, DBMS versus file processing system, Components of DBMS Environment, Instances & Schemas, Three Levels Architecture, Data Independence, Data Dictionary, Database Users, Data Administrators.

Unit – 2
Modeling the Real World, Various Data Models & their Comparison, Entity Relationship Models. RDBMS – Concept, Components, Data Integrity, Keys, Relational data Manipulations and Relational Algebra, Tuple Calculus.

Unit – 3
Normalization: Definition, Decomposition, Basic Concepts like FD, Objectives of Normalization. Normal Forms- First, Second, Third Normal Form, BCNF, Concept of Multi Valued Dependencies & Higher Normal Forms.

Unit – 4
Introduction to SQL, DDL, DML, and DCL statements, Creating Tables, Adding Constraints, Altering Tables, Update, Insert, Delete & various Form of SELECT- Simple, Using Special Operators for Data Access. Nested Queries & Exposure to Joins, Aggregate Functions.

Unit – 5
Transaction: Concept of Transaction, Concurrency Control-Problem & its Basis, Concurrency Control -Locks & Deadlocks. Recovery-Kind of Failures, Recovery Techniques, Security-Authentication, Authorization, Access Control

Text Book:
1.H. F. Korth & A. Silverschatz, Database concepts, Tata McGraw Hill, New Delhi.

Reference Books:
1. Elmasri & Navathe, Fundamentals of Database systems, Addison & Weisely, New Delhi.
2. C. J. Date, Database Systems, Prentice Hall of India, New Delhi.
3. Hoffer, Prescott & McFadden, Modern Database Management, 8/e
4. Ivan Bayross, SQL, PL/SQL, BPB Publications , New Delhi.

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CS/IT-2401P-Practical on Data Base Management System

1. Write a command to create following table structure, item-master .

   Column name   datatype
   Itemcode   char(4)
   Itemdesc   varchar(25)
   No_of_item_available int
   Price   int.

   Condition are:- (1) itemcode is primary key

                    (2) Itemdesc is not NULL
                    (3) No_of_item_available is non zero .
                    (4) Price value should be 200 Rs.

2. The Department of an employee Raj Sharma table changed from finance to marketing. The department code of marketing is 003 & the employee code of raj Sharma 0015.both the department code & employee code are of char data type. Write update statement to update table employee.

3. News paper attribute   data type
   Newspapercode   char (4)
   Newspaper name   char(25)
   Region   varchar(25)
   Type of news paper   varchar(25)
   City   char(20)
   Country code   char(3)
   Phnno   Char(15)
   Second table
   Newpaperadver
   Newsadvo   varchar (4)
   Adstart date   dates time

   Write SQL command for:-
   (a) Phnno should be [0-9][0-9][0-9][0-9][0-9][0-9][0-9][0-9][0-9][0-9][0-9]
   (b) Country code should be 001 by default.
   (c) News paper code should primary key.
       Modify table->
       (a) Newsadvo Should be primary key
       (b) News paper code should be foreign key.

4. Write a command to display the detail of all those employee who name at least 3-5 year experience.

   Attribute   data type
   Employ code   char
   Employ name   char
   Department code   char
   DOJ   date
   YOE   int
   Employ grade   char

5. The employee tables contain the employee name, address, age, salary of each employ. Write SQL command for-

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(a) Display all the detail of the employee

(b) Whose age less than 40 year.

(c) Salary is greater than 15000.

6. In a bank the customer table store's the detail of each customer. the bank has decided to give a 10% discount on all credit card's you want to generate a list of all customer who don't available the credit card facility. How do you generate the list? The structure of customer table.

Column	data type
Customecode	char
Customername	char
Customeraddress	char
Credit card	int

7. Consider title table with column name, title, title type pub ID of char type, while price advance, royalty, ytd-sales is off int type.

(a) Display the highest advance paid.

(b) Display the lower advance paid.

(c) Display the total no. of book.

(d) Display total sales of book.

8. Write appropriate SQL command for following-

(a) Increase the price of all items by 5%.

(b) Update the quantity hold to 500 for item code 1oo1.

(c) Delete a row from the item table where item code is 1oo1.

(d) Update the price of item to 20 RS .

9. Write SQL definition command for each of the following

(a) How would you add an attribute, CLASS, to the STUDENT table.

(b) How would you remove the IS_REGISTERED table?

(c) How would you change the field for FACULTY_NAME from 25 characters to 40 characters?

10. Consider employee table

Employee (empno., Name, depid, Basic, HRA, Deduction, Tax)

(a) Get the name of employee in the department 'D1' and basic pay less than 6000.

(b) Get the average HRA of an employee.

(c) Find the total basic pay for all the employee in the department 'D1' whose basic pay is greater than 6000.

(d) Find the name of the employee who get the maximum and minimum basic pay.

11. Consider the following table

Emp_master(emp_no, fname, mname, lname, dept, design, branch_no)

Branch_mastr(name, branch_no)

List the employee details along with branch names to which they belong.

12. Consider the following table

Cust_mstr (custno, fname, mname, lname)

Addr_dtls (code_no,addr1,addr2,city,state,pincode)

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List the customer along with their multiple address details.

13. Consider table

Book (Bookid, title, author, Publisher, year, price)
Order_details (Orderno, bookid, quantity)
Publisher (pubid, name, city, country)
Catalog (Bookid, title, authorid, pubid, category_id, year, price)
Author (authorid, name, city, country)

1. Get the title and price of all the books whose price is less than the average price of the books.
2. Get the name of all authors who have more than two books in the catalog.
3. Get the name of all the books for which an order has been placed.

14. Consider table Order (ordered, order_detail, qty, price)

    a) Alter table Order add column amount.
    b) Modify data type of price column from character to int.

15. Consider table

Product_master(Product_no,description,profit_percent,unit_measure,qty_on_hand,reorder, sell _price, cost_price).
Client_master(Clientno, name, city, pincode, state , bal_due)
Salesman_master(Salesmanno, salesmanname,address1,address2, city, pincode , state , sal_amt, tgt_to_get, Ytd_sales, remark)

1. Find out the names of all the clients.
2. Retrieve the entire contents of the client_master table.
3. Retrieve the list of names and the cities of all the clients.
4. List the various products available from the product_master table.
5. List all the clients who are located in Bombay.
6. Find the names of the salesman who have a salary equal to Rs. 3000.

16. Consider table

Client_master (Client_no, name, city, pincode, state, bal_due).
Product_master (Product_no, description, profit_percent, unit_measure, qty_on_hand, reorder, sell _price, cost_price).
Salesman_master (Salesmanno, salesmanname, address1, address2, city, pincode , state , sal_amt, tgt_to_get, Ytd_sales, remark)

1. Change the city of client_no 'C00005' to 'Bombay'.
2. Change the bal_due of client_no 'C00001' to Rs. 1000.
3. Change the cost price of '1.22 Floppies' to Rs. 950.00.
4. Change the city of the salesman to Mumbai.

17. Consider table

Product_master(Product_no,description,profit_percent,unit_measure,qty_on_hand, reorder, sell _price, cost _price).
Client_master(Clientno, name, city, pincode, state , bal_due)
Salesman_master(Salesmanno, salesmanname,address1,address2, city, pincode , state , sal_amt, tgt_to_get, Ytd_sales, remark)

1. Delete all salesman from salesman_master whose salaries are equal to Rs. 3500.
2. Delete all products from product_master where the quantity on hand is equal to 100.

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3. Delete from client_master where the column state hold the value 'Tamil Nadu'.

18. Consider employee table
    Employee (empno, name, depid, basic, hra, deduction, tax)
    1. Get the number of rows in a table
    2. Find the department wise average pay of the employees.
    3. Find the name of the employees whose basic pay is greater than the average basic pay.
    4. Find the name of the employee who gets the basic pay.
19. The employee table stores the details of employees such as employee code, employee name, department code, date of joining, years of experience and the employee grade. Display only those grades in which the number of employees is more than 100.
    The table structure of the employee table is shown below:
    Employee(emp_code, emp_name, Dept_code, Doj, Yrs_exp, Emp_grade)

20. Explain set operation command with example.

CS/IT-3501 Object Oriented Programming using C++
Commencing from 2013-14 onwards

To introduce the concept of object oriented programming through C++.
UNIT I
Introduction, OOPS languages, characteristics of OOP's languages, application of OOP's, OOP's paradigm, concepts: object, class, data abstraction, data encapsulation,inheritance, and polymorphism. Static and dynamic binding, message passing, benefits of OOP's, disadvantage of OOP's. Application of OOP's.

UNIT II
C++ programming basics, basic program structure, preprocessor directive, data types, operators, manipulator, type conversions, C++ stream class.Control statement: for, do, while, do-while Decision statement if, if-else, switch-Case. Jump statement: break, continue, go to, exit.

UNIT III
Function and arrays. Classes and instances, defining classes in object oriented language, building and destroying instances (constructors and destructors), modifiers, friend and inline functions, string handling function.

UNIT IV
Data encapsulation, polymorphism, operator overloading, function overloading, virtual functions.

UNIT V
Inheritance, reusability of code through inheritance, type of inheritance, data abstraction, abstract classes. Templates and exception handling.

TEXT BOOK:

(Effective from July 2011 session for 2011-14 batch onwards)

1.Object oriented programming with C++ by Balaguruswamy, TMH Publishing.

REFERENCE BOOKS:

1. C++, The Complete Reference, 4th Edition, Herbert Schildt, TMH.
2. C++ Primer, 3rd Edition, S. B. Lippman and J. Lajoie, Pearson Education.
3. The C++ Programming Language, 3rd Edition, B.Stroutstrup, Pearson Education.
4. OOP in C++, 3rd Edition, T.Gaddis, J.Walters and G. Muganda, Wiley Dream Tech Press.
5. Object Oriented Programming in C++, 3rd Edition, R.Lafore, Galgotia Publications Pvt. Ltd.
6. Computer Science, A Structured Programming Approach Using C++,   B. A .Forouzan and R. F. Gilberg, Thomson

CS/IT 3501P
PRACTICAL (OBJECT ORIENTED PROGRAMMING THROUGH C++)

1.   Write a program to find the maximum of three using conditional operator.
2.   Write a program to find the largest, second largest and third largest in a given array.
3.   Write a program to generate Armstrong series.
4.   Write a program to find the factorial of a given number.
5.   Write a program to generate the Fibonacci series.
6.   Write a program to check whether the given number is palindrome or not.
7.   Write a program to find the GCD and LCM of two no's.
8.   Write a program to print the diagonal elements of matrix.
9.   Write a Program to demonstrate use of array of objects.
10.   Program to demonstrate use of function overloading.
11.   Write a function which accept object as a parameter and returns object.
12.   Write a Program to demonstrate the virtual base class.
13.   Write a Program to demonstrate use of polymorphism (virtual function).
14.   Write a program to overload ++ operator to increment age of person by one month.
15.   Write a program to illustrate the use of scope resolution operator.
16.   Write a program to find the square root using inline function.
17.   Write a program to illustrate the use of friend function.
18.   Create two employee objects and display each object's yearly salary.
19.   Give each employee a 10% raise and display each Employee's yearly salary again..
20.   Write C++ program to create five object of book, get information of book using
         getdata() function including name, price, publication and author.

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CS-3601 Computer Networks
Commencing from 2013-14 onwards

UNIT-I:
Computer Network, Goals and applications, Reference models-OSI & TCP/IP- A Comparative study. Network hardware- LAN, MAN & WAN and Topologies, LAN components – File server, Workstations, Network Adaptor cards, Connection oriented and connection less services.

UNIT-II
Data Communication System, Data Communication Links, Character codes, Digital Data rates, Serial Data formats, Encoded data formats, Error detection and correction. Transmission media – guided and unguided media, Switching Techniques – Circuit Switching, Packet Switching, Message Switching.

UNIT-III
Data Link Protocol, Character Oriented Protocol & Bit Oriented Protocol, Network architecture protocol, Ethernet, Token bus and Token Ring.

UNIT-IV
Internet basics- Elements of the web, viewing web pages with a browser, using a browser for a mail, news and chat, security and privacy issues. Internet: advantage & disadvantage. Internet Services, Web server and Proxy server, Web caches, web browser like internet explorer, netscape navigator and communication suite, internet security issues, embedded and software based firewall, data encryption and digital signature and certificates.

UNIT-V
The art of creating the web site and home page, the HTML programming basics, syntax & rules, tables, frames, forms, example of HTML page, choice of color, banners, linking with HTML page, Div, Span, met tags, Introduction to DHTML, Java script, use of java script, Java script syntax, Data type, Array, Variable, Operator & Expressions.

Text Books:
1. Data and Network communication by Michael A. Miller..

(Effective from July 2011 session for 2011-14 batch onwards)

Reference Books:
1. Deitel and Deitel, Goldberg, "Internet and World wide web – How to program," Pearson education Asia, 2001.
2. "Computer Networks", A. S. Tanenbaum.

CS-3601 P (Practical Exercise on Computer Networks)
Commencing from 2013-14 Onwards

1. Create a webpage that prints your name to the screen.
2. Create a webpage that print the numbers 1-10, each number being a different color
3. Print a paragraph with 4-5 sentences .Each sentence should be a different font.
4. Print two lists with any information you want. One list should be an ordered list, the other list should be an unordered list.
5. Print a paragraph that is a description of a book, include the title of the book as well as its Auther. Names and titles should be underlined, adjectives should be italicized and bolded
6. Print some performatted text of your choosing
7. Create a page with a link at the top of it that when clicked will jump all the way to bottom of the page.At the bottom of the page there should be a link to jump back to the top of the page
8. Display an image that has a border of size 2,a width of 200 and a height of 200.
9. Display five different images. Skip two lines between each image .Each image should have a title.
10. Display an image that when clicked will link to a search engine of your choice
11. Add a simple table to for storing Train information(Train no, Name, Source, Destination, Time)without borders .Do the following
    1. Add border value of 1, save and view.
    2. Add a border value of 5,save and view.
    3. Make the top row a table header, save and view
    4. Align all data elements to the middle of their cells, save and view.
    5. Divide Time into Departure Time , Arrival Time.
12. Write a java Script ,which calculate sum or product depending on the drop down menu selection of two numbers, accepted using textbox and display the result in the third textbox.The action perform on click event on button.
13. Write a Java script which display current date and time when page loads
14. Write a Java script that prompt the user for his or her name as the page load(via dialog box) and then welcome the user by name in the body of the page
15. Create a webpage using two image files , which switch between one another as mouse pointer mover over the images.

(Effective from July 2011 session for 2011-14 batch onwards)

16. Write a java script ,which calculates factorial of a number, accepted using textbox and displays the result in second textbox. The action perform on click event on button.
17. Write a java script which reverses the number accepted in text box.
18. Create an HTML form which has number of text boxes like first name, last name, address & PIN code. Write a Java script code to verify following on click event of a button.
    1. Pop up an alert indicating which text box has left empty and set focus on that specific text box.
    2. Give message "Thanks you" if all text boxes are filled.
    3. Pop Up an alert message if text within PIN code is not numeric value and greater than 6 digits and set focus on it till it is given proper value.

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