Revised syllabus of BCA course (BCA4)

BCA II year syllabus

Subject Code	Subject Title	Teaching Scheme Hrs/week		Examination			
				Exam. Duration (Hrs)	Marks		
		Theory	Practical		Theory/ Practical	IA	Total
BCA III Semester (w.e.f. 2018-19 and onwards)							
17BCAMILT31	Modern Indian Language	4	--	3	80	20	100
17BCADMST32	Discrete Mathematical Structures	4	--	3	80	20	100
17BCAOOPT33	Object Oriented Programming Using Java	4	--	3	80	20	100
17BCAOSPT34	Operating System Principles	4	--	3	80	20	100
17BCARDCM35	Data Communications & Computer Networks	4	--	3	80	20	100
17BCACPPP36	Java programming Lab	--	4	3	80	20	100
17BCAOSPP37	Linux/UNIX Lab.	--	4	3	80	20	100
BCA IV Semester (w.e.f. 2018-19 and onwards)							
17BCAMILT41	Modern Indian Language	4	--	3	80	20	100
17BCADAAT42	Design and Analysis of Algorithms	4	--	3	80	20	100
17BCACNST43	Advanced Computer Networks and Security	4	--	3	80	20	100
17BCAAJAT44	Advanced Java Programming	4	--	3	80	20	100
17BCADBMT45	Database Management System	4	--	3	80	20	100
17BCAJANP46	Advanced Java and Networks Lab.	--	4	3	80	20	100
17BCADBMP47	Database Management System Lab.	--	4	3	80	20	100

RANI CHANNAMMA UNIVERSITY, BELAGAVI
BCA IV Semester

Teaching Hours: 4 Hrs/week	17BCAMILT41: Modern Indian Language	Marks: Main Exam: 80 IA: 20

GROUP -1 (LANGUAGES)
Detailed Syllabus for B. Sc. / B.Sc. Comp-Sc / BCA / B. Sc. in CCJ
(With effect from 2017-18 onwards)
Semester IV: Basic English
Teaching Hours: 5 Hours per Week

Text: Eco English: Learning English through Environmental Issues an Integrated, Interactive Anthology
Bloomsbury Publication
Edited By N. Krishnaswamy, Lalitha Krishnaswamy, Dr. B.S. Valke
(Units – 17, 18, 19, 20, 21, 22, 23, 24)

Grammar and Composition

Correction of Sentences (focus on the use of articles, prepositions, numbers, subject verb agreement, question tags, Pronouns, adjectives, adverbs, homophones, homonyms)

10. Speeches (Direct and Indirect)
11. Voice (Active and Passive)
12. Application Letters for Jobs without CV

Paragraph Writing (my family, kinds of books, the green house effect, Importance of sports, euthanasia, solar energy, a decision that changed my life, advantages of vegetarianism, cherishing old people, human values are timeless etc)

Pattern of Question Paper
(80 Marks paper of three hours and 20 Marks for I.A)

1)Objective type questions	10X1=10
2)Comprehension Questions (Answer in a sentence or Two)	5X2 = 10
3)Essay type question (one out of two)	1X10=10
4)Essay type question (one out of two)	1X10=10
5)Short Notes (two out of four)	2X5 = 10
6)Correction of errors	10X1=10
7) A) Direct and Indirect Speech	5 X 1=05
B) Active Voice and Passive Voice	5X1= 05
8) A) Application Letters for Jobs without CV	1X5=05
B) Paragraph Writing (about150 words)	1X5=05
	80

Additional English

Detailed Syllabus for B. Sc. / B.Sc. Comp-Sc / BCA / B. Sc. in CCJ
(With effect from 2017-18 onwards)
Semester IV: Additional English
Teaching Hours: 5 per Week

Text Book: ***Invisible Man*** by H.G. Wells (Roopa Publications, New Delhi)

Grammar and Composition

1. Misspell words (Pair of words)
2. Organizing a written composition
3. Expansion of outlines into a story
4. A) Letters to News paper editors
   Letters of complaint to the concerned authorities

Pattern of Question Paper

(80 Marks per paper of three hours and 20 Marks for I.A)

1) Objective type questions on the novel	10X1= 10
2) Comprehension Questions on the novel (Answer in a sentence or Two)	5X2=10
3) Essay type question on the novel (one out of two)	1X10 =10
4) Essay type question on the novel (one out of two)	1X10=10
5) Short Notes on the novel (two out of four)	2X5=10
6) A) Misspell words (Choosing a Correct Spelt word)	5X1= 05
B) Orgnising a written composition	5X1= 05
7) Expansion of outlines into a story	10
8) A) Letters to News paper editors	1X5= 05
B) Letters of complaint to the concerned authorities	1X5=05
	80

Syllabus for B.Sc./B.C.A - IV Semesters from the academic year 2017-18 onwards-

Basic Hindi

1. Examination : a) One Paper carrying 80 Marks and 3 hours of Duration.
   Internal Assessment Marks 20
2) Teaching : 5 hours per week
3. Course :1) Collection of Prose
   General Essay

4. Distribution of Marks

I	Objective type of Questions 10/14	10 Marks
II	Annotations from Prose 2/4	10 Marks
III	General Question based on Prose 2/4	30 Marks
IV	Short Notes on Prose 3/5	15 Marks
V	General Essay with Options 1/3	15 Marks
	Total	80 Marks
	Internal Assessment	20 Marks
	Total	100 Marks

Text Books - **Prose**

1) ग यअमृत पठन के लए (*संपूणपु तक)* Marks 65

संपा क

जोग संहबसेन,डॉ. यंकटपाट ल

वाणी काशन६५४६९५, २१-ए, द रयागंज, नयी द -ल११०००२

2) **General Essay** (नबंधरचना) Marks 15

Reference Books

1. सा हि यक नबंध: गणप तचंगु त
1. च तनक न: महादेवीवमा
2. नबंधका खजाना : आरती अि नहो ी
4. ह दका ग यसा ह :य रामचं तवार
5. सा ह सुमनय: बालकृ णभ
6. आधु नक ह दसा ह य व वधआयाम : रि ममहो ा
7. भारतीय नार : अि मताक पहचान : उमा शु ला
8. े ल ठ लत नबंध: कृ ण बहार म
9. ह दग यलेखनम यं औरय वचार: सुरेशका त

Basic - Kannada

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Syllabus prescribed for B.Sc is applicable to B.C.A and B.Sc C.S.

B.Sc
Semester IV
Basic Marathi

Course: Literary Form: Lalit Gadya
Text: Suvarna Garud : Maruti Chittampali

Sanskruti Prakashan, Pune

B.sc Part –II

Basic – Samskrit

Fourth Semester

Teaching Hours	:	5 Hours per week
Exam Marks	:	80+20=100 of 3 hours Duration

Text : xuÉmlÉuÉÉxÉuÉS¨ÉqÉç K. U. Dharwad Publication Pavate Nagar Dharwad - 3

1.	urÉÉMüUhÉqÉç (xÉuÉïlÉÉqÉvÉoSÉÈ)	:	70 Marks
2.		:	10 Marks
3.	Internal Assessment	:	20 Marks
	1. Internal Test – 14 2. Assignment, Class Records Skill –		
	Development – 06 **Total**		**100 Marks**

B.sc Part –II

Basic – Samskrit

Question Paper Pattern

Fourth Semester

1.	New type questions / select the correct answer (any ten out of twelve)	10 Marks
2.	Translate & explain (any three out of five)	18 Marks
3.	Explain with reference to context (any four out of six	16 Marks
4.	Critical notes (any two out of four)	14 Marks
5.	Answer the following questions (with internal choice)	12 Marks
6.	Grammar (Recognize the pronouns forms)	10 Marks

RANI CHANNAMMA UNIVERSITY, BELAGAVI

17BCADAAT42: Design and Analysis of Algorithms

Teaching Hours: 4 Hrs/week **Marks: Main Exam: 80**
IA:20

UNIT I 10Hrs

INTRODUCTION: Algorithm, Pseudocode for expressing algorithms, Performance Analysis-Space complexity, Time complexity, Asymptotic Notation, Big oh notation, Omega notation, Theta notation.

UNIT II 10Hrs

DIVIDE AND CONQUER: General method, applications-Binary search, Quick sort, Strassen's Matrix multiplication, Finding MaxMin, Selection sort.

UNIT III 10Hrs

GREEDY METHOD: General method, applications-Job sequencing with deadlines, Knapsack problem, Single source shortest path, Minimum cost spanning trees, Optimal storage on tapes.

UNIT IV 10Hrs

DYNAMIC PROGRAMMING: General method, applications- Multistage graph, All pairs shortest path problem, Travelling sales person problem.

UNIT V 10Hrs

Basic Traversal and Search Techniques: Binary search tree, techniques for binary trees, techniques for graphs, connected components and spanning trees, BACKTRACKING: General method, applications-N-queen problem, sum of subsets problem, Hamiltonian cycles.

References:

2. Ellis Horowitz, Satraj Sahni and Rajasekharan, Fundamentals of Computer Algorithms,2nd Edition, University Press, 2008.
3. M. T. Goodrich and R. Tomassia, Algorithm Design Foundations, Analysis and Internet examples, 1st Edition, John wiley and Sons, 2006.

Additional Reading:

5. T. H. Cormen, C. E. Leiserson, R. L. Rivest, and C. Stein, Introduction to Algorithms, 3rd Edition, PHI / Pearson Education, 2009.
6. Aho, Ullman and Hopcroft, "Design and Analysis of algorithms", 3rd Edition, Pearson Education, 2008.
7. http://nptel.iitm.ac.in/courses/106101060/

RANI CHANNAMMA UNIVERSITY, BELAGAVI

17BCACNST43: Advanced Computer Networks and Security

Teaching Hours: 4 Hrs/week **Marks: Main Exam: 80**
IA: 20

UNIT I **10Hrs**

Introduction: Networks, types of connections – Topologies, Protocols and Standards – OSI Model, TCP/IP Protocol Suite, Wireless WANs: Cellular Telephone and Satellite Networks, SONET, Virtual-Circuit Networks: Frame Relay and ATM. (Ref. 2)

UNIT II **12Hrs**

Network Layer: Logical addressing – Network Layer design Issues, Routing Algorithm- Shortest path routing, Flooding, Distance Vector Routing, Link State Routing, Hierarchical Routing, Network layer in the Internet- IPV4, IP Addresses, subnets, IPV6, Internet control protocols.(Ref 1)

UNIT III **12Hrs**

Transport Layer: The transport service; Elements of transport protocols, Congestion control, Internet Transport protocol-UDP, RPC, RTP, TCP-service model, TCP protocol, TCP Segment Header, TCP Connection Establishment, Connection Release, TCP sliding Window, TCP timer Management, TCP Congestion control. (Ref. 1)

UNIT IV **08Hrs**

Application Layer: DNS- Namespace, Name servers; E-Mail- Architecture and Services, User Agent, MIME,SMTP, IMAP; World Wide Web – HTTP (Ref.1)

UNIT V: **08Hrs**

Network Management: SNMP, Network Security- Security Services-Message Confidentiality, Message Integrity, Message Authentication, Digital Signature, Entity Authentication; VPN, and Firewalls. (Ref 2)

References:

3. Andrew S. Tanenbaum, Computer Networks, 5th Ed, Pearson Education
4. Behrouza A Forouzan, Data Communication & Networking, Tata McGraw Hill
5. William Stallings, Data and Computer Communications, 7th Edition, PHI.
6. W. A. Shay, Understanding communications and Networks, 3e, Cengage Learning.

Additional Reading:

6. W. Stalling, Wireless Communication and Networks, Pearson Education.
7. Brijendra Singh, Data Communication and Computer Networks, PHI.
8. Dr. Prasad, Data Communication & Network, Wiley Dreamtech.
9. http://highered.mheducation.com/sites/0072967757/index.html

RANI CHANNAMMA UNIVERSITY, BELAGAVI

17BCAAJPT44:Advanced Java Programming

Teaching Hours: 4 Hrs/week **Marks: Main Exam: 80**
IA: 20

UNIT I 08Hrs

Event Handling: Event, Event Source, Event Classes, Event Listener interface, Examples, Handling Windows Events, Adapter Classes, Inner classes.

UNIT II 10Hrs

Swing: Introduction to JFC (Java Foundation Classes), Swing, Swing Features, JComponent, JApplet, JFrame, JPannel, JButtons, checkboxes and Radio buttons, JTabbedPane, JScrollPane, JList.

UNIT III 12Hrs

JDBC Architecture: Introduction to JDBC, Java and JDBC, JDBC VS ODBC, JDBC DRIVER MODEL, JDBC Driver Types, Types of Driver Managers, JDBC Connection process, Statement object, preparedStatement object, operations on Resultset (Read, insert, update and delete), transaction processing, Metadata, Resultset Metadata, Data types.

UNIT IV 12Hrs

Servlet Interaction & Advanced Servlets, Life cycle of Servlet, Java Servlet Development Kit, Javax.servlet package, Reading Servlet Parameters, Reading Initialization Parameters, The javax.servlet.http Package, Handling HTTP. Java Server Pages(JSP): JSP, JSP Tags, Request string, Cookies, User session, Session object.

UNIT V 08Hrs

Networking Basics, InetAddress, URLConnection, HTTPURLConnection, Cookies, Datagram classes, Introduction To EJB, Types of EJB.

References:

1. Jim Keogh, J2EE: The complete Reference, McGraw Hill
2. Herbert Schildt, The Java 2 : Complete Reference, Fourth edition, TMH
3. https://docs.oracle.com/javase/tutorial/

Additional Reading:

4. H. M. Deitel, P. J. Deitel, Java: how to program, 5th edition, Prentice Hall of India.
5. Y. Daniel Liang, Introduction to Java programming, 9thEdition, Pearson education.
6. Cay S Horstmann,Fary Cornell, Core Java 2, Volume – I&II, Sun Microsystems Press

RANI CHANNAMMA UNIVERSITY, BELAGAVI

17BCADBMT45:Database Management System

Teaching Hours: 4 Hrs/week **Marks: Main Exam: 80**
IA: 20

UNIT I 10Hrs

Introduction: Database and Database Users, Characteristics of the Database Approach, Actors on the scene, Workers behind the Scene, Advantages of using DBMS, Brief History. Database System Concepts and Architecture: Data Models, Schemas, and Instances, Three Schema Architecture and Data Independence, Database language and interfaces, the database system Environment.

UNIT II 10Hrs

Data modeling using the Entity–Relationship(ER) model: High level conceptual data models for database design with an example, Entity types, Entity sets, Attributes and Keys, Relationship types, Relationship sets, Roles and Structural Constraints, Weak Entity Types, ER Diagrams, Naming Conventions and Design Issues.

UNIT III 10Hrs

Relational Data Model and Relational Algebra: Relation Data Model and Relational Database Constraints, Relation Algebra, Relational Database Design by ER to Relational Mapping.

UNIT IV 10Hrs

Functional dependencies and Normalization for Relational Databases: Informal Design Guidelines for Relational Schemas, Functional Dependencies, Normal Forms based on Primary Keys, General Definition of 2NF and 3NF, Boyce-Codd Normal Form(BCNF).

UNIT V 10Hrs

Relational Database Language: Data definition in SQL, Queries in SQL, Insert, Delete and Update Statements in SQL, Views in SQL,PL/SQL: Introduction, Datatypes, The PL/SQL syntax, Logical Comparison in PL/SQL, Understanding PL/SQL block structure- Identifiers, conditional control, iterative control, cursors- Declaring, opening, closing and fetching from a cursor, stored procedures- syntax, creating, calling and deleting a procedure. (Ref.3)

Reference Book:

1. Ramez Elmasri & Shamkant B. Navathe, Fundamentals of Database Systems(Sixth Edition),Pearson Education, 2011
2. Abrahamsi, Silberschataz, Henry. F. Korth, S. Sudarshan, Database System Concepts, Mc.
3. Commercial Application Development using Oracle Developer 2000, Ivan Bayross, BPB Publications.
4. Feuerstein, Oracle PL/SQL Programming, SPD/O'REILLY
5. Oracle Press: ORACLE – Computer reference.
6. C.J. Date, Introduction to database systems, Sixth Edition, Addison Wesley 1995.

RANI CHANNAMMA UNIVERSITY, BELAGAVI

17BCAJANP46: Advanced Java and Networks Lab.

Practical Hours: 4 Hrs/week | Marks: Main exam: 80 IA:20

Advanced Java Assignments

1. Write a java program to implement mouse events like mouse pressed, mouse released and mouse moved by means of adapter classes.
2. Write a java program to implement keyboard events.
3. Write a program that creates a user interface to perform integer divisions. The user enters two numbers in the textfields, Num1 and Num2. The division of Num1 and Num2 is displayed in the Result field when the Divide button is clicked. If Num1 or Num2 were not an integer, the program would throw a NumberFormatException. If Num2 were Zero, the program would throw an Arithmetic Exception Display the exception in a message dialog box
4. Write a Java program to illustrate basic calculator using grid layout manager.
5. Write a Java program that loads names and phone numbers from a database file. It takes a name or phone number as input and prints the corresponding other value.
6. Write a Java program that loads Employee id and name from database. It takes a name or phone number as input and prints the corresponding other value from the hash table (hint: use hash tables).
7. Write a servlet program: Ask the user for a color in a JSP in say "Home.jsp" file. Display "Hello World" in the chosen color using a servlet, say in "helloWorld.java". (Hint: use tomcat server).
8. Write a Java program to establish client server communication using TCP/IP socket.
9. Write a Java servlet program to implement a dynamic HTML using servlet. (username and password should be accepted using HTML and displayed using servlet).
10. Write a Java Program to find the IP address of a given website specified by the user.
11. Write a JSP program to find factorial of a given number.

Network Assignments

12. Write a Java Program to implement FTP using TCP bulk transfer.
13. Write a Java to implement a GoBack-N ARQ(Automatic Repeat Request) protocol.
14. Write a java Program to implement Stop-and-Wait protocol.
15. Write a java program for simulation of error detection code (CRC).

Practice Programs:

1) Write a program to create a session bean (both stateful and stateless) using any IDE
2) Write a java program to demonstrate prepared statement operations
3) Write a servlet program to demonstrate page redirection
4) Design a coffee ordering form using swing components
5) Demonstrate usage of get() and post() methods using servlets

Note: For practical examination the combinations shall be:

Program 1: Any one program from java
Program 2: Any one program from networking

RANI CHANNAMMA UNIVERSITY, BELAGAVI

16 | BCA revised Syllabus w.e.f. 2017 -18 and onwards

17BCADBMP47: Database Management System Lab.

Practical Hours: 4 Hrs/week **Marks: Main Exam: 80 IA:20**

PART I

Problem 1: Consider the following schema for a **Library Database**:

BOOK (Book_id:number, Title:string, Publisher_Name:string, Pub_Year:string)
BOOK_AUTHORS (*Book_id:number*, *Author_Name*:string)
PUBLISHER (Name: string, Address:string, Phone:number)
BOOK_COPIES (Book_id:number, Branch_id:number, No-of_Copies:number)
CARD(Card_No:number)
BOOK_LENDING (Book_id:number, Branch_id:number, Card_No:number, Issue_Date:date)
LIBRARY_BRANCH (Branch_id:number, Branch_Name:string, Address:string)

- Create the above relations by specifying appropriate constraints.
- Insert atleast five tuples in each relation.

Q1. Retrieve details of all books in the library–id, title, name of publisher, authors, branch_name and number of copies in each branch.s

Q2. Create a view of all books and its total number of copies that are currently available in the Library.

Q3. Delete a book in BOOK table. Update the contents of other tables to reflect this data manipulation operation.

Q4. Get the particulars of borrowers who have borrowed more than 3 books, but from Jan 2017 to Jun 2017.

Q5. Modify Book_Lending table to add the field : Due_Date : Date

Q6. Update Book_Lending table to calculate Due_Date (15 days after Issue_Date)

Problem 2: Consider the following schema for a **Movie Database**:

ACTOR (Act_id:string, Act_Name:string, Act_Gender:string)
DIRECTOR (Dir_id:string, Dir_Name:string, Dir_Phone:string)
MOVIES (Mov_id:string,Mov_Title:string,, Mov_Year:number, Mov_Lang:string, Dir_id:string)
MOVIE_CAST (Act_id:string,Mov_id: string, Role:string)
RATING (Mov_id:string, Rev_Stars:number)

- Create the above relations by specifying appropriate constraints
- Insert atleast five tuples in each relation.

Q1. List the titles of all movies directed by 'Hitchcock'.

Q2. Find the movie names where one or more actors acted in two or more movies.

Q3. Create a view to display movie details of a particular actor.

Q4. Find the title of movies and number of stars for each movie that has at least one rating and find the highest number of stars that movie received. Sort the result by movie title.

Q5. List the movie details released in the year 2018.

Q6. Update rating of all movies directed by 'Steven Spielberg' to 5.

Problem 3: Consider the following schema for Order Processing Database:

CUSTOMER (cust_id: int ,cname: string, city: string)
ORDER (order_id: int, odate: date, cust_id: int, ord-Amt: int)
ORDER – ITEM (order_id: int, item_id: int, qty: int)
ITEM (item_id: int, unit price: int)
SHIPMENT (order_id: int, warehouse_id: int, ship-date: date)
WAREHOUSE (warehouse_id: int, city: string)

- Create the above tables by properly specifying the primary keys and the foreign keys.
- Enter at least five tuples for each relation.

Q1. Produce a listing: CUSTNAME, Number of orders, AVG_ORDER_AMT, where the middle column is the total numbers of orders by the customer and the last column is the average order amount for that customer.

Q2. Create a view to display customer name, items ordered by him with item number, order number, order amount, warehouse city.

Q3. Demonstrate the deletion of an item from the ITEM table and demonstrate a method of handling the rows in the ORDER_ITEM table that contain this particular item.

Q4. List the order numbers for orders that were shipped from all the warehouses that the company has in a specific city.

Q5. Raise the price of all the items by 15%.

Q6. Display details of the orders placed by a specific customer, include item number, order number, order amount and warehouse city.

PART II

Problem 4: Write a PL/SQL program to find the greatest among three numbers.

Problem 5: Write a Pl/SQL program using FOR loop to insert even numbers between 1 to 10 (as rows) into temp table.
Use appropriate SQL statement to display the output.

Problem 6: Write a PL/SQL stored procedure titled as 'COMPOUND_INTR' to calculate the amount of interest on a bank account, which compounds interest yearly. Condition is given as A stored procedure should accept the values of 'p', 'r' and 'y' as parameters and insert the Interest and total amount into temp table.

[Note: The following formula is used to calculate the interest.
$I = p(1 + r / 100)y$]

Problem 7: Create a table EMPLOYEE with following fields (EmpNo, Name, and Salary). Insert at least 5 tuples. Write a cursor to select the five highest paid employees from the table.

Note: For practical examination the combinations shall be:

Program 1: Any program from part 1
(Creation, Insertion + Any 4 questions)
Program 2: Any 1 question from Q4 to Q7

Theory Paper Evaluation Scheme

(i) Internal Test– 20 Marks:

Test: 14 marks Attendance: 03 marks Seminar/assignment: 03 marks

Two tests shall be conducted, one during the mid of the semester and another at the end of the semester for 1hour 15 mnts duration each.

First IA Marks: 20 weightage: 06
Second IA Marks: 20 weightage: 08

Teachers are encouraged to conduct the test either using any open source learning management system such as Moodle (Modular object-oriented dynamic learning environment) Or a test based on an equivalent online course on the contents of the concerned course(subject)offered by or build using MOOC (Massive Open Online Course)platform.

Note: Guidelines given by the University from time-to-time shall be followed for IA.

(ii) University Examination- Max Marks: 80 Duration - 3 Hours.

Theory question paper pattern:-		
Questions	Marks	Remarks
SECTION A Q1. Answer all ten questions 10 sub questions (a-j)	2 x 10 =20	ability to write short answers upto 150 words
SECTION B Q2. through Q6: Answer any four questions	4 x 5=20	ability to write answers upto 500 word
SECTION C Q7. through Q11: Answer any four questions	4 x 10=40	ability to write descriptive answers

Note: For Section-A two questions from each unit to be considered. For Section-B, one question from each unit shall be considered. For Section-C, one question from each unit shall be considered.

Programming Lab. i.e. Practical Evaluation Scheme

(i) Internal Test– 20 Marks

Test: 14 marks Attendance: 03 marks Seminar/assignment: 03 marks

Two tests shall be conducted, each of 14 marks, and average of the two shall be considered as final. Duration of IA test: 1 hr. Students shall design and implement the programs/assignments given from the set of assignments provided at the beginning of the course commencement. Course teacher are encouraged to test the students by giving the students problems from the course topic other than the set of assignments given to strengthen student's ability in problem solving

Note: Guidelines given by the University from time-to-time shall be followed for IA.

ii) Practical Examination- 80 Marks Duration - 3 Hours.

Certified Journal is compulsory for appearing Practical Examination. Students shall be given two programming assignments taking into consideration of duration of the time allotted to students for writing, typing and executing the programs.

Algorithm/program writing : 30
Execution : 30 (Includes program code correctness and correct execution results)
Journal : 10
Viva-Voce : 10