**BHARATHIAR UNIVERSITY: COIMBATORE-641 046**

**B.Sc. CS/IT/CT/SS/MM/CSA &BCA**

(For the students admitted from the academic year **2018-2019** and onwards)

**SCHEME OF EXAMINATION - CBCS PATTERN**

| | | | | Examinations | | | |
|---|---|---|---|---|---|---|---|
| Part | Study components | Course Title | Ins.Hrs/week | Dur.Hrs. | CIA | Marks | Total Marks | Credit |
| | **Semester I** | | | | | | | |
| I | Language – I | | 6 | 3 | 25 | 75 | 100 | 4 |
| II | English – I | | 6 | 3 | 25 | 75 | 100 | 4 |
| III | Core 1: Computing Fundamentals and | | 4 | 3 | 25 | 75 | 100 | 4 |
| | C Programming | | | | | | | |
| III | Core 2: Digital Fundamentals and | | 4 | 3 | 25 | 75 | 100 | 4 |
| | Architecture | | | | | | | |
| III | Core Lab 1: Programming Lab – C | | 3 | 3 | 40 | 60 | 100 | 4 |
| III | Allied 1: && | | 5 | 3 | 25 | 75 | 100 | 4 |
| IV | Environmental Studies # | | 2 | 3 | - | 50 | 50 | 2 |
| | | | | | | | | |
| | **Semester II** | | | | | | | |
| I | Language – II | | 6 | 3 | 25 | 75 | 100 | 4 |
| II | English – II | | 6 | 3 | 25 | 75 | 100 | 4 |
| III | Core 3: C++ Programming | | 5 | 3 | 25 | 75 | 100 | 4 |
| III | Core Lab 2: Programming Lab – C++ | | 4 | 3 | 40 | 60 | 100 | 4 |
| III | Core Lab 3: Internet Basics | | 2 | 3 | 20 | 30 | 50 | 2 |
| III | Allied 2: && | | 5 | 3 | 25 | 75 | 100 | 4 |
| IV | Value Education – Human Rights # | | 2 | 3 | - | 50 | 50 | 2 |
| | | | | | | | | |
| | **Semester III** | | | | | | | |
| III | Core 4: Data Structures | | 6 | 3 | 25 | 75 | 100 | 4 |
| III | Core 5: Java Programming | | 6 | 3 | 25 | 75 | 100 | 4 |
| III | Core Lab 4: Programming Lab – Java | | 5 | 3 | 40 | 60 | 100 | 4 |
| III | Allied 3: && | | 6 | 3 | 25 | 75 | 100 | 4 |
| IV | Skill based Subject 1 - && | | 5 | 3 | 20 | 55 | 75 | 3 |
| IV | Tamil @/ Advanced Tamil (OR) | | 2 | 3 | - | 50 | 50 | 2 |
| | Non-major elective-1 (Yoga for Human | | | | | | | |
| | Excellence)**#** / Women‘s Rights**#** | | | | | | | |
| | | | | | | | | |
| | **Semester IV** | | | | | | | |
| III | Core 6: System Software and Operating | | 6 | 3 | 25 | 75 | 100 | 4 |
| | System | | | | | | | |
| III | Core 7: Linux and Shell Programming | | 6 | 3 | 25 | 75 | 100 | 4 |
| III | Core Lab 5: Linux and Shell | | 6 | 3 | 40 | 60 | 100 | 4 |
| | Programming Lab | | | | | | | |
| III | Allied 4: && | | 6 | 3 | 25 | 75 | 100 | 4 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| IV | Skill based subject 2 (lab) && | 4 | 3 | 30 | 45 | 75 | 3 |
| IV | Tamil @/ Advanced Tamil (OR) Non-major elective-II (General Awareness) # | 2 | 3 | - | 50 | 50 | 2 |
| | | | | | | | |
| | **Semester V** | | | | | | |
| III | Core 8: RDBMS & Oracle | 6 | 3 | 25 | 75 | 100 | 4 |
| III | Core 9: Visual Basic | 6 | 3 | 25 | 75 | 100 | 4 |
| III | Core Lab 6: Programming Lab – VB & Oracle | 6 | 3 | 40 | 60 | 100 | 4 |
| III | Elective 1 && | 6 | 3 | 25 | 75 | 100 | 4 |
| IV | Skill based Subject 3: && | 6 | 3 | 20 | 55 | 75 | 3 |
| | | | | | | | |
| | **Semester VI** | | | | | | |
| III | Core 10: Graphics & Multimedia | 5 | 3 | 25 | 75 | 100 | 4 |
| III | Core 11: Project Work Lab %% | 5 | 3 | - | 200 | 200 | 8 |
| III | Core Lab 7: Programming Lab – Graphics & Multimedia | 6 | 3 | 40 | | 100 | 4 |
| III | Elective II && | 5 | 3 | 25 | 60 | 100 | 4 |
| III | Elective III && | 5 | 3 | 25 | 75 | 100 | 4 |
| IV | Skill based Subject 4 (lab) && | 4 | 3 | 30 | 45 | 75 | 3 |
| V | Extension Activities | - | - | 50 | - | 50 | 2 |
| | Total | | | | | 3500 | 140 |

@ No University Examinations. Only Continuous Internal Assessment (CIA)

# No Continuous Internal Assessment (CIA). Only University Examinations. %% **see Guidelines for Project Work.**

**BHARATHIAR UNIVERSITY: COIMBATORE-641 046**
**B.Sc. CS/IT/CT/SS/MM/CSA &BCA**
(For the students admitted from the academic year **2018-2019** and onwards)
**SCHEME OF EXAMINATION - CBCS PATTERN**

| Course<br>Subject | **B.Sc. COMPUTER SCIENCE** |
|---|---|
| Allied-1 | Mathematical Structures for Computer Science |
| Allied-2 | Discrete Mathematics |
| Allied-3 | Computer Based Optimization Techniques |
| Allied-4 | Business Accounting |
| Elective-I | E-Learning / Computer Networks / Organizational Behavior |
| Elective-II | Network Security and Cryptography/ Artificial Intelligence and Expert Systems / Web Technology |
| Elective-III | Data Mining/ Open source software/Mastering LAN & Trouble Shooting |
| Skill-1 | Software Engineering and Software Project Management |
| Skill-2 (lab) | Software Project Management- Lab |
| Skill-3 | Software Testing |
| Skill-4 (lab) | Software Testing Lab |

# BHARATHIAR UNIVERSITY

## COIMBATORE-641 046

### B.Sc. CS/IT/CT/SS/MM/CSA &BCA

### (For the students admitted from the academic year 2018-2019 onwards)

### SCHEME OF EXAMINATION - CBCS PATTERN

### SEMESTER- I

| Part | Study Components | Course title | Ins. hrs/ week | Examinations | | | | Credit |
|---|---|---|---|---|---|---|---|---|
| | | | | Dur.Hrs | CIA | Marks | Total Marks | |
| | **Semester I** | | | | | | | |
| I | Language – I | | 6 | 3 | 25 | 75 | 100 | 4 |
| II | English – I | | 6 | 3 | 25 | 75 | 100 | 4 |
| III | Core 1: Computing fundamentals and C programming | | 4 | 3 | 25 | 75 | 100 | 4 |
| III | Core 2: Digital Fundamentals and Architecture | | 4 | 3 | 25 | 75 | 100 | 4 |
| III | Core Lab 1: Programming Lab - C | | 3 | 3 | 40 | 60 | 100 | 4 |
| III | Allied 1: && | | 5 | 3 | 25 | 75 | 100 | 4 |
| IV | Environmental Studies # | | 2 | 3 | - | 50 | 50 | 2 |

# PART – I – LANGUAGE

**BHARATHIYAR UNIVERSITY, COIMBATORE – 641046**

UNDER GRADUATE DEGREE PROGRAMMES (CBCS SEMESTER PATTERN)

( For the students admitted during the academic year 2016 – 2017 and onwards)

**பாடத்திட்டம் - முதற்பருவம் - பகுதி -1. தாள் 1**

(2016 - 17 ஆம் கல்வியாண்டில் சேர்வோர்க்குரியது (செய்யுள் . சிறுகதை , இலக்கிய வரலாறு, இலக்கணம் , மொழிபெயர்ப்பு)

அலகு 1

1. பாரதியார் - தமிழ்த்தாய், தமிழ்
2. பாரதிதாசன் - அழகின் சிரிப்பு
3. நாமக்கல் கவிஞர் - தமிழ்வழி அரசு
4. ஆரூர் தமிழ்நாடன் - கரிக்கிறது தாய்ப்பால்
5. கவிமணி தேசிக விநாயகம் பிள்ளை - ஒற்றுமை , இலக்கிய மும்மணி

அலகு 2 **சமூகம்**

6. நவீன தாலாட்டு - வைரமுத்து
7. சாவிலா வீட்டில் - கண்ணதாசன்
8. சருகுகள் சலசலக்கின்றன ஒரு கல்லின் கதை - வெ.இறையன்பு
9. மு. மேத்தா கவிதைகள் - மு.மேத்தா
10. ரிஷி கவிதைகள் - முடிந்தது , இங்கே, படைப்பு, மதி, தாகம்

அலகு -3 **சிறுகதைத் தொகுப்பு**

அறிவுப் பதிப்பகம், இராயப்பேட்டை, சென்னை.

அலகு - 4 **இலக்கிய வரலாறு** - ( பாடத்திட்டத்தைத் தழுவியது)

1. புதுக்கவிதையின் தோற்றமும் வளர்ச்சியும்
2. சிறுகதையின் தோற்றமும் வளர்ச்சியும்
3. படிமம் , குறியீடு - பற்றிய விளக்கங்கள்
4. இலக்கணம்

1. மொழித்திறன், சொற்பொருள் வேறுபாடு, ர,ற, ல,ள,ழ ந,ண,ன, வேறுபடுத்தி அறியும் முறை

2. தொடரில் வழுஉச் சொற்களை நீக்கி எழுதுதல்

3. உண்டு , உள, உளது, அன்று, அல்ல, அல்லன், அல்லர், பயன்பாடு, ஒரு, ஓர் - பயன்பாடு

4. ஒருமை - பன்மை - தொடரில் அமையும் விதம்

**அலகு - 5** மொழி பெயர்ப்பு , பொதுப்பகுதி, அலுவலகப்பகுதி - ஆங்கிலத்தில் இருந்து தமிழில் மொழிபெயர்த்தல்.

**குறிப்பு:** முதற் பருவம் தாள் 1 - அலகு -3 **சிறுகதைத் தொகுப்பு** மாற்றம் செய்யப்பட்டுள்ளது.

எனைய பகுதிகளில் மாற்றம் இல்லை.

# BHARATHIAR UNIVERSITY

## COIMBATORE-641 046

### B.Sc. CS/IT/CT/SS/MM/CSA &BCA

**(For the students admitted from the academic year 2018-2019 onwards)**

**SCHEME OF EXAMINATION - CBCS PATTERN**

**FIRST SEMESTER – Paper I**

(Prose, Non-detailed , Grammar & Translation )

**1.PROSE** : NUTHAN GADYA SANGRAH Editor: Jayaprakash

(Prescribed Lessons – only 6)

Lesson 1 – Bharthiya Sanskurthi

Lesson 3 - Razia

Lesson 4 – Makreal

Lesson 5- Bahtha Pani Nirmala

Lesson 6 – Rashtrapitha Mahathma Gandhi

Lesson 9 – Ninda Ras.

Publisher: Sumitra Prakashan Sumitravas,16/4 Hastings Road, Allahabad – 211 001.

**2.NON DETAILED TEXT**: KAHANI KUNJ.

Editor: Dr.V.P.Amithab.

(Stories 1 -6 only) Publisher : Govind Prakashan

Sadhar Bagaar, Mathura,

Uttar Pradesh – 281 001.

**3.GRAMMAR** : SHABDHA VICHAR ONLY

(NOUN,PRONOUN, ADJECTIVE, VERB, TENSE,CASE ENDINGS)

Theoretical & Applied.

Book for reference : Vyakaran Pradeep by Ramdev.

Publisher : Hindi Bhavan, 36,Tagore Town Allahabad – 211 002.

**4.TRANSLATION**: English- Hindi only.

ANUVADH ABHYAS – III

(1-15 lessons Only)

Publisher: DAKSHIN BHARATH HINDI PRACHAR SABHA CHENNAI -17.

**5.COMPREHENSION** : 1 Passage from ANUVADH ABHYAS – III (16- 30)

DAKSHIN BHARATH HINDI PRACHAR SABHA CHENNAI- 17.

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**SCHEME OF EXAMINATION - CBCS PATTERN**

**FIRST SEMESTER – Paper I**

**Paper I. Prose, Composition & Translation**

This paper will have the following five units:

Unit I & II : Novel

Unit III & IV : Short story

Unit V : Composition & Translation

Text books prescribed:

**Unit I & II**

Naalukettu – M.T. Vasudevan Nair

(D. C. Books, Kottayam, Kerala)

**Unit III & IV**

Nalinakanthi – T.Padmanabhan

(D. C. Books, Kottayam, Kerala)

**Unit V**

Expansion of ideas, General Essay and Translation of a simple passage from English about 100 words) to Malayalam

**Reference books:**

1. Kavitha Sahithya Charitram –Dr. M. Leelavathi (Kerala Sahithya Academy, Trichur)

2. Malayala Novel Sahithya Charitram – K. M.Tharakan (N.B.S. Kottayam)

3. Malayala Nataka Sahithya Charitram – G. Sankarapillai (D.C. Books, Kottayam)

4. Cherukatha Innale Innu – M. Achuyuthan (D.C. Books, Kottayam)

5. Sahithya Charitram Prasthanangalilude - Dr. K .M. George, (Chief Editor) (D.C. Books, Kottayam

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**SCHEME OF EXAMINATION - CBCS PATTERN**

**FIRST SEMESTER – Paper I**

Prescribed text : **ALORS I**

Units : 1 – 5

Authors : Marcella Di Giura Jean-Claude Beacco

Available at :

Goyal publishers Pvt Ltd 86, University Block Jawahar Nagar (Kamla Nagar) New Delhi – 110007.

Tel : 011 – 23852986 / 9650597000

***Question Paper Pattern: Semester I***

(ALL QUESTIONS TO BE SET ONLY FROM THE PRESCRIBED TEXT)

Maximum Marks: 75 Time: 3 hrs.

**SECTION A (10)**

1. CHOISISSEZ LA MEILLEURE RÉPONSE: (10X1=10)

**SECTION B (20)**

1. TRADUISEZ LES TEXTES SUIVANTS EN ANGLAIS:(4/5) (4X5=20)
   (Pg Nos : 26 ex-6,44 ex-3,56 ex-4,74ex-4,80.)

**SECTION C (45)**

2. COMPRÉHENSION (8x1=8)
3. EXERCICES DE GRAMMAIRE:(5X5=25) (EITHER/OR)
4. FAITES DES PHRASES:(6/8) (6X1=6)
5. TRADUISEZ LES EXPRESSIONS EN ANGLAIS :(6/8) (6X1=6)

# PART – II - ENGLISH

# BHARATHIAR UNIVERSITY

## COIMBATORE-641 046

### B.Sc. CS/IT/CT/SS/MM/CSA &BCA

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**SCHEME OF EXAMINATION - CBCS PATTERN**

**PART II ENGLISH-SEMESTER I**

**Prescribed Text**: AROMA Board of Editors

**Publishers:** New Century Book House(p)Ltd., 41B,SIDCO Industrial Estate Chennai-98.

**Unit I:-Poetry**

1. Where the mind is without Fear-Rabindranath Tagore
2. The Road not Taken-Robert Frost
3. The Village Schoolmaster-Oliver Goldsmith

**Unit II: Prose**

1. Spoken English and Broken English-G.B.Shaw
2. How to Avoid Foolish Opinion Bertrand Russell
3. At School –M.K. Gandhi

**Unit III: Short Stories**

1. Lalajee-Jim Corbett
2. A Hero-R.K.Narayan
3. A Day's Wait-Hemingway

**Unit IV: One Act Plays**

1. Refund-Fritz Karinthy
2. The Never Never Nest-Cedric Mounte

**Unit V: Grammar and Composition**

1. Parts of Speech Noun

**Pronoun Adjective Verb Adverb Preposition**

2. Reading Comprehension(a Passage with 5 questions)
3. Question Paper Pattern: Existing Pattern is to be followed.

# PART – III – CORE

# BHARATHIAR UNIVERSITY

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**SCHEME OF EXAMINATION - CBCS PATTERN**

| | |
|---|---|
| Course | **BSc CS, IT, CT, SS, CSA, MM & B.C.A (Regular)** |
| Effective from | **2016-2017 and Onwards** |
| Semester | **I** |
| Subject | **CORE 1 :**<br>**COMPUTING FUNDAMENTALS AND C PROGRAMMING** |

**Subject Description**: This subject deals with the Computer fundamentals and the concepts of C programming language.

**Goal:** To learn about the Computer fundamentals and the C programming language concepts.

**Objective:** On successful completion of this subject the students have the programming ability in C Language.

**UNIT I:**

Fundamentals of Computers : Introduction – History of Computers-Generations of Computers- Classification of Computers-Basic Anatomy of a Computer System-Input Devices-Processor-Output Devices-Memory Management – Types of Software-Overview of Operating System- Programming Languages-Translator Programs-Problem Solving Techniques - Overview of C.

**UNIT II:**

Overview of C - Introduction - Character set - C tokens - keyword & Identifiers - Constants - Variables - Data types - Declaration of variables - Assigning values to variables - Defining Symbolic Constants - Arithmetic, Relational, Logical, Assignment, Conditional, Bitwise, Special, Increment and Decrement operators - Arithmetic Expressions - Evaluation of expression - precedence of arithmetic operators - Type conversion in expression – operator precedence & associativity - Mathematical functions - Reading & Writing a character - Formatted input and output.

**UNIT III:**

Decision Making and Branching: Introduction – if, if….else, nesting of if …else statements- else if ladder – The switch statement, The ?: Operator – The goto Statement. Decision Making and Looping: Introduction- The while statement- the do statement – the for statement-jumps in loops. Arrays – Character Arrays and Strings

**UNIT IV:**

User-Defined Functions: Introduction – Need and Elements of User-Defined Functions- Definition-Return Values and their types - Function Calls – Declarations – Category of Functions- Nesting of Functions - Recursion – Passing Arrays and Strings to Functions - The Scope, Visibility and Lifetime of Variables- Multi file Programs. Structures and Unions.

**UNIT V:**

Pointers: Introduction-Understanding pointers-Accessing the address of a variable-Declaration and Initialization of pointer Variable – Accessing a variable through its pointer- Chain of pointers- Pointer Expressions – Pointer Increments and Scale factor- Pointers and Arrays- Pointers and Strings – Array of pointers – Pointers as Function Arguments- Functions returning pointers – Pointers to Functions – Pointers and Structures. File Management in C.

**TEXT BOOK:**

1. E Balagurusamy: Computing Fundamentals & C Programming – Tata McGraw-Hill, Second Reprint 2008.

**REFERENCE BOOK:**

1.Ashok N Kamthane: Programming with ANSI and Turbo C, Pearson, 2002.

2.Henry Mullish & Hubert L.Cooper: The Sprit of C, Jaico, 1996.

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**SCHEME OF EXAMINATION - CBCS PATTERN**

| | |
|---|---|
| Course | **BSc CS, IT, CT, SS, CSA, MM & B.C.A (Regular)** |
| Effective from | **2016-2017 and Onwards** |
| Semester | **I** |
| Subject | **CORE 2:**<br>**DIGITAL FUNDAMENTALS AND COMPUTER ARCHITECTURE** |

Subject Description: This subject deals with fundamentals of digital computers, Microprocessors and System architecture.

Goal: To learn about Computer Fundamentals and its Architecture.

Objective: On successful completion of this subject the students should have Knowledge on Digital circuits, Microprocessor architecture, and Interfacing of various components.

**UNIT I:**

Number System and Binary Codes: Decimal, Binary, Octal, Hexadecimal – Binary addition, Multiplication, Division – Floating point representation, Complements, BCD, Excess3, Gray Code. Arithmetic Circuits: Half adder, Full adder, Parallel binary adder, BCD adder, Half subtractor, Full subtractor, Parallel binary subtractor - Digital Logic: the Basic Gates – NOR, NAND, XOR Gates.

**UNIT II:**

Combinational Logic Circuits: Boolean algebra – Karnaugh map – Canonical form 1 – Construction and properties – Implicants – Don_t care combinations - Product of sum, Sum of products, simplifications. Sequential circuits: Flip-Flops: RS, D, JK, and T - Multiplexers – Demultiplexers – Decoder Encoder – shift registers-Counters.

**UNIT III:**

Input – Output Organization: Input – output interface – I/O Bus and Interface – I/O Bus Versus Memory Bus – Isolated Versus Memory – Mapped I/O – Example of I/O Interface. Asynchronous data transfer: Strobe Control and Handshaking – Priority Interrupt: Daisy- Chaining Priority, Parallel Priority Interrupt. Direct Memory Access:

DMA Controller, DMA Transfer. Input – Output Processor: CPU-IOP Communication.

**UNIT IV:**

Memory Organization: Memory Hierarchy – Main Memory- Associative memory: Hardware Organization, Match Logic, Read Operation, Write Operation. Cache Memory: Associative, Direct, Set-associative Mapping – Writing into Cache Initialization. Virtual Memory: Address Space and Memory Space, Address Mapping Using Pages, Associative Memory, Page Table, Page Replacement.

**UNIT V:**

CASE STUDY: Pin out diagram, Architecture, Organization and addressing modes of 80286-80386-80486-Introduction to microcontrollers.

**TEXT BOOKS:**

1. Digital principles and applications, Albert Paul Malvino, Donald P Leach, TMH, 1996.
2. Computer System Architecture -M. Morris Mano , PHI.
3. Microprocessors and its Applications-Ramesh S. Goankar

**REFERENCE BOOKS:**

1. Digital Electronics Circuits and Systems, V.K. Puri, TMH.
2. Computer Architecture, M. Carter, Schaum‘s outline series, TMH.

# BHARATHIAR UNIVERSITY

## COIMBATORE-641 046

### B.Sc. CS/IT/CT/SS/MM/CSA &BCA

**(For the students admitted from the academic year 2018-2019 onwards)**

**SCHEME OF EXAMINATION - CBCS PATTERN**

| | |
|---|---|
| Course | **BSc CS, IT, CT, SS, CSA, MM & B.C.A (Regular)** |
| Effective from | **2016-2017 and Onwards** |
| Semester | **I** |
| Subject | **CORE LAB 1: PROGRAMMING LAB – C** |

1.Write a C program to find the sum, average, standard deviation for a given set of numbers.

2.Write a C program to generate n prime numbers.

3.Write a C program to generate Fibonacci series.

4.Write a C program to print magic square of order n where n > 3 and n is odd.

5.Write a C program to sort the given set of numbers in ascending order.

6.Write a C program to check whether the given string is a palindrome or not using pointers.

7.Write a C program to count the number of Vowels in the given sentence.

8.Write a C program to find the factorial of a given number using recursive function.

9.Write a C program to print the student_s Mark sheet assuming roll no, name, and marks in 5 subjects in a structure. Create an array of structures and print the mark sheet in the university pattern.

10.Write a function using pointers to add two matrices and to return the resultant matrix to the calling function.

11.Write a C program which receives two filenames as arguments and check whether the file contents are same or not. If same delete the second file.

12.Write a program which takes a file as command line argument and copy it to another file. At the end of the second file write the total i)no of chars ii) no. of words and iii) no. of lines.

# PART – III- ALLIED – I

# BHARATHIAR UNIVERSITY

## COIMBATORE-641 046

### B.Sc. CS/IT/CT/SS/MM/CSA &BCA

**(For the students admitted from the academic year 2018-2019 onwards)**

**SCHEME OF EXAMINATION - CBCS PATTERN**

| | |
|---|---|
| Course | **BSc CS, IT, CT, SS, CSA, MM & B.C.A (Regular)** |
| Effective from | **2016-2017 and Onwards** |
| Semester | **I** |
| Subject | **Allied 1:**<br>**MATHEMATICAL STRUCTURES FOR COMPUTER SCIENCE** |

**Subject Description:** This subject deals with mathematical concepts like Matrices, Numerical analysis and Statistical methods for computer science and applications.

**Goal:** To learn about the mathematical structures for computer based applications

**Objective:** On successful completion of this subject the students should have

- Understood the concepts of mathematics
- Learnt applications of statistical and numerical methods for Computer Science.

**UNIT I:**

Matrices – Introduction – Determination – Inverse of a matrix – Rank of a Matrix – Eigen value Problems.

**UNIT II:**

System of Simultaneous Linear algebraic Equation – Gauss elimination, Gauss Jordon, Gauss Seidal methods.

**UNIT III:**

Numerical Differentiations – Newton_s forward Difference - Backward Difference – Starling formula Numerical Integration – Trapezoidal Rule & Simpson_s rule.

**UNIT IV:**

Measures of central tendency – Mean Median and Mode – Relationship among mean media and mode. Measures of dispersion – Range, quartile deviation and Standard deviation.

**UNIT V:**

Regression and Correlation – Types of relationship – Linear regression – Correlation – Coefficient of correlation – Regression equation of variables.

**TEXT BOOKS:**

1.Engineering Mathematics, Volume II, Dr M.K. Venkataraman, National Publishing Company, Chennai. (Unit I)

2.Numerical Methods in Science & Engineering, M.K. Venkataraman, National Publishing Company, Chennai, Revised Edition -2005 (Unit II & III)

3.Business Statistics, S.P. Gupta & M.P. Gupta, Sultan Chand and Sons (Unit IV & V)

**REFERENCE BOOKS:**

1.Numerical Methods, E. Balagurusamy, Tata McGraw Hill.

2.Fundamental of Mathematical Statistics, S. C. Gupta, V. K. Kapoor, Sultan Chand & Sons

# ENVIRONMENTAL STUDIES #

# BHARATHIAR UNIVERSITY

## COIMBATORE-641 046

### B.Sc. CS/IT/CT/SS/MM/CSA &BCA

### (For the students admitted from the academic year 2018-2019 onwards)

### SCHEME OF EXAMINATION - CBCS PATTERN

**UNIT – I**

Nature of Environmental Studies: Scope of importance- need for awareness Natural resources- Forest, Water, Mineral, Food, Energy and Land Role of an individual in conversation of natural resources Equitable uses of resources for sustainable lifestyles.

**UNIT – II**

Ecosystems: Concept, Structure and function, Producers consumers & decomposers, energy flow in the ecosystem Ecological succession, Food chains Food webs and ecological pyramids Features of the ecosystem-Forest, Grassland, Desert and Aquatic

**UNIT – III**

Biodiversity and its conservation: Genetic, Species and Ecosystem diversity Biographical classifications of India Value of Biodiversity, Biodiversity at global, national & local levels, Hot spots of biodiversity Threats to biodiversity, endangered and endemic species of India, Conservation of biodiversity.

**UNIT – IV**

Environmental pollution-Definition, solid waste management Role of an individual in prevention of pollution Pollution case studies disaster management.

**UNIT – V**

Social issues and the environment- sustainable development, Urban problems related to energy, water conservation, rainwater harvesting, watershed management Resettlement and rehabilitation of people. Environmental ethics; issues and solution-Climate change, global warming, ozone layer depletion, acid rain, nuclear accidents and holocaust, cast studies, Consumerism and waste products .Environmental protection act, Air act, water act, wildlife protection act. Forest conservation act, issues, public awareness, Human population and the environment

**TEXT BOOKS:**

**BOOK A:** Foundation course-B “Environmental Studies”, Published by publication division, Bharathiar University, Coimbatore.

# BHARATHIAR UNIVERSITY

## COIMBATORE 641 046

### B.Sc. CS/IT/CT/SS/MM/CSA &BCA

**(For the students admitted from the academic year 2018-2019 onwards)**

**SCHEME OF EXAMINATION - CBCS PATTERN**

**SEMESTER- II**

| Part | Study Components | Course title | Ins. hrs/ week | Examinations | | | | Credit |
|---|---|---|---|---|---|---|---|---|
| | | | | Dur.Hrs | CIA | Marks | Total Marks | |
| | **Semester II** | | | | | | | |
| I | Language – II | | 6 | 3 | 25 | 75 | 100 | 4 |
| II | English – II | | 6 | 3 | 25 | 75 | 100 | 4 |
| III | Core 3: C++ Programming | | 5 | 3 | 25 | 75 | 100 | 4 |
| III | Core Lab 2: Programming Lab – C++ | | 4 | 3 | 40 | 60 | 100 | 4 |
| III | Core Lab 3: Internet Basics | | 2 | 3 | 20 | 30 | 50 | 2 |
| III | Allied 2: && | | 5 | 3 | 25 | 75 | 100 | 4 |
| IV | Value Education – Human Rights # | | 2 | 3 | - | 50 | 50 | 2 |

# PART – I – LANGUAGE

# BHARATHIAR UNIVERSITY

## COIMBATORE 641 046

### B.Sc. CS/IT/CT/SS/MM/CSA &BCA

**(For the students admitted from the academic year 2018-2019 onwards)**

**SCHEME OF EXAMINATION - CBCS PATTERN**

**SEMESTER- II**

**இரண்டாம் பருவம்**

**பாடத்திட்டம் - பகுதி -1. தாள் -2.**

(செய்யுள் , உரைநடை, இலக்கிய வரலாறு, விண்ணப்பம் வரைதல்)

அலகு - 1 திருக்குறள் - ( மூன்று அதிகாரங்கள் )

அ. நட்பு
ஆ. நட்பாராய்தல்
இ. கூடா நட்பு

2. மூதுரை - ஔவையார் 1-15 (15 பாடல்கள்)
3. பழமொழி நானூறு கல்வி 10 பாடல்கள்

அலகு - 2

1. நந்திக்கலம்பகம்
2. திருப்பாவை, திருவெம்பாவை
3. சிந்தர்பாடல்கள்

அலகு -3 **உரைநடை**

| | | |
|---|---|---|
| 1. | சங்கநெறிகள் - முனைவர் . | வ.சுப.மாணிக்கம். |
| 2. | இன்றைய சூழலில் மகளிரின் பணி- | மீனாட்சி |
| 3. | புதிர் எதிர் காலம் - | சிற்பி பாலகப்பிரமணியம் |
| 4. | இணையத் தமிழ் வளர்ச்சி - | முனைவர் ப.அரதக்கீரன். |

அலகு - 4

1. வல்லினம் மிகும் இடம் - மிகா இடம்.
2. வினா- விடை வகைகள் (அறுவகை வினா, எண்வகை விடை, தொல்காப்பியர் வழியில்).
3. ஆகுபெயர் விளக்கம் - பயன்பாடு-வகைகள் 10

அலகு- 5

**இலக்கிய வரலாறு பாடத்திட்டத்தைத் தழுவியது**

1. பதினெண் கீழ்க்கணக்கு நூல்கள
2. தமிழ் உரைநடையின் தோற்றமும் - வளர்ச்சியும்

# BHARATHIAR UNIVERSITY

## COIMBATORE 641 046

### B.Sc. CS/IT/CT/SS/MM/CSA &BCA

**(For the students admitted from the academic year 2018-2019 onwards)**

**SCHEME OF EXAMINATION - CBCS PATTERN**

**SEMESTER- II: HINDHI – PAPER II**

(Modern Poetry, Novel, Translation & Letter Writing)

**MODERN POETRY; SHABARI – by NARESH MEHTHA**

**PUBLISHERS**: Lokbharathi Prakashan I Floor,Duebari Building Mahathma Gandhi Marg, Allahabad -1.

ONE ACT PLAY: EKANKÏ SANKALAM

By VEERENDRA KUMAR MISHRA

**PUBLISHER**: VANI PRAKASHAM NEW DELHI – 110 002.

**TRANSLATION** : HINDI – ENGLISH ONLY,

(ANUVADH ABYAS – III)

Lessons.1 – 15 only

**PUBLISHER**:DAKSHIN BHARATH HINDI PRACHAR SABHA CHENNAI – 600 017.

**LETTER WRITING**: (Leave letter, Job Application, Ordering books, Letter to Publisher, Personal letter)

**CONVERSATION**: (Doctor & Patient, Teacher & Student, Storekeeper & Buyer, Two Friends, Booking clerk & Passenger at Railway station, Autorickshaw driver and Passenger)

# BHARATHIAR UNIVERSITY

## COIMBATORE 641 046

### B.Sc. CS/IT/CT/SS/MM/CSA &BCA

**(For the students admitted from the academic year 2018-2019 onwards)**

**SCHEME OF EXAMINATION - CBCS PATTERN**

**SEMESTER- II: MALAYALAM – PAPER II**

**Paper II Prose** : Non-fiction

This paper will have the following five units:

**Unit I & II**

Biography

**Unit III, IV & V**

Smaranakal

**Text books prescribed:**

**Unit I & II**

Kanneerum Kinavum- V.T.Bhatahirippad (D.C. Books, Kottayam)

**Unit III, IV & V**

Balyakalasmaranakal – Madhavikkutty (D.C. Books, Kottayam)

**Reference books:**

1. Jeevacharitrasahithyam – Dr. K.M. George (N.B.S. Kottayam)

2. Jeevacharitrasahithyam Malayalathil – Dr. Naduvattom Gopalakrishnan (Kerala Bhasha Institute, Trivandrum)

3. Athmakathasahithyam Malayalathil – Dr. Vijayalam Jayakumar (N.B.S. Kottayam)

4. Sancharasahithyam Malayalathil – Prof. Ramesh chandran. V, (Kerala Bhasha Institute, Trivandrum)

# BHARATHIAR UNIVERSITY

## COIMBATORE 641 046

### B.Sc. CS/IT/CT/SS/MM/CSA &BCA

**(For the students admitted from the academic year 2018-2019 onwards)**

**SCHEME OF EXAMINATION - CBCS PATTERN**

**SEMESTER- II: FRENCH – PAPER II**

**Prescribed text :** ALORS I

Units : 6 – 10

**Authors** : Marcella Di Giura Jean-Claude Beacco

Available at : Goyal Publishers Pvt Ltd 86, University Block Jawahar Nagar (Kamla Nagar) New Delhi – 110007.

Tel : 011 – 23852986 / 9650597000

**Question Paper Pattern: Semester II**

**(ALL QUESTIONS TO BE SET ONLY FROM THE PRESCRIBED TEXT)**

**Maximum Marks: 75 Time: 3 hrs.**

**SECTION A (10)**

1. CHOISISSEZ LA MEILLEURE RÉPONSE: (10X1=10)

**SECTION B (20)**

2. TRADUISEZ LES TEXTES SUIVANTS EN ANGLAIS:(4/5) (4X5=20)

(Pg Nos :86 ex-4,104 ex-3,116 ex-3a,b,134 ex-4,146 ex-2,162,163,164,165,166,167)

**SECTION C (45)**

3. COMPRÉHENSION (8x1=8)
4. EXERCICES DE GRAMMAIRE:(5X5=25) (EITHER/OR)
5. FAITES DES PHRASES:(6/8) (6X1=6)
6. TRADUISEZ LES EXPRESSIONS EN ANGLAIS :(6/8) (6X1=6)

# PART – II – ENGLISH

# BHARATHIAR UNIVERSITY

## COIMBATORE 641 046

### B.Sc. CS/IT/CT/SS/MM/CSA &BCA

**(For the students admitted from the academic year 2018-2019 onwards)**

**SCHEME OF EXAMINATION - CBCS PATTERN**

**SEMESTER- II: ENGLISH – PAPER II**

**Prescribed Text**: SIZZLERS Board of Editors

**Publishers**: Manimekala Publishing House 39, Norh Chitrai Street, Madurai-625001

**Unit I: Poetry**

1.Stopping By Woods on a Snowy Evening-Robert Frost

2.A Prayer for my Daughter-W.B.Yeats 3.Enterprise-Nissim Ezekiel

**Unit II: Prose**

1.Woman, not the weaker sex- M.K.Gandhi

2.Dimensions of Creativity-Dr.A.P.J. Abdul Kalam 3.Three Days to See-Helen Keller

**Unit III: Short Stories**

1.An Astrologer's Day-R.K.Narayan

2.Little Girls wiser than Men-Tolstoy

3.Boy who Wanted more Cheese-William Elliot Griffir

**Unit IV:Biographies**

1.Martin Luther King-R.N.Roy

2.Nehru-A.J.Toynbee

**Unit V: Grammar and Composition**

1. Phrases and clauses

2.Types of sentences

3.Framing questions and answers

4.Dialogue Writing

Question Paper Pattern: Existing Pattern is to be followed.

# PART – III – CORE

# BHARATHIAR UNIVERSITY

## COIMBATORE 641 046

### B.Sc. CS/IT/CT/SS/MM/CSA &BCA

**(For the students admitted from the academic year 2018-2019 onwards)**

**SCHEME OF EXAMINATION - CBCS PATTERN**

| | |
|---|---|
| Course | **BSc CS, IT, CT, SS, CSA, MM & B.C.A (Regular)** |
| Effective from | **2016-2017 and Onwards** |
| Semester | **II** |
| Subject | **CORE 3: C++ PROGRAMMING** |

**Subject Description**: This subject deals with Object–oriented programming concepts like Abstraction, Encapsulation, Inheritance and Polymorphism.

**Goal:** Knowledge on Object–oriented concept and programming with C++.

**Objective:** To inculcate knowledge on Object-oriented programming concepts using C++.

**UNIT I:**

Introduction to C++ - key concepts of Object-Oriented Programming –Advantages – Object Oriented Languages – I/O in C++ - C++ Declarations. Control Structures : - Decision Making and Statements : If .. else ,jump, goto, break, continue, Switch case statements - Loops in C++ : for, while, do - functions in C++ - inline functions – Function Overloading.

**UNIT II:**

Classes and Objects: Declaring Objects – Defining Member Functions – Static Member variables and functions – array of objects –friend functions – Overloading member functions – Bit fields and classes – Constructor and destructor with static members.

**UNIT III:**

Operator Overloading: Overloading unary, binary operators – Overloading Friend functions – type conversion – Inheritance: Types of Inheritance – Single, Multilevel, Multiple, Hierarchal, Hybrid, Multi path inheritance – Virtual base Classes – Abstract Classes.

**UNIT IV:**

Pointers – Declaration – Pointer to Class , Object – this pointer – Pointers to derived classes and Base classes – Arrays – Characteristics – array of classes – Memory models – new and delete operators – dynamic object – Binding, Polymorphism and Virtual Functions.

**UNIT V:**

Files – File stream classes – file modes – Sequential Read / Write operations – Binary and ASCII Files – Random Access Operation – Templates – Exception Handling - String – Declaring and Initializing string objects – String Attributes – Miscellaneous functions .

**TEXT BOOK:**

1. Ashok N Kamthane, Object-Oriented Programming with Ansi And Turbo C++, Pearson Education, 2003.

**REFERENCE BOOKS:**

1.E. Balagurusamy, Object-Oriented Programming with C++, TMH, 1998.

2.Maria Litvin & Gray Litvin, C++ for you, Vikas publication, 2002.

3.John R Hubbard, Programming with C, 2nd Edition, TMH publication, 2002.

# BHARATHIAR UNIVERSITY

## COIMBATORE 641 046

### B.Sc. CS/IT/CT/SS/MM/CSA &BCA

**(For the students admitted from the academic year 2018-2019 onwards)**

**SCHEME OF EXAMINATION - CBCS PATTERN**

| | |
|---|---|
| Course | **BSc CS, IT, CT, SS, CSA, MM & B.C.A (Regular)** |
| Effective from | **2016-2017 and Onwards** |
| Semester | **II** |
| Subject | **CORE LAB 2: PROGRAMMING LAB – C++** |

1.Write a C++ Program to create a class to implement the data structure STACK. Write a constructor to initialize the TOP of the STACK. Write a member function PUSH() to insert an element and member function POP() to delete an element check for overflow and underflow conditions..

2.Write a C++ Program to create a class ARITHMETIC which consists of a FLOAT and an INTEGER variable. Write member functions ADD (),SUB(), MUL(), DIV() to perform addition, subtraction, multiplication, division respectively. Write a member function to get and display values.

3.Write a C++ Program to read an integer number and find the sum of all the digits until it reduces to a single digit using constructors, destructors and inline member functions.

4.Write a C++ Program to create a class FLOAT that contains one float data member. Overload all the four Arithmetic operators so that they operate on the object FLOAT.

5.Write a C++ Program to create a class STRING. Write a Member Function to initialize, get and display stings. Overload the operators ++ and == to concatenate two Strings and to compare two strings respectively.

6.Write a C++ Program to create class, which consists of EMPLOYEE Detail like E_Number, E_Name, Department, Basic, Salary, Grade. Write a member function to get and display them. Derive a class PAY from the above class and write a member function to calculate DA, HRA and PF depending on the grade.

7.Write a C++ Program to create a class SHAPE which consists of two VIRTUAL FUNCTIONS Calculate_Area() and Calculate_Perimeter() to calculate area and perimeter of various figures. Derive three classes SQUARE, RECTANGLE,

TRIANGE from class Shape and Calculate Area and Perimeter of each class separately and display the result.

8.Write a C++ Program to create two classes each class consists of two private variables, a integer and a float variable. Write member functions to get and display them. Write a FRIEND Function common to both classes, which takes the object of above two classes as arguments and the integer and float values of both objects separately and display the result.

9.Write a C++ Program using Function Overloading to read two Matrices of different Data Types such as integers and floating point numbers. Find out the sum of the above two matrices separately and display the sum of these arrays individually.

10.Write a C++ Program to check whether the given string is a palindrome or not using Pointers.

11.Write a C++ Program to create a File and to display the contents of that file with line numbers.

12.Write a C++ Program to merge two files into a single file.

# BHARATHIAR UNIVERSITY

## COIMBATORE 641 046

### B.Sc. CS/IT/CT/SS/MM/CSA &BCA

**(For the students admitted from the academic year 2018-2019 onwards)**

**SCHEME OF EXAMINATION - CBCS PATTERN**

| | |
|---|---|
| Course | **BSc CS, IT, CT, SS, CSA, MM & B.C.A (Regular)** |
| Effective from | **2016-2017 and Onwards** |
| Semester | **II** |
| Subject | **CORE LAB 3: PROGRAMMING LAB – INTERNET BASICS** |

1.To create an email-id.

2.To compose and send a mail.

3.To forward a mail and to reply for a mail.

4.To send a mail with an attachment.

5.To download the attached document of a mail received.

6.To send a mail to a large number of recipients using cc and bcc options.

7.To search a thing using a search engine.

8.To open and read newspaper sites, TV program schedules using Internet.

9.To verify a university /college details by opening their websites.

10.To upload your resume with any one job portal.

# PART – III – ALLIED

# BHARATHIAR UNIVERSITY

## COIMBATORE 641 046

### B.Sc. CS/IT/CT/SS/MM/CSA &BCA

**(For the students admitted from the academic year 2018-2019 onwards)**

**SCHEME OF EXAMINATION - CBCS PATTERN**

| | |
|---|---|
| Course | **BSc CS, IT, CT, SS, CSA, MM & B.C.A (Regular)** |
| Effective from | **2016-2017 and Onwards** |
| Semester | **II** |
| Subject | **Allied 2: DISCRETE MATHEMATICS** |

**Subject Description:** This subject deals with discrete structures like set theory, mathematical logic, relations, languages, graphs and trees.

**Goal:** To learn about the discrete structures for computer based applications.

**Objective:** On successful completion of this subject the students should have: - Understanding the concepts of discrete mathematics - Learning applications of discrete structures in Computer Science.

**UNIT I:**

Set theory-Introduction-Set & its Elements-Set Description-Types of sets-Venn-Euler Diagrams- Set operations & Laws of set theory-Fundamental products-partitions of sets-minsets- Algebra of sets and Duality-Inclusion and Exclusion principle

**UNIT II:**

Mathematical logic – Introduction- prepositional calculus –Basic logical operations-Tautologies-Contradiction-Argument-Method o f proof- Predicate calculus.

**UNIT III:**

Relations – Binary Relations – Set operation on relations-Types of Relations – Partial order relation – Equivalence relation – Composition of relations – Functions – Types of functions – Invertible functions – Composition of functions.

**UNIT IV:**

Languages – Operations on languages – Regular Expressions and regular languages – Grammar – Types of grammars – Finite state machine – Finite – State automata

**UNIT V:**

Graph Theory – Basic terminology – paths, cycle & Connectivity – Sub graphs – Types of graphs – Representation of graphs in computer memory - Trees – Properties of trees – Binary trees – traversing Binary trees – Computer Representation of general trees.

**TEXT BOOKS:**

1. Discrete Mathematics, J.K. Sharma, 2nd edition, 2005, Macmillan India Ltd. (UNIT I TO V)

**REFERENCE BOOKS:**

1.Discrete Mathematics Structures with Applications to Computer Science, J. P. Tremblay, R Manohar, McGraw Hill International Edition

2.Discrete Mathematics, M. K. Venkataraman, N.Sridharan, N.Chandarasekaran, National Publishing Company, Chennai

# HUMAN RIGHTS #

# BHARATHIAR UNIVERSITY

## COIMBATORE 641 046

### B.Sc. CS/IT/CT/SS/MM/CSA &BCA

**(For the students admitted from the academic year 2018-2019 onwards)**

**SCHEME OF EXAMINATION - CBCS PATTERN**
**SYLLABUS**

**UNIT – I :**

Concept of Human Values, Value Education Towards Personal Development .Aim of education and value education; Evolution of value oriented education; Concept of Human values; types of values; Components of value education. Personal Development : Self analysis and introspection; sensitization towards gender equality, physically challenged, intellectually challenged. Respect to - age, experience, maturity, family members, neighbors, co-workers. Character Formation Towards Positive Personality: Truthfulness, Constructively, Sacrifice, Sincerity, Self Control, Altruism, Tolerance, Scientific Vision.

**UNIT – II :**

Value Education Towards National and Global Development National and International Values: Constitutional or national values - Democracy, socialism, secularism, equality, justice, liberty, freedom and fraternity. Social Values - Pity and probity, self control, universal brotherhood. Professional Values - Knowledge thirst, sincerity in profession, regularity, punctuality and faith. Religious Values - Tolerance, wisdom, character. Aesthetic values - Love and appreciation of literature and fine arts and respect for the same. National Integration and international understanding.

**UNIT – III :**

Impact of Global Development on Ethics and Values Conflict of cross-cultural influences, mass media, cross-border education, materialistic values, professional challenges and compromise. Modern Challenges of Adolescent Emotions and behavior; Sex and spirituality: Comparison and competition; positive and negative thoughts. Adolescent Emotions, arrogance, anger, sexual instability, selfishness, defiance.

**UNIT - IV :**

Therapeutic Measures Control of the mind through

a. Simplified physical exercise

b. Meditation – Objectives, types, effect on body, mind and soul

c. Yoga – Objectives, Types, Asana

d. Activities:

(i)Moralization of Desires

(ii)Neutralization of Anger

(iii)Eradication of Worries

(iv)Benefits of Blessings

**UNIT V :**

Human Rights

1. Concept of Human Rights – Indian and International Perspectives

a. Evolution of Human Rights

b. Definitions under Indian and International documents

2. Broad classification of Human Rights and Relevant Constitutional Provisions.

a. Right to Life, Liberty and Dignity

b. Right to Equality

c. Right against Exploitation

d. Cultural and Educational Rights

e. Economic Rights

f. Political Rights

g. Social Rights

3. Human Rights of Women and Children

a. Social Practice and Constitutional Safeguards

(i) Female Feticide and Infanticide

(ii) Physical assault and harassment

(iii) Domestic violence

(iv) Conditions of Working Women

4. Institutions for Implementation

a. Human Rights Commission

b. Judiciary

5. Violations and Redressed

a. Violation by State

b. Violation by Individuals

c. Nuclear Weapons and terrorism d. Safeguards.

# BHARATHIAR UNIVERSITY

## COIMBATORE 641 046

### B.Sc. CS/IT/CT/SS/MM/CSA &BCA

**(For the students admitted from the academic year 2018-2019 onwards)**

**SCHEME OF EXAMINATION - CBCS PATTERN**

**SEMESTER- III**

| Part | Study Components | Course title | Ins. hrs/ week | Examinations | | | | Credit |
|---|---|---|---|---|---|---|---|---|
| | | | | Dur.Hrs | CIA | Marks | Total Marks | |
| | **Semester III** | | | | | | | |
| III | Core 4: Data Structures | | 6 | 3 | 25 | 75 | 100 | 4 |
| III | Core 5: Java Programming | | 6 | 3 | 25 | 75 | 100 | 4 |
| III | Core Lab 4: Programming Lab – Java | | 5 | 3 | 40 | 60 | 100 | 4 |
| III | Allied 3: && | | 6 | 3 | 25 | 75 | 100 | 4 |
| IV | Skill based Subject 1 - && | | 5 | 3 | 20 | 55 | 75 | 3 |
| IV | Tamil @/ Advanced Tamil (OR) Non-major elective-1 (Yoga for Human Excellence)# / Women‘s Rights# | | 2 | 3 | - | 50 | 50 | 2 |

# PART – III – CORE

# BHARATHIAR UNIVERSITY

## COIMBATORE 641 046

### B.Sc. CS/IT/CT/SS/MM/CSA &BCA

**(For the students admitted from the academic year 2018-2019 onwards)**

**SCHEME OF EXAMINATION - CBCS PATTERN**

| | |
|---|---|
| Course | **BSc CS, IT, CT, SS, CSA, MM & B.C.A (Regular)** |
| Effective from | **2016-2017 and Onwards** |
| Semester | **III** |
| Subject | **CORE 4: DATA STRUCTURES** |

**UNIT I**

Introduction: Introduction of Algorithms, Analysing Algorithms. Arrays: Sparse Matrices - Representation of Arrays. Stacks and Queues. Fundamentals - Evaluation of Expression Infix to Postfix Conversion - Multiple Stacks and Queues

**UNIT II**

Linked List: Singly Linked List - Linked Stacks and Queues - Polynomial Addition - More on Linked Lists - Sparse Matrices - Doubly Linked List and Dynamic - Storage Management - Garbage Collection and Compaction.

**UNIT III**

Trees: Basic Terminology - Binary Trees - Binary Tree Representations - Binary Trees -Traversal - More on Binary Trees - Threaded Binary Trees - Binary Tree Representation of Trees - Counting Binary Trees. Graphs: Terminology and Representations - Traversals, Connected Components and Spanning Trees, Shortest Paths and Transitive Closure

**UNIT IV**

External Sorting: Storage Devices -Sorting with Disks: K-Way Merging - Sorting with Tapes Symbol Tables: Static Tree Tables - Dynamic Tree Tables - Hash Tables: Hashing Functions - Overflow Handling.

**UNIT V**

Internal Sorting: Insertion Sort - Quick Sort - 2 Way Merge Sort - Heap Sort - Shell Sort - Sorting on Several Keys. Files: Files, Queries and Sequential organizations - Index Techniques -File Organizations.

TEXT BOOKS

1.Ellis Horowitz, Sartaj Shani, Data Structures, Galgotia Publication.
2.Ellis Horowitz, Sartaj Shani, Sanguthevar Rajasekaran, Computer Algorithms, Galgotia Publication.

# BHARATHIAR UNIVERSITY

## COIMBATORE 641 046

### B.Sc. CS/IT/CT/SS/MM/CSA &BCA

**(For the students admitted from the academic year 2018-2019 onwards)**

**SCHEME OF EXAMINATION - CBCS PATTERN**

| | |
|---|---|
| Course | **BSc CS, IT, CT, SS, CSA, MM & B.C.A (Regular)** |
| Effective from | **2016-2017 and Onwards** |
| Semester | **III** |
| Subject | **CORE 5: JAVA PROGRAMMING** |

**Subject Description:** This subject deals with Java Programming concepts.

**Goal:** Enable to create wide range of Applications and Applets using Java.

**Objective:** To inculcate knowledge on Java Programming concepts.

**UNIT I:**

Fundamentals of Object-Oriented Programming: Object-Oriented Paradigm – Basic Concepts of Object-Oriented Programming – Benefits of Object-Oriented Programming – Application of Object-Oriented Programming. Java Evolution: History – Features – How Java differs from C and C++ – Java and Internet – Java and www –Web Browsers. Overview of Java: simple Java program – Structure – Java Tokens – Statements – Java Virtual Machine.

**UNIT II:**

Constants, Variables, Data Types - Operators and Expressions – Decision Making and Branching: if, if...else, nested if, switch, ? : Operator - Decision Making and Looping: while, do, for – Jumps in Loops - Labeled Loops – Classes, Objects and Methods.

**UNIT III:**

Arrays, Strings and Vectors – Interfaces: Multiple Inheritance – Packages: Putting Classes together – Multithreaded Programming.

UNIT IV: Managing Errors and Exceptions – Applet Programming – Graphics Programming.

UNIT V: Managing Input / Output Files in Java : Concepts of Streams- Stream Classes – Byte Stream classes – Character stream classes – Using streams – I/O Classes – File Class – I/O exceptions – Creation of files – Reading / Writing

characters, Byte-Handling Primitive data Types – Random Access Files.

**TEXTBOOK:**

1. Programming with Java – A Primer - E. Balagurusamy, 3rd Edition, TMH.

**REFERENCE BOOKS:**

1. The Complete Reference Java 2 - Patrick Naughton & Hebert Schildt, 3rd Edition, TMH
2. Programming with Java – John R. Hubbard, 2nd Edition, TMH.

# BHARATHIAR UNIVERSITY

## COIMBATORE 641 046

### B.Sc. CS/IT/CT/SS/MM/CSA &BCA

**(For the students admitted from the academic year 2018-2019 onwards)**

**SCHEME OF EXAMINATION - CBCS PATTERN**

| | |
|---|---|
| Course | **BSc CS, IT, CT, SS, CSA, MM & B.C.A (Regular)** |
| Effective from | **2016-2017 and Onwards** |
| Semester | **III** |
| Subject | **CORE LAB 4: PROGRAMMING LAB - JAVA** |

1.Write a Java Applications to extract a portion of a character string and print the extracted string.

2.Write a Java Program to implement the concept of multiple inheritance using Interfaces.

3.Write a Java Program to create an Exception called payout-of-bounds and throw the exception.

4.Write a Java Program to implement the concept of multithreading with the use of any three multiplication tables and assign three different priorities to them.

5.Write a Java Program to draw several shapes in the created windows.

6.Write a Java Program to create a frame with four text fields name, street, city and pin code with suitable tables. Also add a button called my details. When the button is clicked its corresponding values are to be appeared in the text fields.

7.Write a Java Program to demonstrate the Multiple Selection List-box.

8.Write a Java Program to create a frame with three text fields for name, age and qualification and a text field for multiple line for address

9.Write a Java Program to create Menu Bars and pull down menus.

10.Write a Java Program to create frames which respond to the mouse clicks. For each events with mouse such as mouse up, mouse down, etc., the corresponding message to be displayed.

11.Write a Java Program to draw circle, square, ellipse and rectangle at the mouse click positions.

12.Write a Java Program which open an existing file and append text to that file.

# PART – III – ALLIED-III

# BHARATHIAR UNIVERSITY

## COIMBATORE 641 046

### B.Sc. CS/IT/CT/SS/MM/CSA &BCA

**(For the students admitted from the academic year 2018-2019 onwards)**

**SCHEME OF EXAMINATION - CBCS PATTERN**

| | |
|---|---|
| Course | **B.Sc. CS & B.C.A (Regular)** |
| Effective from | **2016-2017 and Onwards** |
| Semester | **III** |
| Subject | **Allied 3: COMPUTER BASED OPTIMIZATION TECHNIQUES** |

**Subject Description**: This subject deals various optimization techniques for linear programming, Transportation, Assignment Problems, Game theory, PERT and CPM.

**Goal:** To learn about the managerial concepts like decision making, optimization, etc.

**Objective:** On successful completion of this subject the students should have:

- Understanding various mathematical applications in industries.
- Decision making for real time environment.

**UNIT I:**

Linear Programming - Mathematical Model assumption of linear Programming – Graphical method - Principles of Simplex method, Big-M Method, Duality, Dual simplex method.

**UNIT II**:

Transportation and Assignment problem - Integer Programming Branch and Round Techniques - Assignment and Traveling Salesman Problem.

**UNIT III:**

Game Theory - Concept of Pure and Mixed Strategies – Solving 2 x 2 matrix with and without saddle point - n x 2 - 2 x m games. Replacement models - Elementary replacement models - present value - rate of return - depreciation - Individual replacement – Group replacement.

**UNIT IV**:

(Derivations not included) Queuing Theory - definition of waiting line model - Queue discipline - traffic intensity - poison arrival – Birth death process - Problem from single server: finite and infinite population model – Problems from multi server: finite

and infinite population model.

**UNIT V:**

PERT & CPM - Network representation - backward pass - Forward pass - computation - Pert Network - Probability factor – updating and Crashing.

**TEXT BOOK:**

1. Operations Research, Manmohan, P.K. Gupta, Kanthiswarup, S. Chand & Sons - 1997.

**REFERENCE BOOKS:**

1.Operations Research, Hamdy A Taha, Pearson Education, 7th edition, 2002

2.Problems in Operations Research, P.K. Gupta, D.S. Hira, S. Chand Publishers.

# SKILL BASED SUBJECT-I

# BHARATHIAR UNIVERSITY

## COIMBATORE 641 046

### B.Sc. CS/IT/CT/SS/MM/CSA &BCA

**(For the students admitted from the academic year 2018-2019 onwards)**

**SCHEME OF EXAMINATION - CBCS PATTERN**

**SKILL BASED SUBJECTS**

**Skill-1 CS :SOFTWARE ENGINEERING & SOFTWARE PROJECT MANAGEMENT**

**UNIT I**

Introduction –S/W Engineering Paradigm – life cycle models (water fall, incremental, spiral, WINWIN spiral, evolutionary, prototyping, object oriented) - system engineering – computer based system – verification – validation – life cycle process – development process –system engineering hierarchy.

**UNIT II**

Functional and non-functional - user – system –requirement engineering process – feasibility studies – requirements – elicitation – validation and management – software prototyping – prototyping in the software process – rapid prototyping techniques – user interface prototyping - S/W document. Analysis and modeling – data, functional and behavioral models – structured analysis and data dictionary. software maintenance – Architectural evolution. Taxonomy of CASE tools.

**UNIT III**

Software Configuration Management – Definitions and terminology – processes and activities – Configuration audit – Metrics – Software Quality assurance – definitions – quality control and assurance – SQA Tools – Organization of Structures - Risk Management – Risk Identification, quantification Monitoring – Mitigation. Project initiation – Project Planning and tracking – what, cost, when and how – organizational processes – assigning resources – project tracking – project closure – when and how.

UNIT IV

Software requirements gathering – steps to be followed – skills sets required – challenges – metrics – Estimation 3 phases of estimation – formal models for size estimation – translating size estimate to effort schedule estimate, metrics – Design and Development phases – reusability, Technology choices, Standards, Portability user interface – testability – diagonosability etc.

**UNIT V**

Project Management in testing phase – in the maintenance phase – Impact on internet on project Management.

**TEXT BOOKS**

1.Roger S.Pressman, Software engineering- A practitioner‘s Approach, McGraw-Hill International Edition, 6th edition, 2007.

2.Gopalaswamy Ramesh, ―Managing Globle Software Projects‖ Tata McGraw Hill Publishing Company Ltd, New Delhi, 2002

**REFERENCE BOOK**

1. Bob Hughes and Mike Cotterell ―Software Project Management‖2nd edition, Tata McGraw Hill Publishing Company Ltd., New Delhi, 2002.

# ADVANCE TAMIL

**பாரதியார் பல்கலைக்கழகம் : கோயமுத்தூர்**

**பகுதி – IV: தமிழ்த் தாள் - 1 - முன்றாம் பருவம்**

**இளங்கலை 2012-13 கல்வி ஆண்டுமுதல் சேர்வோர்க்குரியது**

**(12-ம் வகுப்பு வரை தமிழ் மொழிப்பாடம் பயிலாதவர்களுக்கு)**

**அக மதிப்பீட்டுத் தேர்வு மட்டும் - பல்கலைக்கழக எழுத்துத் தேர்வுகள் கிடையாது**

1. தமிழ் மொழியின் அடிப்படைக் கூறுகள்.
   எழுத்துகள் : முதலெழுத்துகள் (உயிர் எழுத்து, மெய் எழுத்து, உயிர்மெய் எழுத்து)
   சொற்கள் : வகைகள் (பெயர்ச்சொல், வினைச்சொல், இடைச்சொல், உரிச்சொல்)
   தொடர் : தொடரமைப்பு (எழுவாய், செயப்படுபொருள், பயனிலை)
2. குறிப்பு எழுதுதல் : பத்துப் பதினைந்து தொடர்களில் குறிப்பு வரைதல்
   பிழைதீக்கி எழுதுதல் : (ஒற்றுப்பிழை, எழுத்துப்பிழை)

**2012-2013 கல்வியாண்டு முதல் பயில்பவர்களுக்குப் பின்வரும் வினாத்தாள் அமைப்பு பின்பற்றப்பட வேண்டும்.**

| | **அக மதிப்பீட்டுத் தேர்வு மதிப்பெண் வழங்கும் முறை** | மதிப்பெண்கள் |
|---|---|---|
| 1. | வகுப்புத் தேர்வு-1 | **10** |
| 2. | வகுப்புத் தேர்வு-2 | **10** |
| 3. | மாதிரித் தேர்வு | **10** |
| 4 | பயிற்சிக் கட்டுரை | **10** |
| 5 | வாய்மொழித் தேர்வு | **10** |
| | மொத்த மதிப்பெண்கள் | **50** |

**குறிப்பு : வாய்மொழித் தேர்வில் தமிழ்ச் செம்மொழி வரலாறு தொடர்பான வினாக்கள் மட்டுமே கேட்கப்பட வேண்டும்.**

# WOMENS RIGHTS

# BHARATHIAR UNIVERSITY

## COIMBATORE-641 046

### B.Sc. CS/IT/CT/SS/MM/CSA &BCA

### (For the students admitted from the academic year 2018-2019 onwards)

### SCHEME OF EXAMINATION - CBCS PATTERN

### SYLLABUS FOR "Women's Rights

**UNIT I**

Laws, Legal Systems and Change Definition - Constitutional law, CEDAW and International Human Rights – Laws and Norms – Laws and Social Context – Constitutional and Legal Framework.

**UNIT II**

Politics of land and gender in India Introduction – Faces of Poverty – Land as Productive Resources – Locating Identities – Women's Claims to Land – Right to Property - Case Studies.

**UNIT III**

Women's Rights: Access to Justice: Introduction – Criminal Law – Crime Against Women – Domestic Violence – Dowry Related Harassment and Dowry Deaths – Molestation – Sexual Abuse and Rape – Loopholes in Practice – Law Enforcement Agency.

**UNIT IV**

Women's Rights :Violence Against Women – Domestic Violence - The Protection of Women from Domestic Violence Act, 2005 - The Marriage Validation Act, 1982 - The Hindu Widow Re-marriage Act, 1856 - The Dowry Prohibition Act, 1961.

**UNIT V**

Special Women Welfare Laws ,Sexual Harassment at Work Places – Rape and Indecent Representation – The Indecedent Representation (Prohibition) Act, 1986 - Immoral Trafficking – The Immoral Traffic (Prevention) Act, 1956 - Acts Enacted for Women Development and Empowerment - Role of Rape Crisis Centers.

**REFERENCES :**

1.Nitya Rao "Good Women do not Inherit Land" Social Science Press and Orient Blackswan 2008

2.International Solidarity Network “Knowing Our Rights” An imprint of Kali for Women 2006.

3.P.D.Kaushik “Women Rights” Bookwell Publication 2007.

4.Aruna Goal “Violence Protective Measures for Women Development and Empowerment” Deep and Deep Publications Pvt 2004.

5.Monica Chawla “Gender Justice” Deep and Deep Publications Pvt Ltd.2006.

6.Preeti Mishra “Domestic Violence Against Women” Deep and Deep Publications Pvt 2007.

7.ClairM.Renzetti, Jeffrey L.Edleson, Raquel Kennedy Bergen, Source Book on “Violence Against Women” Sage Publications 2001.

# YOGA FOR HUMAN EXCELLENCE

# BHARATHIAR UNIVERSITY

## COIMBATORE-641 046

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**(For the students admitted from the academic year 2018-2019 onwards)**

**SCHEME OF EXAMINATION - CBCS PATTERN**

**SYLLABUS FOR "Yoga for Human Excellence"**

**Unit I - Yoga and Physical Health**

1.1 Physical Structure – Three bodies – Five limitations

1.2 Simplified Physical Exercises – Hand Exercises -Leg Exercises – Breathing Exercises – Eye Exercises – Kapalapathi

1.3 Maharasanas 1-2 – Massages – Acu-puncture – Relaxation

1.4 Yogasanas – [redacted] – Padmasana – Vajrasanas – Chakrasanas (Side) – Viruchasanas – Yoga muthra – Patchimothasanas – Ustrasanas – Vakkarasanas – Salabasanas

**Unit II - Art of Nurturing the life force and Mind**

2.1 Maintaining the youthfulness – Postponing the ageing process

2.2 Sex and Spirituality - Significance of sexual vital fluid – Married life – Chastity

2.3 Ten stages of Mind

2.4 Mental frequency – Methods for concentration

**Unit III - Sublimation**

3.1 Purpose and Philosophy of life

3.2 Introspection – Analysis of Thought

3.3 Moralization of Desires

3.4 Neutralization of Anger

**Unit IV – Human Resources Development**

4.1 Eradication of worries

4.2 Benefits of Blessings

4.3. Greatness of Friendship

4.4 Individual Peace and World Peace

**Unit V – Law of Nature**

5.1 Unified force – Cause and Effect system

5.2 Purity of Thought and Deed and Genetic Centre

5.3 Love and Compassion

5.4 Cultural Education – Five fold Culture

# CONSTITUTION OF INDIA

# BHARATHIAR UNIVERSITY

## COIMBATORE-641 046

### B.Sc. CS/IT/CT/SS/MM/CSA &BCA

**(For the students admitted from the academic year 2018-2019 onwards)**

**SCHEME OF EXAMINATION - CBCS PATTERN**

**NON-MAJOR ELECTIVE CONSTITUTION OF INDIA**

**UNIT I**

Making of Constitution - Constituent Assembly - Dr.Rajendra Prasath - Dr.B.R.Ambedkar - Salient features - Fundamental Rights.

**UNIT II**

Union Executive - President of India - Vice-President - Prime Minister - Cabinet - Functions

**UNIT III**

Union Legislature - Rajiya Sabha - Lok Sabha - Functions and Powers

**UNIT IV**

Union Judiciary - Supreme Court - Functions - Rule of law

**UNIT V**

State - Executive - Legislature - Judiciary

**Books for Reference**:

1.Agharwal.R.C. - National Moment and Constitutional Development - New Delhi, 1977

2.Chapra B.R., Constitution of India, New Delhi, 1970

3.Rao B.V., Modern Indian Constitution, Hyderabad, 1975.

4.Nani Palkhivala - Constitution of India, New Delhi, 1970

5.Krishna Iyer, V.R., Law and Justice, New Delhi, 2009

# BHARATHIAR UNIVERSITY

## COIMBATORE 641 046

### B.Sc. CS/IT/CT/SS/MM/CSA &BCA

**(For the students admitted from the academic year 2018-2019 onwards)**

**SCHEME OF EXAMINATION - CBCS PATTERN**

**SEMESTER- IV**

| Part | Study Components | Course title | Ins. hrs/ week | Examinations | | | | Credit |
|---|---|---|---|---|---|---|---|---|
| | | | | Dur.Hrs | CIA | Marks | Total Marks | |
| | **Semester IV** | | | | | | | |
| III | Core 6: System Software and Operating System | | 6 | 3 | 25 | 75 | 100 | 4 |
| III | Core 7: Linux and Shell Programming | | 6 | 3 | 25 | 75 | 100 | 4 |
| III | Core Lab 5: Linux and Shell | | 6 | 3 | 40 | 60 | 100 | 4 |
| III | Allied 4: && | | 6 | 3 | 25 | 75 | 100 | 4 |
| IV | Skill based subject 2 (lab) && | | 4 | 3 | 30 | 45 | 75 | 3 |
| IV | Tamil @/ Advanced Tamil (OR) Non-major elective-II (General Awareness) # | | 2 | 3 | - | 50 | 50 | 2 |

# PART – III – CORE

# BHARATHIAR UNIVERSITY

## COIMBATORE 641 046

### B.Sc. CS/IT/CT/SS/MM/CSA &BCA

**(For the students admitted from the academic year 2018-2019 onwards)**

**SCHEME OF EXAMINATION - CBCS PATTERN**

| | |
|---|---|
| Course | **BSc CS, IT, CT, SS, CSA, MM & B.C.A (Regular)** |
| Effective from | **2016-2017 and Onwards** |
| Semester | **IV** |
| Subject | **CORE 6: SYSTEM SOFTWARE AND OPERATING SYSTEMS** |

**Subject Description:** It deals with fundamentals of System Software and Resources of Operating System.

**Goal:** Knowledge on various System Software and Operating System concepts.

**Objective:** Enable the student to get sufficient knowledge on various system resources.

(SYSTEM SOFTWARE: Units I & II)

**UNIT I:**

Introduction –System Software and machine architecture. Loader and Linkers: Basic Loader Functions - Machine dependent loader features –Machine independent loader features - Loader design options.

**UNIT II:**

Machine dependent compiler features - Intermediate form of the program - Machine dependent code optimization - Machine independent compiler features - Compiler design options - Division into passes – Interpreters – p-code compilers - Compiler-compilers.

(OPERATING SYSTEMS: UNIT III, IV & V)

**UNIT III:**

What is an Operating System? – Process Concepts: Definition of Process - Process States - Process States Transition – Interrupt Processing – Interrupt Classes - Storage Management: Real Storage: Real Storage Management Strategies – Contiguous versus Non- contiguous storage allocation – Single User Contiguous Storage allocation- Fixed partition multiprogramming – Variable partition multiprogramming.

**UNIT IV:**

Virtual Storage: Virtual Storage Management Strategies – Page Replacement Strategies – Working Sets – Demand Paging – Page Size. Processor Management: Job and Processor Scheduling: Preemptive Vs Non-preemptive scheduling – Priorities – Deadline scheduling.

**UNIT V:**

Device and Information Management Disk Performance Optimization: Operation of moving head disk storage – Need for disk scheduling – Seek Optimization – File and Database Systems: File System – Functions – Organization – Allocating and freeing space – File descriptor – Access control matrix.

**TEXT BOOKS:**

1. Leland L.Beck, System Software: An Introduction to Systems Programming, Pearson, Third Edition.
2. H.M. Deitel, Operating Systems, 2nd Edition, Perason, 2003.

**REFERENCE BOOKS:**

1. Achy8ut S. Godbole, Operating Systems, TMH, 2002.
2. John J. Donovan, Systems Programming, TMH, 1991.
3. D.M. Dhamdhere, Systems Programming and Operating Systems, 2nd Revised Edition, TMH.

# BHARATHIAR UNIVERSITY

## COIMBATORE 641 046

### B.Sc. CS/IT/CT/SS/MM/CSA &BCA

**(For the students admitted from the academic year 2018-2019 onwards)**

**SCHEME OF EXAMINATION - CBCS PATTERN**

| | |
|---|---|
| Course | **BSc CS, IT, CT, SS, CSA, MM & B.C.A (Regular)** |
| Effective from | **2016-2017 and Onwards** |
| Semester | **IV** |
| Subject | **CORE 7: LINUX AND SHELL PROGRAMMING** |

**UNIT I:**

Introduction to LINUX Operating System: Introduction - The LINUX Operating System.

**UNIT II**:

Managing Files and Directories: Introduction – Directory Commands in LINUX – File Commands in LINUX.

**UNIT III:**

Creating files using the vi editor: Text editors – The vi editor. Managing Documents: Locating files in LINUX – Standard files – Redirection – Filters – Pipes.

**UNIT IV:**

Securing files in LINUX: File access permissions – viewing File access permissions – Changing File access permissions. Automating Tasks using Shell Scripts: Introduction – Variables- Local and Global Shell variables – Command Substitution.

**UNIT V:**

Using Conditional Execution in Shell Scripts: Conditional Execution – The case…esac Construct. Managing repetitive tasks using Shell Scripts: Using Iteration in Shell Scripts – The while construct – until construct – for construct – break and continue commands – Simple Programs using Shell Scripts.

**TEXT BOOK:**

1. Operating System LINUX, NIIT, PHI, 2006, Eastern Economy Edition.

**REFERENCE BOOK:**

1. Richard Petersen, Linux: The Complete Reference, Sixth Edition, Tata McGraw-Hill Publishing Company Limited, New Delhi, Edition 2008.

# BHARATHIAR UNIVERSITY

## COIMBATORE 641 046

### B.Sc. CS/IT/CT/SS/MM/CSA &BCA

**(For the students admitted from the academic year 2018-2019 onwards)**

**SCHEME OF EXAMINATION - CBCS PATTERN**

| | |
|---|---|
| Course | **BSc CS, IT, CT, SS, CSA, MM & B.C.A (Regular)** |
| Effective from | **2016-2017 and Onwards** |
| Semester | **IV** |
| Subject | **CORE LAB 5: LINUX AND SHELL PROGRAMMING LAB** |

1. Write a shell script to stimulate the file commands: rm, cp, cat, mv, cmp, wc, split, diff.
2. Write a shell script to show the following system configuration :
    a. currently logged user and his log name
    b. current shell , home directory , Operating System type , current Path setting ,current working directory
    c. show currently logged number of users, show all available shells
    d. show CPU information like processor type , speed
    e. show memory information
3. Write a Shell Script to implement the following: pipes, Redirection and tee commands.
4. Write a shell script for displaying current date, user name, file listing and directories bygetting user choice.
5. Write a shell script to implement the filter commands.
6. Write a shell script to remove the files which has file size as zero bytes.
7. Write a shell script to find the sum of the individual digits of a given number.
8. Write a shell script to find the greatest among the given set of numbers using commandline arguments.
9. Write a shell script for palindrome checking.
10. Write a shell script to print the multiplication table of the given argument using for loop.

# PART – III – ALLIED – IV

# BHARATHIAR UNIVERSITY

## COIMBATORE 641 046

### B.Sc. CS/IT/CT/SS/MM/CSA &BCA

**(For the students admitted from the academic year 2018-2019 onwards)**

**SCHEME OF EXAMINATION - CBCS PATTERN**

| | |
|---|---|
| Course | **B.Sc. CS & B.C.A (Regular)** |
| Effective from | **2016-2017 and Onwards** |
| Semester | **IV** |
| Subject | **Allied 4: BUSINESS ACCOUNTING** |

**UNIT I:**

Introduction-Accounting Principles-Branches of accounting-accounting rules-Journalising-Ledger-Subsidiary Book including cash books-Trial Balance.

**UNIT II:**

Preparation of Final Accounts: Trading, Profit and Loss Account and Balance sheet with simple adjustments-Outstanding Expenses and Income, Prepaid Expenses, Pre received Income, Depreciation –Provision for bad debts.

**UNIT III:**

Cost Account-Meaning elements of cost-Preparation of cost sheet with simple adjustments.

**UNIT IV:**

Material cost: Stores Ledger-FIFO-LIFO-weighted average, simple average method. Management Account-Meaning –Objectives- Management account with financial Account.

**UNIT V:**

Budget and Budgetary control-Preparation of various budgets-Flexible Budget-Production Budget-Cash Budget – Sales Budget.

Note: Distribution of Marks between Problems and Theory shall be 60% and 40%.

**TEXT BOOK:**

1. Accounting for Management, N.P.Srinivasan and M.Sakthivel Murugan, S.Chand & Company Ltd., New Delhi.

**REFERENCE BOOKS:**

1.Double entry book Keeping, T.S Grewal, Sultan Chand & Sons, New Delhi.

2.Management Accounting, Sharma and Gupta, Kalyani Publishers, New Delhi.

# SKILL BASED SUBJECT-II

# BHARATHIAR UNIVERSITY

## COIMBATORE 641 046

### B.Sc. CS/IT/CT/SS/MM/CSA &BCA

**(For the students admitted from the academic year 2018-2019 onwards)**

**SCHEME OF EXAMINATION - CBCS PATTERN**

**SKILL 2 - CS: SPM LAB**

1.Preparation of Project Management Plan.

2.Using any of the CASE tools, Practice requirement analysis and specification for different firms.

3.Case study of cost estimation models.

4.Practice object oriented design principles for implementation.

5.Practice function oriented design.

6.Practice creating software documentation for the Analysis phase of software development life cycle for a real time application.

7.Practice creating software documentation for the Development phase of software development life cycle for a real time application.

8.Practice creating software documentation for the Implementation phase of software development life cycle for a real time application.

9.Practice creating software documentation for the Testing phase of software development life cycle for a real time application.

10.Simulate a tool for path testing principles.

11.Simulate a tool for testing based on control structures.

12.Simulate a tool that reflects black box testing concepts

# NON-MAJOR ELECTIVE – II

# BHARATHIAR UNIVERSITY

## COIMBATORE-641 046

### B.Sc. CS/IT/CT/SS/MM/CSA &BCA

**(For the students admitted from the academic year 2018-2019 onwards)**

**SCHEME OF EXAMINATION - CBCS PATTERN**

பாரதியார் பல்கலைக்கழகம் : கோயமுத்தூர்

பகுதி - IV : சிறப்புத் தமிழ் தாள் - 2

நான்காம் பருவம்

இளங்கலை 2012-13 கல்வி ஆண்டுமுதல் சேர்வோர்க்குரியது

(12-ம் வகுப்பு வரை தமிழ் மொழிப்பாடம் பயின்றவர்களுக்கு)

கூறு - 1 திருக்குறள் - ஒழிபியலில் முதல் 5 அதிகாரங்கள் மட்டும்

கூறு - 2 உரைநடை : (கட்டுரை)
(இளைஞர்களின் ஒளிமயமான எதிர்காலத்திற்கு
கு.வே.பாலசுப்பிரமணியம், அனுராதா ஏஜென்ஸிஸ்
கும்பகோணம். தொலைபேசி : 04366-262237, 263237

கூறு - 3 எழுத்துப்பிழை நீக்க வழிகள் - பிழையும் திருத்தமும்
சொற்களைச் சரியாகப் பயன்படுத்தும் பாங்கு - வினைச் சொற்கள்
துணை வினைகள் (எடுத்துகாட்டுகளுடன் விளக்குதல்).

கூறு - 4 வழக்கறிதல் : மரபு வழக்கு - இயல்பு வழக்கு - தகுதி வழக்கு அறிதல்

கூறு - 5 படைப்பாற்றல் பயிற்சி
கட்டுரைகள் எழுதுதல்

# BHARATHIAR UNIVERSITY

## COIMBATORE-641 046

### B.Sc. CS/IT/CT/SS/MM/CSA &BCA

**(For the students admitted from the academic year 2018-2019 onwards)**

**SCHEME OF EXAMINATION - CBCS PATTERN**

**SEMESTER IV : NON MAJOR ELECTIVE : GENERAL AWARENESS**

1. VERBAL APTITUDE
2. NUMERICAL APTITUDE
3. ABSTRACT REASONING
4. TAMIL AND OTHER LITERATURE
5. GENERAL SCIENCE AND TECHNOLOGY AND EDUCATION
6. COMPUTER SCIENCE
7. ECONOMICS AND COMMERCE
8. HISTORY AND FREEDOM STRUGGLE
9. SPORTS
10. CURRENT AFFAIRS
11. MODEL QUESTION PAPER

# BHARATHIAR UNIVERSITY

## COIMBATORE 641 046

### B.Sc. CS/IT/CT/SS/MM/CSA &BCA

**(For the students admitted from the academic year 2018-2019 onwards)**

**SCHEME OF EXAMINATION - CBCS PATTERN**

**SEMESTER- V**

| Part | Study Components | Course title | Ins. hrs/ week | Examinations | | | | Credit |
|---|---|---|---|---|---|---|---|---|
| | | | | Dur.Hrs | CIA | Marks | Total Marks | |
| | **Semester V** | | | | | | | |
| III | Core 8: RDBMS & Oracle | | 6 | 3 | 25 | 75 | 100 | 4 |
| III | Core 9: Visual Basic | | 6 | 3 | 25 | 75 | 100 | 4 |
| III | Core Lab 6: Programming Lab – VB & Oracle | | 6 | 3 | 40 | 60 | 100 | 4 |
| III | Elective 1 && | | 6 | 3 | 25 | 75 | 100 | 4 |
| IV | Skill based Subject 3: && | | 6 | 3 | 20 | 55 | 75 | 3 |

# PART – III – CORE

# BHARATHIAR UNIVERSITY

## COIMBATORE 641 046

### B.Sc. CS/IT/CT/SS/MM/CSA &BCA

**(For the students admitted from the academic year 2018-2019 onwards)**

**SCHEME OF EXAMINATION - CBCS PATTERN**

| | |
|---|---|
| Course | **BSc CS, IT, CT, SS, CSA, MM & B.C.A (Regular)** |
| Effective from | **2016-2017 and Onwards** |
| Semester | **V** |
| Subject | **CORE 8: RDBMS AND ORACLE** |

**Subject Description:** This subject deals with RDBMS concepts using Oracle SQL and PL/SQL.

**Goal:** Knowledge on Oracle Programming techniques.

**Objective:** To inculcate knowledge on RDBMS concepts and Programming with Oracle.

**UNIT I:**

Database Concepts: A Relational approach: Database – Relationships – DBMS – Relational Data Model – Integrity Rules – Theoretical Relational Languages. Database Design: Data Modeling and Normalization: Data Modeling – Dependency – Database Design – Normal forms – Dependency Diagrams – De -normalization – Another Example of Normalization.

**UNIT II:**

Oracle9i: Overview: Personal Databases – Client/Server Databases – Oracle9i an introduction – SQL *Plus Environment – SQL – Logging into SQL *Plus - SQL *Plus Commands – Errors & Help – Alternate Text Editors - SQL *Plus Worksheet - iSQL *Plus. Oracle Tables: DDL: Naming Rules and conventions – Data Types – Constraints – Creating Oracle Table – Displaying Table Information – Altering an Existing Table – Dropping, Renaming, Truncating Table – Table Types – Spooling – Error codes.

**UNIT III:**

Working with Table: Data Management and Retrieval: DML – adding a new Row/Record – Customized Prompts – Updating and Deleting an Existing Rows/Records – retrieving Data from Table – Arithmetic Operations – restricting Data with WHERE clause – Sorting – Revisiting Substitution Variables – DEFINE

command – CASE structure. Functions and Grouping: Built-in functions –Grouping Data. Multiple Tables: Joins and Set operations: Join – Set operations.

**UNIT IV:**

PL/SQL: A Programming Language: History – Fundamentals – Block Structure – Comments – Data Types – Other Data Types – Declaration – Assignment operation – Bind variables – Substitution Variables – Printing – Arithmetic Operators. Control Structures and Embedded SQL: Control Structures – Nested Blocks – SQ L in PL/SQL – Data Manipulation – Transaction Control statements. PL/SQL Cursors and Exceptions: Cursors – Implicit & Explicit Cursors and Attributes – Cursor FOR loops – SELECT…FOR UPDATE – WHERE CURRENT OF clause – Cursor with Parameters – Cursor Variables – Exceptions – Types of Exceptions.

**UNIT V:**

PL/SQL Composite Data Types: Records – Tables – arrays. Named Blocks: Procedures – Functions – Packages –Triggers –Data Dictionary Views.

**TEXT BOOK:**

1. Database Systems using Oracle, Nilesh Shah, 2nd edition, PHI.

**REFERENCE BOOKS**:

1.Database Management Systems, Majumdar & Bhattacharya, 2007, TMH.

2.Database Management Systems, Gerald V. Post, 3rd edition, TMH.

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### B.Sc. CS/IT/CT/SS/MM/CSA &BCA

**(For the students admitted from the academic year 2018-2019 onwards)**

**SCHEME OF EXAMINATION - CBCS PATTERN**

| | |
|---|---|
| Course | **BSc CS, IT, CT, SS, CSA, MM & B.C.A (Regular)** |
| Effective from | **2016-2017 and Onwards** |
| Semester | **V** |
| Subject | **CORE 9: VISUAL BASIC** |

**UNIT I:**

Getting Started with VB6, Programming Environment, Working with Forms, Developing an application, Variables, Data types and Modules, procedures and control structures, arrays. Working with Controls: Creating and using controls, working with control arrays.

**UNIT II:**

Menus, Mouse events and Dialog boxes: Mouse events, Dialog boxes, MDI and Flexgrid: MDI, Using the Flexgrid control.

**UNIT III:**

ODBC and Data Access Objects: Data Access Options, ODBC, Remote data objects, ActiveX EXE and ActiveX DLL: Introduction, Creating an ActiveX EXE Component, Creating ActiveX DLL Component.

**UNIT IV:**

Object Linking and Embedding: OLE fundamentals, Using OLE Container Control, Using OLE Automation objects, OLE Drag and Drop, File and File System Control: File System Controls, Accessing Files.

**UNIT V:**

Additional controls in VB: sstab control, setting properties at runtime, adding controls to tab, list control, tabstrip control, MSFlexgrid control, Why ADO, Establishing a reference, Crystal and Data reports.

**TEXT BOOKS:**

1. Visual Basic 6.0 Programming, Content Development Group, TMH, 8th reprint, 2007.

(Unit I to Unit IV)

2. Programming with Visual Basic 6.0, Mohammed Azam, Vikas Publishing House, Fourth Reprint, 2006. (Unit V)

# BHARATHIAR UNIVERSITY

## COIMBATORE 641 046

### B.Sc. CS/IT/CT/SS/MM/CSA &BCA

**(For the students admitted from the academic year 2018-2019 onwards)**

**SCHEME OF EXAMINATION - CBCS PATTERN**

| | |
|---|---|
| Course | **BSc CS, IT, CT, SS, CSA, MM & B.C.A (Regular)** |
| Effective from | **2016-2017 and Onwards** |
| Semester | **V** |
| Subject | **CORE LAB 6: PROGRAMMING LAB – VB and Oracle** |

**VISUAL BASIC:**

1.Write a simple VB program to accept a number as input and convert them into

a)Binary b) Octal c) Hexadecimal

2.Write a simple VB program to add the items to list box with user input and move the selected item to combo box one by one.

3.Write a simple VB program to develop a calculator with basic operation.

4.Design a form using common dialog control to display the font, save and open dialog box without using the action control property.

5.Write a VB Program to develop a menu driven program Add a MDI window in the form and arrange them in the cascading/horizontal style using menus (Create a menu to add form, arrange) (Menu Item 1). Also change the form color using the menu in another menu item (Menu Item 2).

6.Develop a simple project for Student Database Management System using VB as front end and Oracle as back end.

ORACLE:

1.Create a table for Employee details with Employee Number as primary key and following fields: Name, Designation, Gender, Age, Date of Joining and Salary. Insert at least ten rows and perform various queries using any one Comparison, Logical, Set, Sorting and Grouping operators.

2.Create tables for library management system which demonstrate the use of primary key and foreign key. Master table should have the following fields: Accno, Title, Author and Rate. Transaction table should have the following fields: User id, Accno, Date of Issue and Date of Return. Create a Report(Select verb) with fields Accno, Title, Date of Issue for the given Date of Return with column formats.

3.Write a PL/SQL to update the rate field by 20% more than the current rate in inventory table which has the following fields: Prono, ProName and Rate. After updating the table a new field (Alter) called for Number of item and place for values for the new field without using PL/SQL block.

4.Write a PL/SQL to split the student table into two tables based on result (One table for—Pass‖ and another for —Fail‖). Use cursor for handling records of student table. Assume necessary fields and create a student details table.

5.Create a database trigger to implement on master and transaction tables which are based on inventory management system for checking data validity. Assume the necessary fields for both tables.

6.Write a PL/SQL to raise the following Exception in Bank Account Management table when deposit amount is zero.

# ELECTIVE– I

# BHARATHIAR UNIVERSITY

## COIMBATORE 641 046

### B.Sc. CS/IT/CT/SS/MM/CSA &BCA

**(For the students admitted from the academic year 2018-2019 onwards)**

**SCHEME OF EXAMINATION - CBCS PATTERN**

| | |
|---|---|
| Course | **B.Sc. CSA, B.Sc. CS & B.Sc. MM (Regular)** |
| Effective from | **2016-2017 and Onwards** |
| Semester | **B.Sc. CSA: Allied-4 (IV Semester)**<br>**B.Sc. CS: Elective –I (V Semester)**<br>**B.Sc. MM : Elective-III (VI Semester)** |
| Subject | **ORGANIZATIONAL BEHAVIOR** |

**UNIT I:**

Introduction to Organizational Behavior –Related Disciplines – Theoretical Framework – Organizational Approaches – Modern Organizational Scenario: Impact of Globalization

**UNIT II:**

Individual Behavior – Perception – Process – Changes - Personality and Attitudes – Job Satisfaction

**UNIT III:**

Motivation: Needs, Content and Process: Motivation: Content Theories -ghh– Process Theories – Contemporary Theories – Motivation Applied – Job Design and Goal setting. Leadership – Background – Process- Styles – Activities – Skills

**UNIT IV:**

Group Dynamics – The nature of Informal Organizations – Formal Groups – Interactive conflict: Interpersonal conflict – Inter-group behavior and conflict – Negotiation Skills: Going beyond conflict management – Traditional Negotiation Approaches - Contemporary negotiation skills.

**UNIT V:**

Communication – Role and background – Interpersonal communication – Informal communication- The Decision Making process – Participative Decision making techniques – Organization design – culture – Organization change and development

**TEXT BOOKS:**

1.Fred Luthans, Organizational Behavior, 9th Edition, McGraw Hill Irwin, 2002.

2.John W. Newstorm and Keith Davis, Organizational Behavior, 10th Edition

# BHARATHIAR UNIVERSITY

## COIMBATORE 641 046

### B.Sc. CS/IT/CT/SS/MM/CSA &BCA

**(For the students admitted from the academic year 2018-2019 onwards)**

**SCHEME OF EXAMINATION - CBCS PATTERN**

| | |
|---|---|
| Course | **B.Sc. CS/IT/SS/CSA/BCA (Regular)** |
| Effective from | **2016-2017 and Onwards** |
| Semester | **B.Sc. IT: Allied-4 (IV Semester)**<br>**B.Sc. CS/SS/CSA/BCA : Elective** |
| Subject | **COMPUTER NETWORKS** |

**Subject Description**: This subject deals different Network concepts like Layers, Wireless Concepts, Transmission and Security.

**Goal:** Knowledge on Computer Networks and technologies like broadband and Bluetooth.

**Objective:** To inculcate knowledge on Networking concepts and technologies like wireless, broadband and Bluetooth.

**UNIT I:**

Network Hardware: LAN – WAN – MAN – Wireless – Home Networks. Network Software: Protocol Hierarchies – Design Issues for the Layers – Connection-oriented and connectionless services – Service Primitives – The Relationship of services to Protocols. Reference Models: OSI Reference Model – TCP/IP reference Model – Comparison of OSI and TCP/IP -Critique of OSI and protocols – Critique of the TCP/IP Reference model.

**UNIT II:**

PHYSICAL LAYER - Guided Transmission Media: Magnetic Media – Twisted Pair – Coaxial Cable – Fiber Optics. Wireless Transmission: Electromagnetic Spectrum – Radio Transmission – Microwave Transmission – Infrared and Millimeter Waves – Light Waves. Communication Satellites: Geostationary, Medium-Earth Orbit, Low Earth-orbit Satellites – Satellites versus Fiber.

**UNIT III:**

DATA-LINK LAYER: Error Detection and correction – Elementary Data-link Protocols – Sliding Window Protocols. MEDIUM-ACCESS CONTROL SUB LAYER: Multiple

Access Protocols – Ethernet – Wireless LANs - Broadband Wireless – Bluetooth.

**UNIT IV:**

NETWORK LAYER: Routing algorithms – Congestion Control Algorithms. TRANSPORT LAYER: Elements of Transport Protocols – Internet Transport Protocols: TCP.

**UNIT V:**

APPLICATION LAYER: DNS – E-mail. NETWORK SECURITY: Cryptography – Symmetric Key Algorithms – Public Key Algorithms – Digital Signatures.

**TEXT BOOK:**

1. Computer Networks, Andrew S. Tanenbaum, 4th edition, PHI. (UNIT-I:1.2-1.4 UNIT- II:2.2-2.4 UNIT-III:4.2-4.6 UNIT-IV:5.2,5.3,6.2,6.5 UNIT-V:7.1,7.2,8.1-8.4)

**REFERENCE BOOKS:**

1.Data Communication and Networks, Achyut Godbole, 2007, TMH.

2.Computer Networks: Protocols, Standards, and Interfaces, Uyless Black, 2nd ed, PHI

# BHARATHIAR UNIVERSITY

## COIMBATORE 641 046

### B.Sc. CS/IT/CT/SS/MM/CSA &BCA

**(For the students admitted from the academic year 2018-2019 onwards)**

**SCHEME OF EXAMINATION - CBCS PATTERN**

**E-Learning**

**UNIT I:**

E-Learning Evolution - Advantages and Disadvantages of E-Learning - Instructional design Models for E-Learning - Applying User-Centered Design to E-Learning - E-Learning tools – What is an E-Learning tool?

**UNITII:**

Flash: Geometric shape tools – Drawing tools - Creating Precise Lines with the Pen Tool - Fill and stroke controls - Selection Tools - Designing and Aligning Elements.

**UNIT III:**

Creating Animation and Effects: Animation strategies – TimeLine Animation – Applying Layer Types - Character animation Techniques.

**UNIT IV:**

Sound: Import and Export formats – Importing sound to flash – Adding sound to timeline – Synchronizing audio to animations - Stopping sounds. Video: Integrating and Importing Video.

**UNIT V:**

Adobe Premiere: Starting Movie Projects: Starting New Projects - Reviewing and Changing Project Settings - Saving a Project. Adding Special Effects to Your Movies: Surveying Effects - Introducing the Effect Controls Window - Using Key frames - Removing Effects - Working with Effect Presets.

**TEXT BOOKS**

1.E-Learning Concepts and Techniques, Pamela Berman, Institute for Interactive Technologies, Bloomsburg University of Pennsylvania, USA (e-book), 2006.

2.MacroMedia Flash 8 Bible, Robert ReinHardt and Snow Dowd. 2006, 1st Edition, Wiley India (P) Ltd, New Delhi.

3.Adobe Premiere Elements for Dummies, Keith Underdahl, Wiley Publishing Inc.

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# SKILL BASED SUBJECT-III

# BHARATHIAR UNIVERSITY

## COIMBATORE 641 046

### B.Sc. CS/IT/CT/SS/MM/CSA &BCA

**(For the students admitted from the academic year 2018-2019 onwards)**

**SCHEME OF EXAMINATION - CBCS PATTERN**

**SOFTWARE TESTING**

**Subject Description**: This subject deals software testing concepts like unit-wise testing, integration testing and acceptance testing.

**Goal:** Knowledge on software testing and how to test the software at various levels.

**Objective:** To inculcate knowledge on Software testing concepts.

**UNIT I:**

Software Development Life Cycle models: Phases of Software project – Quality, Quality Assurance, Quality control – Testing, Verification and Validation – Process Model to represent Different Phases - Life Cycle models. White-Box Testing: Static Testing – Structural Testing –Challenges in White-Box Testing.

**UNIT II:**

Black-Box Testing: What is Black-Box Testing? - Why Black-Box Testing? – When to do Black-Box Testing? – How to do Black-Box Testing? – Challenges in White Box Testing - Integration Testing: Integration Testing as Type of Testing – Integration Testing as a Phase f Testing – Scenario Testing – Defect Bash.

**UNIT III:**

System and Acceptance Testing: system Testing Overview – Why System testing is done? – Functional versus Non-functional Testing - Functional testing - Non-functional Testing – Acceptance Testing – Summary of Testing Phases.

**UNIT IV**:

Performance Testing: Factors governing Performance Testing – Methodology of Performance Testing – tools for Performance Testing – Process for Performance Testing – Challenges. Regression Testing: What is Regression Testing? – Types of Regression Testing – When to do Regression Testing – How to do Regression Testing – Best Practices in Regression Testing.

**UNIT V:**

Test Planning, Management, Execution and Reporting: Test Planning – Test Management – Test Process – Test Reporting –Best Practices. Test Metrics and Measurements: Project Metrics – Progress Metrics – Productivity Metrics – Release

Metrics.

**TEXT BOOK:**

1. Software Testing Principles and Practices, Srinivasan Desikan & Gopalswamy Ramesh, 2006, Pearson Education. (UNIT-I: 2.1-2.5, 3.1-3.4 UNIT-II: 4.1-4.4, 5.1-5.5 UNIT III: 6 .1-6.7 (UNIT IV: 7.1-7.6, 8.1-8.5 UNIT-V: 15.1-15.6, 17.4-17.7)

**REFERENCE BOOKS:**

1.Effective Methods of Software Testing, William E. Perry, 3rd ed, Wiley India.

2.Software Testing, Renu Rajani, Pradeep Oak, 2007, TMH.

# BHARATHIAR UNIVERSITY

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### B.Sc. CS/IT/CT/SS/MM/CSA &BCA

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**SCHEME OF EXAMINATION - CBCS PATTERN**

**SEMESTER- VI**

| Part | Study Components | Course title | Ins. hrs/ week | Examinations | | | | Credit |
|---|---|---|---|---|---|---|---|---|
| | | | | Dur.Hrs | CIA | Marks | Total Marks | |
| | **Semester VI** | | | | | | | |
| III | Core 10: Graphics & Multimedia | | 5 | 3 | 25 | 75 | 100 | 4 |
| III | Core 11: Project Work Lab %% | | 5 | 3 | - | 200 | 200 | 8 |
| III | Core Lab 7: Programming Lab – Graphics & Multimedia | | 6 | 3 | 40 | 60 | 100 | 4 |
| III | Elective II && | | 5 | 3 | 25 | 75 | 100 | 4 |
| III | Elective III && | | 5 | 3 | 25 | 75 | 100 | 4 |
| IV | Skill based Subject 4 (lab) && | | 4 | 3 | 30 | 45 | 75 | 3 |

# PART – III – CORE

# BHARATHIAR UNIVERSITY

## COIMBATORE-641 046

### B.Sc. CS/IT/CT/SS/MM/CSA &BCA

**(For the students admitted from the academic year 2018-2019 onwards)**

**SCHEME OF EXAMINATION - CBCS PATTERN**

**SEMESTER- VI : CORE-11: GRAPHICS & MULTIMEDIA**

**Subject Description**: This subject deals with Graphics Concepts and Multimedia methodologies.

**Goal**: Mathematical Knowledge on Graphics and Technical background of Multimedia. **Objective**: To inculcate knowledge on Graphics & Multimedia concepts.

(GRAPHICS – NITS I & II)

**UNIT-I**:

Output Primitives: Points and Lines – Line-Drawing algorithms – Loading frame Buffer – Line function – Circle-Generating algorithms – Ellipse-generating algorithms. Attributes of Output Primitives: Line Attributes – Curve attributes – Color and Grayscale Levels – Area-fill attributes – Character Attributes.

**UNIT-II:**

2D Geometric Transformations: Basic Transformations – Matrix Representations – Composite Transformations – Other Transformations. 2D Viewing: The Viewing Pipeline – Viewing Co-ordinate Reference Frame – Window-to-Viewport Co-ordinate Transformation - 2D Viewing Functions – Clipping Operations. (MULTIMEDIA – UNITS III, IV &V)

**UNIT-III:**

Text: Types of Text – Unicode Standard – Font – Insertion of Text – Text compression – File formats. Image: Image Types – Seeing Color – Color Models – Basic Steps for Image Processing – Scanner – Digital Camera – Interface Standards – Specification of Digital Images – CMS – Device Independent Color Models – Image Processing software – File Formats – Image Output on Monitor and Printer.

**UNIT-IV:**

Audio: Introduction – Acoustics – Nature of Sound Waves – Fundamental Characteristics of Sound – Microphone – Amplifier – Loudspeaker – Audio Mixer – Digital Audio – Synthesizers – MIDI – Basics of Staff Notation – Sound Card – Audio

Transmission – Audio File formats and CODECs – Audio Recording Systems – Audio and Multimedia – Voice Recognition and Response - Audio Processing Software.

**UNIT-V:**

Video: Analog Video Camera – Transmission of Video Signals – Video Signal Formats – Television Broadcasting Standards – PC Video – Video File Formats and CODECs – Video Editing – Video Editing Software. Animation: Types of Animation – Computer Assisted Animation – Creating Movement – Principles of Animation – Some Techniques of Animation – Animation on the Web – Special Effects – Rendering Algorithms. Compression: MPEG-1 Audio – MPEG-1 Video - MPEG-2Audio – MPEG-2 Video.

**TEXTBOOKS:**

1.COMPUTER GRAPHICS – Donald Hearn, M.Pauline Baker, 2nd edition, PHI.(UNIT-I: 3.1-3.6,4.1-4.5 & UNIT-II: 5.1-5.4,6.1-6.5)

2.PRINCIPLES OF MULTIMEDIA – Ranjan Parekh, 2007, TMH.

(UNIT III: 4.1-4.7,5.1-5.16 UNIT-IV: 7.1-7.3,7.8-7.14,7.18-7.20,7.22,7.24,7.26-28 UNIT-V: 9.5-9.10,9.13,9.15,10.10-10.13)

**REFERENCE BOOKS:**

1.COMPUTER GRAPHICS – Amarendra N Sinha, Arun D Udai, TMH.

2.MULTIMEDIA: Making it Work – Tay Vaughan, 7th edition, TMH.

# BHARATHIAR UNIVERSITY

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**SCHEME OF EXAMINATION - CBCS PATTERN**

**GUIDELINES FOR PROJECT WORK**

• The aim of the project work is to acquire practical knowledge on the implementation of the programming concepts studied.

• Each student should carry out individually one project work and it may be a work using the software packages that they have learned or the implementation of concepts from the papers studied or implementation of any innovative idea focusing on application oriented concepts.

• The project work should be compulsorily done in the college only under the supervision of the department staff concerned.

**Viva Voce**

• Viva-Voce will be conducted at the end of the semester by both Internal (Respective Guides) and External Examiners, after duly verifying the Annexure Report available in the College, for a total of 200 marks at the last day of the practical session.

• Out of 200 marks, 160 marks for project report and 40 marks for Viva Voce.

# BHARATHIAR UNIVERSITY

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**SCHEME OF EXAMINATION - CBCS PATTERN**

**SEMESTER- VI : CORE LAB-7: PROGRAMMING LAB - GRAPHICS and MULTIMEDIA**

**Multimedia:**

1.Create Sun Flower using Photoshop.

2.Animate Plane Flying in the Clouds using Photoshop.

3.Create Plastic Surgery for the Nose using Photoshop.

4.Create See-through text using Photoshop.

5.Create a Web Page using Photoshop.

6.Convert Black and White Photo to Color Photo using Photoshop.

**Graphics:**

1.write a program to rotate an image.

2.write a program to drop each word of a sentence one by one from the top.

3.write a program to drop a line using DDA Algorithm.

4.write a program to move a car with sound effect.

5.write a program to bounce a ball an move it with sound effect.

6.write a program to test whether a given pixel is inside or outside or on a polygon.

# ELECTIVE II

# BHARATHIAR UNIVERSITY

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**SCHEME OF EXAMINATION - CBCS PATTERN**

**SEMESTER- VI : ELECTIVE II : NETWORK SECURITY & CRYPTOGRAPHY**

**Subject Description**: deals with principles of encryption algorithms, and conventional and public key cryptography.

**Goal:** enable to know the levels of network security and security tools. Objective: to impart knowledge regarding cryptography and network security.

**UNIT-I:**

Service mechanism and attacks – The OSI security architecture – A model for network security – symmetric Cipher model – Substitution techniques – transposition techniques – simplified des – block chipper principles – the strength of des – block chipper design principles and modes of operation.

**UNIT-II:**

Triple des-blow fish – RCS Advanced Symmetric Block Ciphers –RC4 stream Cipher confidentially using symmetric encryption – introduction to number theory – public – key cryptography and RSA.

**UNIT-III:**

Key management – Diffle Hellman key exchange – message authentication and hash function – hash algorithm – digital signature and authentication protocols – digital signature standard.

**UNIT-IV:**

Authentication application – pretty good privacy – S/MIME – ip security – web security considerations –secure socket layer transport layer security –secure electronic transaction.

**UNIT-V**

Intruders –intrusion detection – password management –viruses and related threats – virus countermeasures – fire wall design principles – trusted systems

**TEXTBOOK:**

William Stallings, ―Cryptography and Network Security Principles and Practices‖. Fourth edition, phi Education Asia.

**REFERENCE BOOKS:**

1)Atul kahate —Cryptography and Network Security‖ second edition. TMH.

2)Behrouz A.forouzan‖ Cryptography and Network Security — TMH.

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**SCHEME OF EXAMINATION - CBCS PATTERN**

**SEMESTER- VI**

**ELECTIVE II : ARTIFICIAL INTELLIGENCE AND EXPERT SYSTEMS**

Subject Description: This subject deals with various AI Concepts and Methodologies.

Goal: To Acquire Knowledge on various AI Techniques and Expert Systems.

Objective: To have enriched knowledge regarding heuristic search, Knowledge representation and Expert systems

**UNIT I:**

Introduction: AI Problems – AI techniques – Criteria for success. Problems, Problem Spaces, Search: State space search – Production Systems – Problem Characteristics – Issues in design of Search.

**UNIT II:**

Heuristic Search techniques: Generate and Test – Hill Climbing – Best-Fist, Problem Reduction, Constraint Satisfaction, Means-end analysis.

**UNIT III:**

Knowledge representation issues: Representations and mappings – Approaches to Knowledge representations – Issues in Knowledge representations – Frame Problem.

**UNIT IV:**

Using Predicate Logic: Representing simple facts in logic – Representing Instance and Isa relationships – Computable functions and predicates – Resolution – Natural deduction.

**UNIT V:**

Representing knowledge using rules: Procedural Vs Declarative knowledge – Logic programming – Forward Vs Backward reasoning – Matching – Control knowledge Brief explanation of Expert Systems-Definition- Characteristics-architecture-Knowledge Engineering- Expert System Life Cycle-Knowledge Acquisition Strategies- Expert System Tools.

**Text Book:**

1. Elaine rich and Kelvin Knight, —Artificial Intelligence —, Tata McGrawhill Publication, 2nd Edition, 1991.(chapters 1- 6 ).

**Reference Book :**

1.—Artificial Intelligence a modern Approach —– Stuart Russell & Peter Norvig, 2nd Edition Perason Education.

2.—Artificial Intelligence —, George F Luger , 4th Edition , Pearsons Education Publ, 2002.

3.—Foundations of Artificial Intelligent and Expert Systems‖, V S JANAKI RAMAN, K SARUKESI, P GOPALAKRISHNAN, MacMillan India limited.,

# BHARATHIAR UNIVERSITY

## COIMBATORE-641 046

### B.Sc. CS/IT/CT/SS/MM/CSA &BCA

**(For the students admitted from the academic year 2018-2019 onwards)**

**SCHEME OF EXAMINATION - CBCS PATTERN**

**SEMESTER- VI**

**ELECTIVE II : WEB TECHNOLOGY**

**Subject Description**: This subject deals TCP/IP, FTP, WWW and Web technologies like ASP, JVM, DCOM, XML and WAP.

**Goal:** Knowledge on various Web technologies.

**Objective**: To inculcate knowledge web technological concepts and functioning internet.

**UNIT-I:**

TCP/IP: TCP/IP Basics – Why IP address – Logical Address - TCP/IP Example- The concept of IP address – Basics of TCP – Features of TCP – Relationship between TCP and IP – Ports and Sockets – Active Open and Passive Open - TCP Connections – What makes TCP reliable? – TCP Packet format - Persistent TCP connections – UDP – Differences between TCP and UDP.

**UNIT-II:**

DNS – E-mail – FTP – TFTP – History of WWW – Basics of WWW and Browsing - Local information on the internet – HTML – Web Browser Architecture – Web Pages and Multimedia – Remote Login (TELNET).

**UNIT-III:**

Introduction to Web Technology: Web pages – Tiers – Concept of a Tier – Comparison of Microsoft and Java Technologies – Web Pages – Static Web Pages – Plug-ins – Frames – Forms. Dynamic Web Pages: Need – Magic of Dynamic Web Pages – Overview of Dynamic Web Page Technologies – Overview of DHTML – Common Gateway Interface – ASP – ASP Technology – ASP Example – Modern Trends in ASP – Java and JVM – Java Servlets – Java Server Pages.

**UNIT-IV:**

Active Web Pages: Active Web Pages in better solution – Java Applets – Why are Active Web Pages Powerful? – Lifecycle of Java Applets – ActiveX Controls – Java Beans. Middleware and Component-Based E-Commerce Architectures: CORBA –

Java Remote Method Invocation – DCOM. EDI: Overview – Origins of EDI – Understanding of EDI – Data Exchange Standards – EDI Architecture – Significance of EDI – Financial EDI – EDI and internet.

**UNIT-V:**

XML: SGML – Basics of XML – XML Parsers – Need for a standard. WAP: Limitations of Mobile devices – Emergence of WAP – WAP Architecture – WAP Stack – Concerns about WAP and its future – Alternatives to WAP.

**TEXTBOOKS:**

1.WEB TECHNOLOGIES TCP/IP to Internet Applications Architectures – Achyut S Godbole & Atul Kahate, 2007 ,TMH.

(UNIT-I: 3.1-3.5,4.1-4.12 UNIT-II: 5.1-5.4,6.1-6.7 UNIT III:8.1-8.1,9.1-9.13 UNIT IV: 10.1-10.7,15.1-15.3,16.1-16.8 UNIT-V: 17.1-17.4,18.1-18.6)

**REFERENCE BOOKS:**

1.INTERNET AND WEB TECHNOLOGIES – Rajkamal, TMH.

2.TCP/IP PROTOCOL SUITE – Behrouz A. Forouzan, 3rd edition, TMH.

# ELECTIVE II

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**SEMESTER- VI**

**ELECTIVE III : DATA MINING**

**Subject Description** : This Subject deals with the Data Mining

**Goal** : To learn about Data Mining

**Objective** : On Successful Completion of this subject the students should have knowledge on Data mining Concepts

**UNIT I:**

Basic Data Mining Tasks – Data Mining Versus Knowledge Discovery in Data Bases – Data Mining Issues – Data Mining Matrices – Social Implications of Data Mining – Data Mining from Data Base Perspective.

**UNIT II :**

Data Mining Techniques – a Statistical Perspective on data mining – Similarity Measures – Decision Trees – Neural Networks – Genetic Algorithms.

**UNIT III :**

Classification : Introduction – Statistical – Based Algorithms – Distance Based Algorithms – Decision Tree – Based Algorithms – Neural Network Based Algorithms – Rule Based Algorithms – Combining Techniques.

**UNIT IV:**

Clustering : Introduction – Similarity and Distance Measures – Outliers – Hierarchical Algorithms . Partitional Algorithms.

**UNIT V:**

Association Rules : Introduction - Large Item Sets – Basic Algorithms – Parallel & Distributed Algorithms – Comparing Approaches – Incremental Rules – Advanced Association Rules Techniques – Measuring the Quality of Rules.

**TEXT BOOK :**

Margaret H.Dunbam – — Data Mining Introductory and Advanced Topics — Pearson Education – 2003.

**REFERENCE BOOK :**

Jiawei Han & Micheline Kamber – — Data Mining Concepts & Techniques — 2001 Academic Press.

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**SEMESTER- VI**

**ELECTIVE III : ELECTIVE: OPEN SOURCE SOFTWARE**

**Unit I**

Introduction to open sources – Need of open sources – advantages of open sources – application of open sources. Open source operating systems: LINUX : Introduction – general overview –Kernel mode and user mode –process – advanced concepts – scheduling – personalities – cloning – signals – development with Linux.

**Unit II**

MySQL : Introduction – setting up account – starting, terminating and writing your own SQL programs-record selection Technology – working with strings – Date and Time – sorting Query results – generating summary –working with meta data –using sequences – MySQL and Web.

**Unit III**

PHP: : Introduction –programming in web environment –variables- constants – data types – operators – statements – functions – arrays – OOP – string manipulations and regular expression – file handling and data storage – PHP and SQL database – PHP and LDAP – PHP connectivity – sending and receiving E-mails – debugging and error handling – security –templates.

**Unit IV**

Syntax and style – python objects – numbers – sequences – strings – lists and tuples – dictionaries – conditional loops –files – input and output – errors and exceptions – functions – modules – classes and OOP – execution environment.

**Unit V**

Pert backgrounder – pert overview – pearl parsing rules – variables and data – statements and control structures – subroutines -, packages and modules – working with files – data manipulation.

**Text books:**

1.The Linux Kernel book by Remy Card, Eric and Frank Mevel- Wiley Publications 2003.

2.MySQL Bible by Steve Suchring – John Wiley 2002.

**Reference Books:**

1.Programming PHP by Rasmus Lerdorf and Levin Tatroe –O'Reilly 2002

2.Core Python Programming Wesley J. Chun Prentice Hall 2001

3.Perl : The Complete Reference 2 nd Edn by Martin c. Brown Tata McGraw-Hill 2009

4.MySQL : The Complete Reference 2 nd Edn by Vikram Vaswani Tata McGraw-Hill 2009

5.PHP : The Complete Reference 2 nd Edn by Steve Holzner Tata McGraw-Hill 2009

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**SCHEME OF EXAMINATION - CBCS PATTERN**

**SEMESTER- VI**

**ELECTIVE III: MASTERING LAN AND TROUBLESHOOTING**

**Subject Description** : This Course presents the details of Local Area Networks.

**Goals :**To enable the students to learn about the internal organization of a PC

Objective :On successful completion of the course the students should have:

•Understood types of faults and how to solve the problems Contents

**UNIT I : PC- Hardware overview**

Introduction to computer organization-Memory-PC family-PC hardware-interconnections between Boxes-Inside the boxes:-motherboard, daughter boards, floppy disk drive, HDD, speaker, mode switch, front panel indicators & Control-mother board logic- memory space-I/O port address-wait state-interrupts -I/O data transfer-DMA channels-POST sequence.

**UNIT II : PERIPHERAL DEVICES**

Floppy drive controller-Overview-Disk format-FDC system interface-FDD interface Hard Disk controller-overview-Disk Drives and interface-controller post description Hard disk card-Hard disk format. Display Adapter:-CRT display- CRT controller principle -CRT controller 6845 Printer controller:-Centronics interface-programming sequence -Hardware overview- printer-sub assemblers.

**UNIT III: MOTHERBOARD CIRCUITS**

Mother board functions-functional units and inter communications:-Reset logic -CPU nucleus logic-DMA logic-Wait state logic-NM logic-speaker logic-keyboard interface-SMPS.

**UNIT IV :INSTALLATION AND MAINTENANCE**

Introduction-pre installation planning -installation practice-routine checks-special configuration memory up gradation - HD up gradation - DOS command(Internal and external).Preventive maintenance-system usage.

**UNIT V: TROUBLE SHOOTING**

Computer faults-nature of faults -types of faults -diagnostic programs and tools-fault

elimination-systematic trouble shooting procedure mother board problem-serial port problems-FDC, HDC, display problems- display adapter-printer problem -monitor problems, HDC,FDC problems.

**REFERENCE BOOKS:**

1.B.Govindaraulu - "IBM PC and Clones", Tata McGraw Hill Co.1995.

2.Robert C Brenner - "IBM PC Trouble shooting and Repair guide", BPB publications.

3.Winn & Rosch - "Hardware Bible" , Tec media.

4.Ray Duncan - "Dos Programming".

5.Zacker – Upgrading & Trouble shooting Networks – the complete reference‖, Tata McGraw Hill edition.

6.Meyers – Introduction to PC Hardware and Trouble shooting‖, Tata McGraw Hill editions.

# SKILL BASED SUBJECT – IV

# BHARATHIAR UNIVERSITY

## COIMBATORE-641 046

### B.Sc. CS/IT/CT/SS/MM/CSA &BCA

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**SCHEME OF EXAMINATION - CBCS PATTERN**

**SEMESTER- VI : SKILL- 4 – CS : SOFTWARE TESTING LAB**

Write at least 10 TEST CASES for the following programs. Test cases can be for Input data, Conditional expressions, control transfer, output, etc.

Run-Test-Debug- until all the test cases are in success status. Marks distribution as follows:

1.List of Test Descriptions (at least 10) for the Program. (20%)

2.Test Cases (40%)

3.Program with all test case results success (30%)

4.Record (10%)

**TEST CASE Example:**

| Test-Id | Test Description | Test Steps | Expected Output | Actual Output | Status |
|---|---|---|---|---|---|
| TC-01 | Acceptance of10 digit input data | Input 10 DigitNumber | Accepting 10 digit number | Accepted 10digit number | Success |
| TC-02 | Non-acceptanceof character data | Input a character data _X‘ | Character X should not be accepted | Accepting Character data | Failure |

Modify PIC X(10) into PIC 9(10) and then run program for Test-id TC-02 again

| | | | | | |
|---|---|---|---|---|---|
| TC-02 | Non-acceptanceof character data | Input a character data _X‘ | Character X should not beaccepted | Character datanot accepted | Success |
| TC-03 | Digit sum of 10 digit is in single digit | Output data | Single digitsum | Single digitSum | Success |

1.Test the COBOL program: Finding the sum of individual digits of a 10-digit number until a single digit is produced.

2.Test the COBOL Program: Accept the inputs student name, marks in five subjects and declare the result as PASS if the student gets minimum 40 in each subject; otherwise declare the result as FAIL.

3.Test the COBOL program: Accept the date in DMMMYY format and display the result in the format 10th June 2016.

4.Test the C program: Sort and store the elements of two arrays of integers into the third list.

5.Test the C program: Experiment the operations of a stack using array implementation.

6.Test the C program: Menu-driven option for queue operations like add, remove and display.

7.Test the C++ program: Palindrome string checking program (using pointers)