BACHELOR OF SCIENCE-COMPUTER SCIENCE

Mode	Dual Mode University System
Duration	3 Year
Pattern of Examination	Annual
Eligibility	10+2 in relevant subject or 3 years diploma in relevant subject

SCHEME OF EXAMINATION

Subject Code	**Title**
1st Year	
BSCCS -101	English-I
BSCCS -102	Hindi
BSCCS -103	Data Structures Using C
BSCCS -104	Discrete Mathematics
BSCCS -105	Digital Computer Fundamentals
BSCCS -106	Computer Lab I (C And Data Structure Lab)
2nd Year	
BSCCS -201	English-II
BSCCS -202	Scientific Computing
BSCCS -203	Application Programs
BSCCS -204	Object Oriented Programming And C++
BSCCS -205	Computer Lab (Application Programs Lab)
BSCCS -206	Computer Lab (C++ Programming Lab)
3rd Year	
BSCCS -301	Visual Programming
BSCCS -302	Internet Programming
BSCCS -303	Computer Graphics
BSCCS -304	Operating Systems
BSCCS -305	Computer Lab (Java Programming Lab)
BSCCS -306	Computer Lab (Visual Basic And Oracle Lab)

BSCCS - 101: ENGLISH-I

Prose:
Water-the Elixir of Life – On Letter Writing – Mrs. Packletide's Tiger – The Cat – A Deed of Bravery – Our Civilization – Food – A Hero on Probation – Dangers of Drug Abuse – Our Ancestors.

Grammar:
Articles – Gerunds – Infinitives – Participles – Auxiliaries – Modals – Prepositions – Tenses – Transformation of Sentences – Direct – Indirect Speech.

Composition:
Developing hints – Letter writing – Paragraph writing – Dialogue writing – Précis writing.

REFERENCE BOOKS:

1. Active English Grammar, Ed. by Board of Editors, Macmillan.
2. Sebastian D K, Prose for the Young Reader, Macmillan.

BSCCS-102: HINDI

UNIT I

Poetry: Kabirdas – Soordas – Bhihari – Jaya Sankar Prasad – SuryakanthTripadiNirala – Maha Devi Varma – Ramadhari Singh Dinkar – Nagaurjan – DharmaveeraBharathi – Dhoomil – Poets – Poems.

UNIT II

One Act Plays: Sooryodaya by KamalakanthVarma – Udayan by Dr. RamakumarVarma – Mayopiya by Udayasankar Bhatt – Bujhata Deepak by BhagavathicharanVarma – Vishakanya by GovindaVallabh Pant.

UNIT III

Grammar: Noun – Gender – Number – Case – Pronoun and Adjective.

UNIT IV

Official Correspondence: Padadikariyom Se PatraVevahar – VyavasayikaPatra – SampadakKe Nam Patra – SarkariPatra.

REFERENCE BOOKS:

1. Ram Kishor Sharma, PadhyaPravah, LokaBharathiPrakashan, Allahabad.
2. Sooryodaya, Dakshina Bharat Hindi PracharSabha, Chennai.
3. Sugam Hindi Vyakarana, VanshiDhar and DharmapalShastri, Delhi.
4. Viraj M A, A Manual of Office Correspondence – Drafting and Noting in Hindi, Rajpal and Sons, Delhi.

BSCCS-103: DATA STRUCTURES USING C

UNIT I

Introduction to C - Character set - Identifiers and keywords - Data types - Constants - Variables declarations - operators and Expressions - Input and Output - Entering input data - Writing output data - The gets and puts functions - Branching and Looping - Nested control structures - Switch - Break -Continue - go to.

UNIT II

Function - Accessing a Function - Passing arguments to a function - Recursion - Library function - Macros -The C preprocessor - Defining and processing an Array - Passing an array to functions - Multi dimensional array - arrays and String.

UNIT III

Pointers - Passing pointers to function - Dynamic memory allocation - Arrays of pointers - Passing functions to other functions - Defining structure - Processing structure - opening and closing a data file - creating a data file - processing a data file.

UNIT IV

Introduction to Data structures - Information and meaning - Stack structure - Definition - operations - Queue structure - representation - operations.

UNIT V

Linked list - Definition - representation - operation - Singly linked list - Doubly linked list - Trees - Binary trees - Binary tree representation - Representing list as Binary Trees - Trees and their Applications.

REFERENCE BOOKS:

1. Byron Gottfried, Programming with C, 1996, McGraw Hill International Edition,
2. YedidyahLangsam, Moshe J.Augenstein,Aaron M.Tenenbaum, Data Structures Using C, 1990, Prentice-Hall, Second Edition.

BSCCS-104: DISCRETE MATHEMATICS

UNIT I

Propositional calculus: Propositions and compound propositions, connectives, Logical operations - Propositions and Truth tables, Tautologies and contradictions, Logical equivalence - Algebra of proposition - conditional and Bi-conditional statements – Quantifiers - Negation of quantifier statements.

UNIT II

Set Theory: Sets Basic concepts notation inclusion and equality of sets - Power set, set operations – Relations - composition of relations, Equivalence relations, partial order relation - n-ary relations.

UNIT III

Functions: one-to-one, onto and invertible functions - Mathematical functions, Exponential and Logarithmic functions - Recursively Defined functions - Algorithms and Functions - complexity of Algorithms.

UNIT IV

Algebraic systems: Examples and General properties - semi-groups and Monodies - Definitions and Examples - Groups: Definition and examples -Cossets and Lagrange's theorem -Normal subgroups - Group homomorphism.

UNIT V

Graph Theory: Graphs and multi-graphs sub-graph - Isomorphic and Homeomorphism Graphs - Paths connectivity - The Bridges of Konigsberg, Traversable multi-graphs Labeled and weight graphs - complete regular and Bipartite graphs - Tree graphs - planar graphs, Graph colorings, Representation of graph in Computer memory.

REFERENCE BOOKS:

1. J.P. Tremblay and R. Manohar Discrete mathematical structures with applications to Computer Science Mc.Grew Hill Book Company, New York, 1975
2. Venkatraman M K, Sridharan N and Chandrasekaran N, Discrete Mathematics, The National Publishing Company, 2000.

BSCCS-105: DIGITAL COMPUTER FUNDAMENTALS

UNIT I

Number Systems Machine Codes: Binary, Octal, Decimal and Hexadecimal number systems - Conversion from one base to another base - Use of complements - Binary arithmetic - Number codes and Character codes.

UNIT II

Boolean algebra and Combinational Circuits: Fundamental concepts of Boolean algebra - De Morgan's theorems - Simplification of expressions - Sum of products and products of sums - Karnaugh map simplification - Quine-McKluskey method - Two level implementation of Combinatorial Circuits - Encoder - Decoder - Multiplexer –Demultiplexer.

UNIT III

The Arithmetic Logic Unit: Construction of ALU - Integer representation - Half Adder - Full Adder - Parallel Binary Adder - Positive and negative numbers - Addition and subtraction in a parallel arithmetic element.

UNIT IV

Sequential Circuits (Elementary qualitative treatment only) Flip-Flops - Clocks - Gated Flip-Flops - Master Slave Flip-Flops - Shift Registers - Binary Counters - BCD Counters.

UNIT V

Computer Basics - Data Representation - Input-Output Units - Computer Memory – Processor - Computer Generations and Classification

REFERENCE BOOKS:

1. Albert Paul Malvino, Digital Computer Electronics, Tata McGraw Hill (1986).
2. Gear, C.W, Computer Organization and Programming, McGraw-Hill, (1975).
3. M.Morris Mano, Digital Logic and Computer Design, Prentice-Hall of India, 1979.
4. Thomas C. Bartee, Digital Computer Fundamentals, Ed6, McGraw Hill ISE (1985).
5. V.Rajaraman, Fundamentals Of Computers, 3rd edition, Prentice Hall, 1999.

BSCCS-106 – COMPUTER LAB I (C AND DATA STRUCTURES LAB)

1. Write a C program to add two numbers.
2. Write a C program to find the Area of a circle.
3. Write a C program to calculate Simple Interest.
4. Write a C program to find square root, square and cube of any number.
5. Write a C program to calculate Compound Interest.
6. Write a C program to input a temperature in Celsius and find the corresponding temperature in Fahrenheit. Use the formula f = 9 / 5 * C + 32.
7. Write a C program to convert a given number into words for numbers 1 to 5. Ex. 1 to ONE, 2 to TWO and 5 to FIVE.
8. Write a C program to input a basic pay and calculate Gross pay and Net pay
   INCOME:
   HRA = 15% OF BASICPAY
   DA = 90% OF BASICPAY
   GROSSPAY = BASICPAY + DA + HRA
   DEDUCTIONS :
   PF = 10% OF BASICPAY
   WCHARGE = 200
   DEDUCTIONS = PF + WCHARGE
   NET PAY = GROSS PAY – DEDUCTIONS
9. Write a C program to compute commission earned by a salesman according to the scheme given below:

SALES AMOUNT	COMMISSION
% Upto Rs. 1000	0
Above 1000 upto 5000	5
Above 5000	10

10. There are 10 students in a class. Their names and marks in three different subjects are given. If a student takes more than 40 marks in each subject, then he is declared ‘PASS’. Otherwise ‘FAIL’. Write a C program to do the above.

11. Write a C program that receives the data such as age and name of person to check the eligibility for voting. Take the condition that if a person is more than 18 years old he is eligible to vote. Else display the number of years; he has to wait for voting.
12. A man is paid at the hourly rate of Rs. 15/- per hour for the first 45 hours worked. Thereafter, overtime is paid at 1.5 times the hourly rate for the next 25 hours and 2 144 times the hourly rate for further hours worked per week. Calculate and Print his gross weekly wage.
13. Write a C program to find the Biggest of 5 Nos. Modify the program to find the biggest of 10 Nos.
14. Write a C program to sort 10 numbers. In ascending order.
15. Write a C program to concatenate two given strings and find the length of the concatenated string.
16. Write a C program to find the factorial of a given number using FUNCTION declaration.
17. Write a C program to find Simple & Compound interests using FUNCTION declaration.
18. Write a C program to implement push and pop operations on stack.
19. Write a C program to evaluate the given mathematical expression using stack.
20. Write a c program to implement insert and delete operations on Linked List structure.
21. Write a C program to implement insert and delete operations on Queue using array concept.
22. Write a C program for linked list implementation of Queue operations.
23. Write a C program to sort 10 Nos. in ascending order with naming of variable and the value before and after sorting.
24. Define Selection sort write a C program to sort a set of elements using selection sort.
25. Write a C program to sort a set of elements using Insertion sort.
26. Write a menu driven program in C to find an element using Linear and binary search methods.

BSCCS-201: ENGLISH-II

Poetry:
Shakespeare – Sonet XVIII; Wordsworth – Upon Westminster Bridge; John Keats – Ode on a Grecian Urn; Robert Frost – The Road Not Taken; Wilfred Owen – Strange Meeting; Stephen Spender – The Express; Tagore – Where the Mind is Without Feat; Sarojini Naidu – Coromandel Fishers; Nissim Ezekiel – Night of the Scorpion.

Shakespeare:
The Merchant of Venice

Language Use:
General Essay – Comprehension – Note Making – Report Writing

REFERENCE BOOKS:

1. Active English Grammar, Ed. by Board of Editors, Macmillan.
2. Seshadri P K, The Golden Quill, Macmillan.
3. Shakespeare, The Merchant of Venice (Any Overseas Edition).

BSCCS-202: SCIENTIFIC COMPUTING

UNIT I

Linear System Of Equations: Solution of Systems of equations – Solution of Simultaneous linear equations – Gauss elimination methods – Gauss Jordan methods, Jacobi and Gauss Serial iterative methods.

UNIT II

Numerical Differentiation And Integration: Interpolation, Differentiation and integration – difference table – Newton's forward and backward interpolation – Lagrangian interpolation –Differentiation formulae– Trapezoidal and Simpson rule Gaussian – Quadrature

UNIT III

Collection and Representation of Experimental data: Measures of Central Tendency and Location: Arithmetic Mean, Median, Mode, Position of averages – Measures of Dispersion: mean deviation, variance and standard deviation - Curve fitting by methods of least squares – Fitting of a straight line, Parabola and exponential curve.

UNIT IV

Probability Distributions: Probability axioms- Bayes Theorem- Discrete random variables and Continuous random variables – Density & Distribution functions - Joint and marginal distributions – Conditional distributions - Characteristic function- moment generating function- expectation

UNIT V

Sampling - Small sample, t-test, F-test, $\chi 2$ –test, ANOVA one way classification and two way classification

REFERENCE BOOKS:

1. A.M.Natarajan& A. Tamilarasi, Probability Random Processes and Queuing theory, New Age International Publishers, 2nd Edition, 2005.
2. D.W. Jordan and P. Smith, Mathematical Techniques, 3rd Edn, Oxford University Press, New Delhi, 2002.
3. Grewal B.S, Numerical methods in Engineering and Science, Khanna Publishers, 1994.
4. John. E. Freund, Irwin Miller, Marylees Miller, Mathematical Statistics with Applications, Seventh Edition, Prentice Hall of India, 2004.
5. S.C. Gupta and V. K. Kapoor, Fundamentals of Mathematical Statistics, 11th Edition, Sultan Chand & Sons, New Delhi, 2002.
6. S.K. Gupta, Numerical Methods for Engineers, New age International Publishers, 1995.

BSCCS-203: APPLICATION PROGRAMS

UNIT I

WINDOWS: Working with windows elements –Windows Desktop – View Drives with My Computer - Managing files with Windows Explorer – Working with multiple windows – Office Shortcut Bar – Start and Exit Office application – Menu Commands – Toolbars – Dialog boxes – Getting help in MS-Office – Creating, Openingand Saving Files.

UNIT II

MS-WORD– Creating a New Word Document – Typing, Edit, Delete Text – Editing Keys – Select Text – Moving around the Document – Moving and Copying Text – Find and Replace Text – Insert Date or Time – Spell Checking – Getting often-used phrases – Table handling – Printing mailing labels – Formatting – Make Text Bold, Italic Underline – Changing Font and Size – Change default font – Copy formatting – Align Text – Indent Text – Create bullet and numbered list – Set Tabs – Using Ruler – Change margins – Change Line, paragraph spacing – Page numbering – Headers and Footers – Set up Columns – Templates and Wizards – Printing a document – Print preview – Page Orientation - Zoom in and Zoom out pages – Mail merge – Creating form letters – Merging a form letter with data.

UNIT III

MS-EXCEL – Working with worksheets – Entering Text, Numbers, Date or Time – Formula Bar – Fill in Data – Autocomplete – Entering formulas - Absolute addresses in formulas - Working with Ranges – Functions – Editing, Deleting entries – Move and Copy data – Find and Replace Data – Insert and delete Rows and Columns – Resize Columns and Rows - Formatting – Bold, Italic, Underline, Font, Size Changes – Conditional Formatting – Change alignment – Number formatting – Borders – Headers and Footers – Creating a Chart – Working with Chart object – Change chart data, chart type – Formatting chart series – Database – Building an Excel Database – Add, Edit, Delete Records – Search database – Sort Excel database.

UNIT IV

MS-POWER POINT – Create and edit Power Point presentation – Editing Text – Add or Delete a Slide – Moving from slide to slide – Change views – Create graph chart, organization chart – Format and run a presentation – Text formatting and alignment – Drawing on slides – Color Scheme – Background – Using Design Template – Auto layout – Adding speaker notes – View Slide Show – Handouts.

UNIT V

MS-ACCESS & Sharing Office Data:- Creating a New Database - Creating and saving a table - Primary Key creation - Adding, Editing and Deleting fields - Changing the view and Moving fields - Data Entry and Editing - Adding, Inserting and Deleting Records - Adjusting Column Widths - Hiding Columns - Finding Records - Sorting Records - Creating, Saving and Editing a Query - Forms - Auto form - Using Report Wizard - Creating and Printing Reports - Sharing Office Data – Copy and Paste using Clipboard – Insert Copied data as a link – Embed copied data in another document – Combine Excel data and charts with Word Documents – Inserting Graphics - Group related documents with Binder.

REFERENCE BOOKS:

1. Jennifer fulton, Sherri Kinkoph, and Joe Kraynak, The Big Basics Book of Microsoft Office 1997, PHI, 1998.
2. Laura Acklen et al, Microsoft Office 97 Professional Essentials,EEEQue E&T, PHI (1998)

BSCCS-204: OBJECT ORIENTED PROGRAMMING AND C++

UNITI

Introduction to C++ - Object Oriented Programming - principles - basic concepts - benefits - languages of OOP. C++ data types - operators - cin and cout streams - manipulators - functions.

UNITII

Objects and classes - messages - access specified - data encapsulation -definition and declaration of member functions - constructor and destructor - inline function - friend function - static data and member function.

UNIT III

Pointers: Pointers and references - this pointer - strings - new and delete operators - dynamic constructor - problems with pointer reference - copy constructor.

UNIT IV

Polymorphism: compile time polymorphism - function overloading - operator overloading - overloading unary operators - overloading binary operators - pitfalls of operator overloading.

UNITV

Reusability: Inheritance - types of inheritance - inheritance access specifier - derived and base classes - runtime polymorphism - static and dynamic binding - virtual function - pure virtual function - virtual base class - abstract class.

REFERENCE BOOKS:

1. E.Balagurusamy, Object oriented programming in C++, 2002, TMH Publications Ltd.
2. Robert Lafore, Object Oriented Programming in Turbo C++, 2001, Galgotia Publ. Ltd.

BSCCS-205 COMPUTER LAB (APPLICATION PROGRAMS LAB)

MS-WORD

1. Prepare your resume with your photograph inserted. Use Table, bullets and different color features.
2. Prepare the First page of M.C.A. PRACTICAL RECORD NOTE book with picture insertion and alignment.
3. Prepare a news report using two columns, insert a picture in the first column and make the text flow around it.
4. Type lecture notes and provide audio explanation with the help of sound files.
5. Prepare an invitation for a function to be conducted in your institution. Use different text orientation and pictures to make it attractive.
6. Create a table of student data that contains REGNO, NAME, ENGLISH, TAMIL, and MATHS marks. Add a new column named TOTAL and find the row total for each student. Add two rows named TOTAL, AVERAGE. Find the total and average values for each subject mark. Convert the table to text.
7. Create a form letter that informs the customer about the date of maturity of a deposit amount in a commercial bank and request the customer for renewal. Mailmerge it with an Access Database containing all the customer data. Prepare letters for customers whose due date falls in a specific range of dates.

MS-EXCEL

1. Create the following Inventory Worksheet in MS-EXCEL :
   ITEMNO NAME PRICE QUANTITY STOCK REORDER PURCHASED ISSUED ON HAND QUANTITY
   LEVEL
   101 BOLTS 2.00 1000 500 300 800 200
   i) Enter all the data items except QUANTITY ON HAND for 10 items.
   ii) Find QUANTITY ON HAND using the formula
   STOCK QUANTITY = QUANTITY ON HAND + QUANTITY PURCHASED – QUANTITY ISSUED

Find total stock value in inventory as a product of total quantity hand and total price(∑ quantity on hand *∑ price). Display all the items in red color whose quantity on hand is below reorder level.

2. Create the following worksheet in EXCEL for Electricity Bill
   CONSUMER NO.TYPE NAME PMR CMR UNITS BILL 101 D RAM 545 645

   i) Add data for 10 consumers with type 'D' for domestic user and type 'I' for Industrial user.
   ii) Find UNITS column for each customer and calculate bill using the slab given below:

   TYPE D CONSUMER

UNITS CONSUMED	RATE/UNIT Rs.
FIRST 100	0.80
NEXT 200	1.25
REMAINING	2.00

   TYPE I CONSUMER

UNITS CONSUMED	RATE/UNIT Rs.
FIRST 100	1.10
NEXT 900	2.40
REMAINING	3.50

   iii) All the consumers should be charged a minimum bill of Rs. 20/- even if their bill amount is below Rs. 20/-

3. Create a Worksheet in MS-Excel with following columns: Employee number, Employee Name, designation, Basic pay, HRA, DA, LIC, PF, Grosspay, Netpay.

i) Type data for employee no,employee name,designation,Basicpay and LIC,PF

ii) Calculate HRA = 20% of Basic

DA = 30% of Basic

Gross pay = Basic +HRA + DA

Netpay = Gross pay -(LIC +PF)

iii) Draw the bar chart between employee name and Netpay

iv) Sort the designation column and employee column name at a time.

4. Create a Worksheet with the following columns.
Salesman number, Salesman Name, City, Product Name, Sale Amount.
Add three records for 5 different salesmen who have carried out sales of different products in different cities. Find the following:

i) City wise Total Sales

ii) Salesman wise total sales

iii) Product wise total sales

iv) Grand Total sales.

5. Create Internal Marks assessment worksheet with the following columns:
REGNO, NAME, SEX, TEST1, TEST2, TEST3, TEST AVERAGE, ATTENDED DAYS, ATTENDANCE % , BONU MARK, INTERNAL MARK

i) Add data for 20 students (Test marks are out of 30)

ii) Compute TEST AVERAGE as average mark of best two out of three tests.

iii) Maximum number of working days is 50. Each student should secure at least 80% attendance.

iv) Provide 1 bonus mark for each 1% attendance above eligibility limit 80%

v) Compute Internal mark as TEST AVERAGE+Bonus Mark

vi) Sort the data in alphabetical order of name.

vii) Filter data for male and female students alone, who have attendance % below 80.

6. The following were the observations made in certain experiments for the values y and given the values of x.

X: 1 2 3 4 5 6 7 8 9 10

Y: 10 30 45 25 15 28 40 32 15 35

Compute the Following:

i) Find Mean, Median and Standard deviation

ii) Correlation coefficient between x and y.

iii) Draw the Bar Chart and Shading cells.

iv) Drawa Chart in Excel and Paste it in Word

7. Create two worksheets containing day to day house hold expenses for the months January and February 2005, with the following columns:

ITEM AMOUNT

Stationery 25.00

i) Add 10 different items as shown above, for two months in two different worksheets.

ii) Consolidate both the months' data and find the total expenses on each item.

iii) Find the Total expenses for two months.

iv) Find the maximum and minimum expense amount.

8. Create a data table to create a ready reckoner table for a commercial bank that contains simple interest for Rs. 1,000/- with varying period and interest rates. Create the table as shown below:

READY RECKONER TABLE FOR INTEREST CALCULATION PER 1000

PERIOD	INTEREST RATE							
	3%	4%	5%	6%	7%	8%	9%	10%	11%
1	30	40	50	60	70	80	90	100	110
2									
3									
4									
5									
6									
7									
8									
9									
10									

9. Draw Line, Bar, PIE charts for the data given below:

ABC COMPANY LIMITED

YEAR	SALES	COST	PROFIT
1991	1000	400	600

Add data for 10 years from 1991 to 2000. Provide titles, legends, grids and data labels.

MS-ACCESS

Instructions: Open a New database and add tables
1) Create employee table with the fields EMPNO, NAME, AGE, SEX, STREET, CITY, PIN, and SALARY.
i) Add data for 20 employees
ii) Write a query to display all the male employees whose salary is between 1000 and 5000 and living in city "CHENNAI".
iii) Write a query to display all the female employees whose ages are in the range 50-60
iv) Show all the records in the table for the city "TRICHY" by filtering.
2) Create STUDENT table with the following fields REGNO, NAME, MARK1, MARK2 and MARK3. Create ADDRESS table with fields REGNO, STREET, CITY and PIN.
i) Write a query to display REGNO, NAME and total of all the three subject marks.
ii) Write a query to display REGNO, NAME, STREET, CITY, PIN and total of all the three subject marks.
3) Create Inventory table with fields ITEMNO, NAME, QUANTITY ON HAND and REORDER LEVEL.
i) Create a form in custom format.
ii) Create a query REORDER to show all the items
iii) Create a macro that executes REORDER query automatically.
4) Create STUDENT table with fields
REGNO,I1,E1,I2,E2,I3,E3,I4,E4,I5,E5(internal and external marks in five subjects) and table SUBJECT with fields SCODE1, SNAME1, SCODE2, SNAME2, SCODE3, SNAME3, SCODE4, SNAME4, SCODE5, SNAME5 (Subject Code and Subject Names for Five subjects). Create a report to print mark sheets for all the student in the following format.
BSCCS-206 Computer Lab II (C++ Programming Lab)
1.Write a C++ program to reverse the sentence and find the given sentence is palindrome or not.

2. Write a temperature conversion program that gives the user the option of converting Fahrenheit to Celsius or Celsius to Fahrenheit. Then carry out the conversion. Use floating point numbers.
3. Create a class called TIME that has integer data elements for hours, minutes and seconds. The constructors should initialize these data elements to specified value, if given, and otherwise to 0. A member function should display it, in 11:50:45 format. The final member function should add two objects of type Time passed as arguments.
4. Using operator overloading, write a C++ program to find the different and total length of given two various tubes specified in meters and centimeters.
5. Assumes you want to generate a table of multiples of any given number. Write a program that allows the user to enter the number, and then generates the table, formatting it into ten columns and 20 lines.
6. Write a program to process student's marks with the help of classes. The class has private variables, for name, mark1, mark2, mark3. It has two member functions – getdata()- to get input. –Result() - to print the results. All subjects mark must be >= 50 for Pass otherwise Fail
7. Using dynamic constructors write a C++ program to concatenate two given strings.
8. Create a class Employee that contains a Employee number, Employee name and address. Write a Menu driven C++ program to get the 'n' number of employee details and display all details in employee namewise sorted order.
9. Using Pointers create a class and write a program to get the n names and display them in sorted order.
10. Create a class DONOR that contains donor number, donor name, age, address, sex, blood group.
Write a Menu driven C++ program to display the number, name and address of the donors for the following categories:
(i) blood donors having the blood group O+
(ii) blood donors in the age group between 16 to 25
(iii) female donors having blood group A in the age between 19 and 24.
Write a menu driven C++ program to add and subtract given two matrices of order m x n defined in class, using operator overloading.
11.Create a class called Employee that contains Employee number, employee name, designation, basic pay, deductions(LIC,PF). Include a member function to getdata from user for 'n' employees. Write a C++ program to prepare the pay slips for 'n' number of employees using the following details:
D.A = 40% of Basicpay
H.R.A = 25% of Basicpay
Gross pay = Basic pay +DA+HRA

Npay = Gpay-deductions
The Result of Problem is in given format:

Emp.no	Emp.name	Basic	D.A	HRA	LIC	PF	Gpay	Npay
---	--	--	--	--	--	--	---	---

12. Imagine a publishing company that markets both books and audio-cassette versions of its works. Create a class publication that stores the title (a string) and price (type float) of a publication. From this class derive two classes: BOOK, which adds a page count (type int).and TAPE, which adds a length count (type int). Each of these three classes should have a getdata() function to get its data from the user at the keyboard, and a putdata() function to display its data. Write a main() program to test the book and tape classes by creating instances of them, asking the user to fill in their data with getdata() and then displaying the data with putdata().
13. Raising a number n to power p is the same as multiplying by itself t times. Write a function called power() that takes a double value for n and an int value for p, and returns the result as double value. Use default argument of 2 for p, so that if this argument is omitted, the number will be squared. Write a main() function that gets values from the user to test this function.
14. Create a equivalent of a four-function calculator. The program should request the user to enter a number, an operator, and another number. It should then carry out the specified arithmetical operations: adding, multiplying, subtracting and dividing the two numbers. Finally it should display the result. When it finishes the calculation, the program should ask if the user wants to do another calculation.
15. Create a class that imitates part of the functionality of the basic data type int. Call the class Int. The only data in this class is an integer variable. Include member functions to initialize an Int to zero, to initialize it to an integer value, to display it, and to add two Int values. Write a program that exercise this class by creating to initialized and one uninitialized Int values, adding these two initialized values and placing the sum in the uninitialized value, and then displaying the result.
16. Create a class called employee that contains a name and an employee number. Include a member function called getdata() to get data from the user, another function called putdata() to display the data. Write a main() program to exercise this class. It should create an array of type employee and then invite the user to input data for n employees.
17. Write a program using Polymorphism to calculate the square of any two numbers of type int, float, double and long.

18. Write a function called reversit() that reverse a string(an array of char). Use a for loop that swaps the first and last characters, then the second and next-to-last characters and so on. The string should be passed to reversit() as an argument. Write a program to exercise reversit(). The program should get a string from the user, call reversit(), and print out the result. Use an input method that allows embedded blanks. Test the program with Napolean's famous phrase "Able was I ere I saw Elba".
19. Create a class Int to Overload all five integer arithmetic operators (+,-,*,/,and %) so that they operate on objects of type Int. If the result of any such arithmetic operation exceeds the normal range of int's - from -32,768 ro 32,767- have the operator print a warning and terminate the program. Write a program to test this class.
20. Write a program that reads a group of numbers from the user and places them in array of type float. Once the numbers are sorted in the array, the program should average them and print the result. Use Pointer notation whenever possible.
21. Write a program using friend function frifunc() which can act on the classes alpha and beta.Using constructors fix the values for alpha and beta.
22. Write a program that emulates the DOS COPY command. That is, it should copy the contents of a character file(such as any cpp file) to another file. Invoke the program with two command line arguments - the source file and the destination file. C> copy srsfile.extdestfile.extin the program, check that the user has typed the correct number of command line arguments, and that the files specified can be opened. Improve on the DOS TYPE command by having the program signal an error if the destination file already exits.
23. Write a C++ program which will accept a string of 10 characters in length from the key board and count the occurrences of each of the five vowels in the string. The o/p should be in a (tapped) format similar to this example.

A E I O U
0 1 0 0 1

24. Create a C++ class for a stock item abstract data type. It should have the attributes of stock levels(an integer) and unit price (a float). Define the methods to t return the values of these two attributes and to set them using parameters. Add two more methods to allow stock receipts and issues updating the stocklevel as appropriate. Write a menu driven C++ program to solve the problem.

BSCCS-301: VISUAL PROGRAMMING

UNITI

Introduction to Windows - Windows Graphic User Interface (GUI) - Getting Started with Windows - Required Hardware and Software - Format of a Window - Icons - Selecting, Moving, Sizing Windows - Menus - Help.

UNITII

Program, File & Print Managers - Running Applications - Multitasking - Clipboard - Control Panel - Print Manager - Write - Text formatting - Paintbrush - Picture Attributes - Drawing Tools - Windows Power User - Operating Modes - PIF Editor - OLE - Multimedia Windows.

UNIT III

Visual Basic Concepts - Event-Driven Programming - Terminology - Working Screen - Controls and Events - Menu System - Programming Language - Tools: MsgBox, InputBox, Scroll Bars, Frames, CheckBoxand Menus.

UNIT IV

Program Design - Form and Controls - Writing the Code - Saving, Running and Testing - Making EXE File - Printouts - Program Flow: Logical Testing - Branching with IF, CASE, FOR..NEXT, DO Loops, WHILE..WEND.

UNIT V

Procedures, Functions, Forms and Arrays - Creating Procedures, functions - Recursive Functions- Multiple Forms - Startup Forms - SubMain Procedure - Arrays and Loops - Control Arrays - Indexing and Event Handling - Graphics - MDI forms.

REFERENCE BOOKS:

1. AL Stevens, Teach Yourself Windows 3.1, 1994, BPB Publications.
2. P.K. McBride, Programming In Visual Basic, 1995, BPB Publications

BSCCS-302: INTERNET PROGRAMMING

UNITI

Introduction to Networks - Network Topologies - Structure, Architecture, Design Issues, layers - Client Server Model. Protocols: TCP/IP - Importance, Terminology, Framework, protocol Stack - IP: Network layer - Internet address protocols - IP diagram, Header, Fragmentation, routing. TCP: Transport layer, ports - IP ports - TCP-Ports usage - TCP application layer.

UNIT II

Domain Name System - Name Server Concepts - Resolver - Finger user information protocol - Internet E-mail - Mail Transfer Protocol - File Transfer Protocols - Managing Data - Telnet - HTTP - HTTP client Requests - URI - URLs - HTTP methods - Programming the WEB - Creating Web Server.

UNITIII

Internet at Home - Entertainment on the Internet - Television and the Net, Movies and Music - At Office: Electronic Commerce - Shopping on the internet, Doing Business, Finding Job - At School: Internet Resources for K-12 Teachers, Self Education - Learning about science, Technology and the Internet Itself

UNIT IV

Basics of Java - Object oriented programming - Principles - JAVA data types: Simple, Floating point, Character, Boolean - Variable Declaration - Dynamic Initialization - Type conversion and Casting - Arrays - One-dimensional and multidimensional. Operators and statements

UNIT V

Java Classes and Objects - Fundamentals - Object Reference variables - Introducing methods - Constructors - Overloading methods - Inheritance - I/O applets : I/O basics and applet fundamentals - String Handling: Constructor, length, operations, character extraction, comparison, searching and modifying.

REFERENCE BOOKS:

1. Kris Jamsa and Ken Cope, Internet Programming, 1995, Galgotia Publications Pvt. Ltd.
2. Neil Randall, Teach Yourself - The Internet in a week, Second Edition, 1996, PHI Pvt. Ltd.
3. Patrick Naughton and Herbert Schildt, Java - The Complete Reference, 2004, Tata McGraw Hill Publishing Company Ltd.

BSCCS-303: COMPUTER GRAPHICS

UNIT I

Introduction : Overview - Brief History - Applications of Computer Graphics - Video Display Generation - Input Devices - Hard copy Output Devices - Graphics System Software. Output Primitives: Point Plotting - Line Draw Algorithms - Using Equation of a Line - DDA - Brenham's algorithm - Circle Generation Algorithms - Drawing Ellipse - Other Geometric Shapes - Region Filling Techniques.

UNIT II

Two Dimensional Transformations: Transformation Principles - Basic Transformations - Matrix Representation - Composite Transformations. Two Dimensional Viewing and Clipping: Viewing Transformations - Windows and viewports - Aspect Ratio - Clipping and Shielding: Point Clipping - Line segment clipping - Convex Polygon clipping - Sutherland Hodgeman Algorithm.

UNIT III

Three Dimensional Transformations: Concepts - Basic Transformations: Translation, Scaling, Rotation and Mirror Reflection - Matrix Representation - Composite Transformations.

UNIT IV

Three Dimensional Viewing and Clipping: Viewing Process - Three Dimensional Viewing: Specifying Projection Plane and view volume - Clipping: Clipping against a finite view volume - Cohen Sutherland Algorithm - Constructing a three dimensional view - Hidden Surface Algorithm: Depth Comparison - Z-Buffer Algorithm.

UNIT V

User Interface Design: Components of User Interface - The User's Model - The Command Language - Styles of Command Language - Information Display - Feedback

REFERENCE BOOKS:

1. M. Newman and F. Sproull, Interactive Computer Graphics, 1979 McGraw Hill
2. Plastok and Gordon Kalley, Computer Graphics, 1986, McGraw Hill.

BSCCS-304: OPERATING SYSTEMS

UNIT I

Introduction: What is an operating system - History of Operating systems - Operating system concepts - System calls - Operating system structure?

UNIT II

Process Management: Introduction to processes – Interprocess Communication: Race conditions - Critical sections - Mutual exclusion - Semaphores - Event counters - Monitors - Message Passing - Process Scheduling - Round robin scheduling - Priority Scheduling - Multiple queues - Shortest job first - Policy driven scheduling - Two level scheduling.

UNIT III

Input/Output Management: I/O Devices - Device Controllers - Goals of I/O Software - Interrupt handlers - Device drivers - Device-independent I/O Software - User-space I/O Software - Deadlocks: Resources - Deadlock modeling - Detection and Recovery - Deadlock Prevention - Avoidance.

UNIT IV

Memory Management: Memory management without swapping or paging: Multiprogramming without swapping or paging - Multiprogramming and Memory usage - multiprogramming with fixed partitions - swapping: Multiprogramming with variable partitions - Memory management with Bit-maps, Linked-lists and Buddy System - Analysis of Swapping systems - Virtual Memory: Paging - Segmentation - Page replacement algorithms.

UNIT V

File Management: File basics - Directories - Disk space management - File storage - Directory structure - shared files - File system reliability - File system Performance - File servers - Security - Protection mechanisms.

REFERENCE BOOKS:

1. James L. Peterson and Abraham Silberschatz, Operating System Concepts, 2001, Addison Wesley.
2. Andrew S.Tanenbaum, Operating Systems Design and Implementation, 3rd edition, 2006, Prentice Hall.
3. Philippe A, Janson, Operating Systems Structures and Mechanisms, 1985, Academic Press.
4. Harvey M. Deitel, an Introduction to Operating Systems, 2003, Addison Wesley (1984).
5. Stuart E. Madnick and John J. Donovan, Operating Systems, 1974, McGraw Hill.
6. Per Brinch Hansen Operating System Principles Prentice-Hall of India (1973).

BSCCS305: COMPUTER LAB V (JAVA PROGRAMMING LAB)

1. Write a Java Program for sorting a given list of names in ascending order using command line arguments.
2. Write a Java Program to multiply two given matrices.
3. Programs Illustrating Overloading & Overriding methods in Java.
4. Programs Illustrating the Implementation of Various form of Inheritance. (Ex. Single, Hierarchical, Multilevel inheritance….)
5. Program which illustrates the implementation of multiple Inheritance using interfaces in Java.
6. Program illustrates the implementation of abstract class.
7. Programs to create packages in Java. 8. Program to Create Multiple Threads in Java.
9. Program to Implement Producer/Consumer problem using synchronization.
10. Program to Write Applets to draw the various polygons.
11. Create and Manipulate Labels, Lists, Text Fields, Text Areas & Panels
12. Handling Mouse Events & Keyboard Events.
13. Using Layout Managers.
14. Create & Manipulate the Following Text Areas, Canvas, Scroll bars, Frames, Menus and Dialog Boxes.
15. Program to count number of words & Characters in a text.
16. Programs which illustrates the use of files & Streams.
17. Program that reads on file name from the user and displays the contents of file.
18. Java Program that displays the no. of characters, lines & words in a text file.
19. Program to display the contents of file along with a line number before each line.
20. Program to read & write the data using Random Access File.

BSCCS-306: COMPUTER LAB IV (VISUAL BASIC AND ORACLE LAB)

VISUAL BASIC

1) Write and test a VB Program to print twenty address labels in a two-column format for the address

THE REGISTRAR
VENKATESHWARA OPEN UNIVESITY
ITANAGAR, ARUNACHAL PRADESH

2) Write and test a VB Program to read in Principal, Number of Years and Rate of Interest through INPUT Boxes, Compute and Print the Simple Interest and Compound Interest through labels.

3) Write and test a VB Program to compute the Surface area and volume of a sphere given the radius. Use Option buttons and INPUT Boxes.
[Formula: A=4*3,14*R^2, V=4/3*3,14R^3]

4) Write and test a VB Program to compute and print either the SUM or the PRODUCT of the first N natural numbers. Use option button.

5) Write and test a VB Program to compute and print either the sum of odd numbers or even numbers at the user's choice using Label, Text and Option buttons.

6) Write a VB program to do temperature conversion C to F and F to C at user's choice using Label, Text and Enter Key.

7) Write and test a VB Program that allows the user choice among four arithmetic operations of addition, subtraction, multiplication and division with two given numbers.

8) Write and test a VB program to select candidates for four posts, based on their qualifications,

MALE AND PG DEGREE MANAGER
MALE, GRADUATE & TYPING CLERK
FEMALE AND PG DEGREE SECRETARY
FEMALE, GRADUATE & TYPING STENO

9) Write and test a VB program to display the Day of the given Date and Covert Upper Case from Lower Case to given Word.

10) Write a VB program to calculate Simple Interest or Compound Interest using three command buttons namely Input, Calculate and Display.

ORACLE

1) Create table MARK with the following structure:

Fieldname	Type	Width	Decimal
REGNO	Numeric	8	
NAME	Character	20	
TAMIL	Numeric	3	
ENGLISH	Numeric	3	
MATHS	Numeric	3	
BIOLOGY	Numeric	3	

i) Add 5 Records.

ii) Show data in fields REGNO, NAME, TAMIL & BIOLOGY alone on the screen.

iii) Show data in fields REGNO, BIOLOGY & MATHS alone on the screen.

iv) Show data in fields NAME & REGNO alone on the screen.

v) Show all fields on the screen.

2) Create table ADDRESS with the following structure,

Fieldname	Type	Width	Decimal
NAME	character	20	
STREET	character	20	
CITY	Character	20	
PIN	Numeric	6	

i) Add 5 Records.

ii) Display the structure of the table.

iii) Add the field DISTRICT

iv) Fill all DISTRICT with MADURAI

v) Change the PIN to 630003 where city is KARAIKUDI and PIN is 623003.

3) Create table RESULT with the following structure.

Fieldname	Type	Width	Decimal
REGNO	Numeric	8	
NAME	Character	20	
MARK1	Numeric	3	
MARK2	Numeric	3	
MARK3	Numeric	3	
TOTAL	Numeric	3	
RESULT	Character	4	

i) Add 5 records (Fill all Fields except Total & Result fields),
ii) Fill TOTAL field with the sum of MARK1, MARK2, and MARK3.
iii) fill the RESULT field with 'PASS' if TOTAL >= 150 otherwise 'FAIL'

4) Create table PAY with the following structure,

Fieldname	Type	Width	Decimal
REGNO	Numeric	8	
NAME	Character	25	
DOJ	Date		
BPAY	Numeric	8	2
DA	Numeric	8	2
HRA	Numeric	3	
DEDU	Numeric	3	
GPAY	Numeric	8	2
NPAY	Numeric	8	2

i) Add 5 Records, (Fill al fields except DA, HRA, DEDU, GPAY and NPAY)
ii) Fill DA with 75% of BAY for all employees.
iii) Fill HRA with 300 for all employees.
iv) Fill DEDU with 750 for all employees.
v) Fill GPAY with the sum of BPAY, DA and HRA.
vi) Fill NPAY with GPAY – DEDU. xiv) Display EMPNO, NAME, BAPY, DEDU, GPAY, NPAY alone.

5) Create table BIODATA with following structure,

Fieldname	Type	Width	Decimal
NAME	Character	25	
AGE	Numeric	2	
SEX	Character	1	
DEGREE	Character	8	
CITY	Character	20	

i) Add 5 records, (BIODATA of 5 employees)
ii) Display all records of MALE employees.
iii) Delete all BSC degree holders and then display the table contents.
iv) Remove all employee records whose AGE is greater than 20.
v) Display all records having AGE < 20 and CITY is TRICHY.

6) Create table LABEL with the following structure.

Fieldname	Type	Width	Decimal
NAME	Character	20	
STREET	Character	20	
CITY	Character	20	
PIN	Numeric	6	

i) Add 5 Records.
ii) Display the contents of the table.
iii) Display the Ascending order sorted list with NAME as primary key.
iv) Display the Descending order sorted list with CITY as primary key.
v) Display the contents with appropriate HEADINGS.

7) Create table PERSONAL with the following structure.

Fieldname	Type	Width	Decimal
SNO	Numeric	8	
NAME	Character	20	
CITY	Character	20	
PIN	Numeric	6	
PHONE	Numeric	6	

i) Add 5 Records.
ii) Display the contents of the table.
iii) Display all names.
iv) Display all names without duplicate.
v) Display all names in uppercase, lowercase and Initial Capital letters.
vi) Display all names and length of names.
vii) Display name, city in which only beginning portion of name is known.

8) Create table MARKS with the following structure.

Fieldname	Type	Width	Decimal
REGNO	Numeric	8	
NAME	Character	20	
MARK1	Numeric	3	
MARK2	Numeric	3	
MARK3	Numeric	3	
TOTAL	Numeric	3	
AVG	Numeric	6	
GRADE	Character	1	

i) Add 5 Records.
ii) Replace all TOTAL with MARK1+MARK2+MARK3 and display the contents.
iii) Replace all AVG with TOTAL/3 and display the contents.
iv) Replace GRADE with the following conditions: GRADE is A if AVG is greater than or equal to 60 GRADE is B if AVG is 40 to 59. GRADE is C if AVG is less than 40.
v) Display the Maximum marks in each subject.
vi) Display the Minimum marks in each subject.
vii) Count the number of records for mark1 >50.
9) Create table SALES with the following structure.

Fieldname	Type	Width	Decimal
SALENO	Numeric	5	
SALENAME	Character	20	
SALEAMT	Numeric	8	2
COMM	Numeric	6	2
SALEDATE	Date		

i) Add 5 Records.
ii) Replace COMM with the following conditions: If Sales amount is less than 1000 there is no commission. If Sales amount is greater than or equal to 1000 but less than or equal to 5000, commission is 5% of sales amount. If Sales amount is greater that 5000, commission is 10%.
iii) Display all the records.
iv) Display the records having commission < 1000.
v) Display the records having commission > 1000.
vi) Display the Average sales and Average commission.

10) Create table BLOOD with the following structure.

Fieldname	Type	Width	Decimal
DNO	Numeric	3	
DNAME	Character	20	
DOB	Date		
DAGE	Numeric	2	
DADD1	Character	15	
DADD2	Character	15	
DCITY	Character	15	
DPIN	Numeric	6	
DBLOOD	Character	3	
DSEX	Character	1	

i) Add 5 Records.
ii) Display all the records.
iii) Display the information of donors in the age group 20 to 25 using BETWEEN option.
iv) Display the information of donors having date of birth BETWEEN 01- JAN-55 and 31-DEC-75.
v) Display the information of donors having any of the blood group from the set of blood groups using IN option.
vi) Display the information of female donors with age between 20 and 25 using BETWEEN options.
11) Create table NUMB with the following structure.

Fieldname	Type	Width	Decimal
NUM	Numeric	6	2
ABSNO	Numeric	6	2
SQRTNO	Numeric	6	2
ROUNDNO	Numeric	6	2
TRUNCNO	Numeric	6	2
SQRNO	Numeric	6	2
CUBENO	Numeric	6	2

i) Add 5 Records. (Some numbers must be negative or decimal)
ii) Display all the records.
iii) Replace ABSNO with absolute value of given numbers.
iv) Replace SQRTNO with square root value of given numbers.
v) Replace ROUNDNO by using ROUND function.
vi) Replace TRUNCNO by using TRUNC function.
vii) Replace SQRNO with square of given numbers.
viii) Replace CUBNO with cube of given numbers.
ix) Display all the records.