

**BCA UNDER CBCS WITH EFFECT FROM THE ACADEMIC YEAR 2016-17**  
**COURSE OF STUDY**

**B.C.A. SEMESTER - III**

SNO	COURSE	TOTAL MARKS	MID SEM EXAM*	SEM END EXAM	TEACHING HOURS	CREDITS
1	FIRST LANGUAGE ENGLISH	100	25	75	4	3
2	<i>FOUNDATION COURSE - 5</i> ENTREPRENEURSHIP	50	0	50	3	2
3	<i>FOUNDATION COURSE - 6</i> COMMUNICATION & SOFT SKILLS -2	50	0	50	3	2
4	DISCRETE MATHEMATICAL STRUCTURES	100	25	75	4	4
5	FINANCIAL ACCOUNTING ON COMPUTERS	100	25	75	4	4
6	OBJECT ORIENTED PROGRAMMING USING JAVA	100	25	75	4	4
7	JAVA LAB	50	0	50	3	2
8	DATA STRUCTURE	100	25	75	4	4
9	DATA STRUCTURE LAB	50	0	50	3	2
10	TALLY LAB	50	0	50	3	2
<b>TOTAL</b>		<b>750</b>			<b>35</b>	<b>29</b>

**DISCRETE MATHEMATICAL STRUCTURES**

**UNIT - I MATHEMATICAL LOGIC:** INTRODUCTION – PROPOSITIONS - COMPOUND PROPOSITIONS - PROPOSITIONS AND TRUTH TABLES - LOGICAL EQUIVALENCE - ALGEBRA OF PROPOSITIONS - CONDITIONAL PROPOSITION – CONVERSE-CONTRA POSITIVE AND INVERSE - BICONDITIONAL STATEMENT - NEGATION OF COMPOUND STATEMENTS - TAUTOLOGIES AND CONTRADICTIONS.

**UNIT - II SET THEORY:** INTRODUCTION- BASIC CONCEPTS- TERMINOLOGY AND NOTATION – FINITE AND INFINITE SETS – SUBSET – SUPER SET - PROPER SUBSET – EQUAL SET – UNIVERSAL SET - OPERATIONS ON SETS – UNION – INTERSECTION – COMPLEMENT – DIFFERENCE - ALGEBRA OF SETS - POWER SET.

**UNIT – III RELATIONS:** INTRODUCTION - RELATIONS ON SETS - SOME OPERATIONS ON SETS - TYPES OF RELATIONS IN A SET - PROPERTIES OF RELATIONS - REPRESENTATION OF RELATIONS.

**FUNCTIONS:** INTRODUCTION – FUNCTION - CLASSIFICATION OF FUNCTIONS - TYPES OF FUNCTIONS - COMPOSITION OF FUNCTIONS.

**UNIT - IV MATHEMATICAL INDUCTION:** INTRODUCTION – PROVING SUMMATION FORMULA EXAMPLES – PROVING INEQUALITIES EXAMPLES – PROVING DIVISIBILITY EXAMPLES - PRINCIPLES OF STRONG MATHEMATICAL INDUCTION.

**UNIT – V RECURRENCE RELATIONS:** DEFINITION OF RECURRENCE RELATION – ORDER OF A RECURRENCE RELATION – RECURRENCE RELATION MODELS – MODELING PROBLEMS ON COMPOUND INDEX – LINEAR RECURRENCE RELATIONS WITH CONSTANT COEFFICIENT – SOLUTION OF RECURRENCE RELATION – METHOD OF CHARACTERISTICS ROOTS – HOMOGENEOUS RECURRENCE RELATION – NON HOMOGENEOUS RECURRENCE RELATION - GENERATING FUNCTIONS.

**PRESCRIBED TEXT BOOK:** - “A TEXT BOOK OF DISCRETE MATHEMATICS” FOR BCA BY DR. SWAPANKUMARSARKAR, S. CHAND PUBLISHERS.

**REFERENCE BOOK:** - 1. “DISCRETE STRUCTURES AND GRAPH THEORY” BY T.V. RAJANIKANTH, K. VIJAYALAKSHMI, HI – TECH PUBLISHERS. 2. “MATHEMATICAL FOUNDATION FOR COMPUTER SCIENCE” FOR B.TECH JNTU BY DR. SWAPANKUMARSARKAR, S. CHAND PUBLISHERS.

Code No:

**SRI VENKATESWARA UNIVERSITY: TIRUPATI**  
**BCA (CBCS)**  
**Third Semester Examinations**  
**DISCRETE MATHEMATICAL STRUCTURES**

**Time: 3 Hours**

**Max. Marks: 75**

**Note:** This question paper contains two parts A and B.  
Part A is compulsory which carries 25 marks. Answer any five of the following Questions in Part A.  
Part B consists of 5 Units. Answer any one full question from each unit.  
Each question carries 10 marks

**PART - A**

**Answer any Five of the following. All questions carry equal marks**

**5 x 5 = 25 Marks**

1. Define statement, converse, Inverse and contra positive with example?
2. Show that (a)  $\sim(P \square Q) \square P$  is a Tautology. (b)  $\sim(p \vee (\sim p \wedge q))$  and  $\sim p \wedge \sim q$  are logically equivalent
3. Define power set, finite and infinite sets with examples
4. Define subset, superset and proper subsets with examples.
5. Explain Types of Relations in a set
6. If  $f(x)=x^2$  and  $g(x)=x^3$  then find (a)  $(f \circ g)(2)$  (b)  $(f \circ g)(3)$  (c)  $(g \circ f)(2)$
7. Explain Mathematical Induction process
8. The Recurrence Relation,  $a_n = a_{n-1} + 2a_{n-2}$  with initial conditions  $a_0=2, a_1=7$

**PART - B**

**Answer one question from each Unit. All questions carry equal marks**

**5 x 10 = 50 Marks**

**UNIT - I**

9. (a) Explain connectives (logical operators) of statement  
(b) Prove that  $p \wedge (q \vee r) = (p \wedge q) \vee (p \wedge r)$  with Truth Table?

**OR**

10. (a) Define contradiction and Tautology  
(b) Prove that  $\sim(p \square q) \square p$  is a Tautology  
(c) Prove that  $(p \wedge q) \square (p \vee q)$  is a Tautology

**UNIT-II**

11. By the set Builder form, show that,  
(a)  $A \wedge B = A \cup B$  (b)  $\overline{A \wedge (B \cup C)} = (\overline{A \wedge B}) \cup (\overline{A \wedge C})$

**OR**

12. In a class, there are 80 students, 48 study Telugu, 43 study Hindi, 16 students study both telugu and hindi. Find  
(a) The students who read only Telugu  
(b) The students who read only Hindi  
(c) The no. of students do not study any of these two subjects

**UNIT-III**

13. If  $A=\{1,2,3,4\}$  and  $R,S$  are relations of 'A' Define by  $R=\{(1,2),(1,3),(2,4),(4,4)\}$ ;  
 $S=\{(1,1),(1,2),(1,3),(1,4),(2,3),(2,4)\}$ ; find  $ROS, SOR, R^2, S^2$  write down their  
Matrices

**OR**

14. Let  $f,g,h$  be the function from a set of integers defined by  $f(x)=2x+3, g(x)=3x+2,$   
 $h(x)=x^2$ , prove that (a)  $fo(goh)=(fogh)oh$  (b)  $goh(x)=fogh(x)$

**UNIT-IV**

15. Use Mathematical Induction, solve  $1^2+2^2+\dots+n^2=?$

**OR**

16. Use Mathematical Induction to prove that  $(n^3-n)$  is divisible by '3' whenever  $n$  is a  
+ve integer.

**UNIT-V**

17. Solve the Recurrence Relation by  $a_n = a_{n-1} + n^3$ , where  $a_0=5$ ?

**OR**

18. Solve the Recurrence Relation by  $a_n = 6a_{n-1} - 11a_{n-2} + 6a_{n-3}$  with  $a_0=2,$   
 $a_1=5, a_2=15$  ?

**BCA II YEAR III SEMESTER**

**FINANCIAL ACCOUNTING ON COMPUTERS**

**UNIT I**

1. INTRODUCTION; 2. ACCOUNTING SYSTEM; 3. INVENTORY CONTROL SYSTEM; 4. PAYROLL SYSTEM

**UNIT II**

1. STARTING WITH TALLY 7.2; 2. CREATING ACCOUNTS MASTERS; 3. CREATING INVENTORY MASTERS; 4. ENTERING ACCOUNTS VOUCHERS;

**UNIT III**

5. ENTERING INVENTORY VOUCHERS; 6. INTRODUCTION TO VAT (VALUE ADDED TAX); 7. LEDGERS AND VAT; 8. MORE ON VAT;

**UNIT IV**

9. VAT DOCUMENTS AND REPORTS; 10. INTRODUCTION TO TDS; 11. DISPLAY/REPORTS IN TALLY; 12. THE COLLABORATIVE TALLY;

**UNIT V**

13. THE ADMINISTRATIVE TALLY A. FUNDAMENTALS OF ACCOUNTING; B. FUNDAMENTALS OF INVENTORY

**TEXT BOOKS :**

1. COMPUTER ACCOUNTING WITH TALLY 7.2 ,FIREWALL, FIREWALL MEDIA, , LAXMI PUBLICATIONS
2. COMDEX TALLY 9 COURSE KIT BY NAMRATAAGRAWAL, DREAM TECH PRESS

**REFERENCE BOOKS :**

3. TALLY 9 BY DINESH MAIDARSANIBY FIREWALL MEDIA
4. TALLY 9.0 ENGLISH EDITION GOOGLE EBOOK BY COMPUTER WORLD

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**THIRD SEMESTER EXAMINATIONS**  
**FINANCIAL ACCOUNTING ON COMPUTERS**

**Time: 3 Hours**

**Max. Marks: 75**

**Note:** This question paper contains two parts A and B.  
Part A is compulsory which carries 25 marks. Answer any five of the following Questions in Part A.  
Part B consists of 5 Units. Answer any one full question from each unit.  
Each question carries 10 marks

**PART - A**

**Answer any Five of the following. All questions carry equal marks**

**5 x 5 = 25 Marks**

1. Creation of company
2. Ledger Creation
3. Units of measurement (UoM)
4. Classification of VAT
5. Accounting Vouchers
6. TDS
7. Uses of Tally
8. Inventory Voucher

**PART - B**

**Answer one question from each Unit. All questions carry equal marks**

**5 x 10 = 50 Marks**

**UNIT - I**

9. Clearly discuss advantages of computer in accounting
- OR**
10. Discuss the general features of tally

**UNIT-II**

11. What are the various accounting vouchers? Discuss
- OR**
12. Explain different types of groups in Tally ERP 7.2

**UNIT-III**

13. Explain the procedure of entering inventory vouchers
- OR**
14. What do you understand by VAT. Explain the procedure to enter VAT Vouchers

**UNIT-IV**

15. Explain about tax deducted at source. Write suitable examples to enter TDS vouchers
- OR**
16. How to generate reports in VAT

**UNIT-V**

17. Write a note on inventory masters

**OR**

18. Enter the following transactions in accounting vouchers.

- i. Sold goods for cash – 1, 00,000
- ii. Purchased goods for cash – 25,000
- iii. Paid telephone bill – 3,000
- iv. Received commission – 5,000
- v. Deposited cash into bank – 10,000
- vi. Purchased goods from siva on credit – 5,600
- vii. Sold goods to swetha on loan – 12,500

**BCA II YEAR III SEMESTER****OBJECT ORIENTED PROGRAMMING USING JAVA****COURSE OBJECTIVES**

AS THE BUSINESS ENVIRONMENT BECOMES MORE SOPHISTICATED, THE SOFTWARE DEVELOPMENT (SOFTWARE ENGINEERING IS ABOUT MANAGING COMPLEXITY) IS BECOMING INCREASINGLY COMPLEX. AS OF THE BEST PROGRAMMING PARADIGM WHICH HELPS TO ELIMINATE COMPLEXITY OF LARGE PROJECTS, OBJECT ORIENTED PROGRAMMING (OOP) HAS BECOME THE PREDOMINANT TECHNIQUE FOR WRITING SOFTWARE IN THE PAST DECADE. MANY OTHER IMPORTANT SOFTWARE DEVELOPMENT TECHNIQUES ARE BASED UPON THE FUNDAMENTAL IDEAS CAPTURED BY OBJECT-ORIENTED PROGRAMMING.

**COURSE OUTCOMES**

AT THE END OF THIS COURSE STUDENT WILL:

1. UNDERSTAND THE CONCEPT AND UNDERLYING PRINCIPLES OF OBJECT-ORIENTED PROGRAMMING
2. UNDERSTAND HOW OBJECT-ORIENTED CONCEPTS ARE INCORPORATED INTO THE JAVA PROGRAMMING LANGUAGE
3. DEVELOP PROBLEM-SOLVING AND PROGRAMMING SKILLS USING OOP CONCEPT
4. UNDERSTAND THE BENEFITS OF A WELL STRUCTURED PROGRAM
5. DEVELOP THE ABILITY TO SOLVE REAL-WORLD PROBLEMS THROUGH SOFTWARE DEVELOPMENT IN HIGH-LEVEL PROGRAMMING LANGUAGE LIKE JAVA
6. DEVELOP EFFICIENT JAVA APPLETS AND APPLICATIONS USING OOP CONCEPT
7. BECOME FAMILIAR WITH THE FUNDAMENTALS AND ACQUIRE PROGRAMMING SKILLS IN THE JAVA LANGUAGE.

**UNIT-1**

**FUNDAMENTALS OF OBJECT - ORIENTED PROGRAMMING:** INTRODUCTION, OBJECT ORIENTED PARADIGM, BASIC CONCEPTS OF OOP, BENEFITS OF OOP, APPLICATIONS OF OOP, JAVA FEATURES: **OVERVIEW OF JAVA LANGUAGE:** INTRODUCTION, SIMPLE JAVA PROGRAM STRUCTURE, JAVA TOKENS, JAVA STATEMENTS, IMPLEMENTING A JAVA PROGRAM, JAVA VIRTUAL MACHINE, COMMAND LINE ARGUMENTS.



**CONSTANTS, VARIABLES & DATA TYPES:** INTRODUCTION, CONSTANTS, VARIABLES, DATA TYPES, DECLARATION OF VARIABLES, GIVING VALUE TO VARIABLES, SCOPE OF VARIABLES, SYMBOLIC CONSTANTS, TYPE CASTING, GETTING VALUE OF VARIABLES, STANDARD DEFAULT VALUES;  
**OPERATORS & EXPRESSIONS.**

## **UNIT-II**

**DECISION MAKING & BRANCHING:** INTRODUCTION, DECISION MAKING WITH IF STATEMENT, SIMPLE IF STATEMENT, IF. ELSE STATEMENT, NESTING OF IF. ELSE STATEMENTS, THE ELSE IF LADDER, THE SWITCH STATEMENT, THE CONDITIONAL OPERATOR. **LOOPING:** INTRODUCTION, THE WHILE STATEMENT, THE DO-WHILE STATEMENT, THE FOR STATEMENT, JUMPS IN LOOPS.

**CLASSES, OBJECTS & METHODS:** INTRODUCTION, DEFINING A CLASS, ADDING VARIABLES, ADDING METHODS, CREATING OBJECTS, ACCESSING CLASS MEMBERS, CONSTRUCTORS, METHOD OVERLOADING, STATIC MEMBERS, NESTING OF METHODS;

## **UNIT-III**

**INHERITANCE:** EXTENDING A CLASS, OVERLOADING METHODS, FINAL VARIABLES AND METHODS, FINAL CLASSES, ABSTRACT METHODS AND CLASSES;

**ARRAYS, STRINGS AND VECTORS:** ARRAYS, ONE-DIMENSIONAL ARRAYS, CREATING AN ARRAY, TWO - DIMENSIONAL ARRAYS, STRINGS, VECTORS, WRAPPER CLASSES;

**INTERFACES:** MULTIPLE INHERITANCE: INTRODUCTION, DEFINING INTERFACES, EXTENDING INTERFACES, IMPLEMENTING INTERFACES, ASSESSING INTERFACE VARIABLES;

## **UNIT-IV**

**MULTITHREADED PROGRAMMING:** INTRODUCTION, CREATING THREADS, EXTENDING THE THREADS, STOPPING AND BLOCKING A THREAD, LIFECYCLE OF A THREAD, USING THREAD METHODS, THREAD EXCEPTIONS, THREAD PRIORITY, SYNCHRONIZATION, IMPLEMENTING THE 'RUNNABLE' INTERFACE.

**MANAGING ERRORS AND EXCEPTIONS:** TYPES OF ERRORS : COMPILE-TIME ERRORS, RUN-TIME ERRORS, EXCEPTIONS, EXCEPTION HANDLING, MULTIPLE CATCH STATEMENTS, USING FINALLY STATEMENT,

## **UNIT-V**

**APPLET PROGRAMMING:** LOCAL AND REMOTE APPLETS, APPLETS AND APPLICATIONS, BUILDING APPLET CODE, APPLET LIFE CYCLE: INITIALIZATION STATE, RUNNING STATE, IDLE OR STOPPED STATE, DEAD STATE, DISPLAY STATE.

**PACKAGES:** INTRODUCTION, JAVA API PACKAGES, USING SYSTEM PACKAGES, NAMING CONVENTIONS, CREATING PACKAGES, ACCESSING A PACKAGE, USING A PACKAGE.

**MANAGING INPUT/OUTPUT FILES IN JAVA:** INTRODUCTION, CONCEPT OF STREAMS, STREAM CLASSES, BYTE STREAM CLASSES, INPUT STREAM CLASSES, OUTPUT STREAM CLASSES, CHARACTER STREAM CLASSES: READER STREAM CLASSES, WRITER STREAM CLASSES, USING STREAMS, READING AND WRITING FILES.

## **REFERENCE BOOKS:**

1. E.BALAGURUSWAMY, PROGRAMMING WITH JAVA, A PRIMER, 3E, TATA MCGRAW-HILL COMPANY.
2. PROGRAMMING IN JAVA BY SACHIN MALHOTRA, OXFORD UNIVERSITY PRESS
3. JOHN R. HUBBARD, PROGRAMMING WITH JAVA, SECOND EDITION, SCHAUM'S OUTLINE SERIES, TATA MCGRAW-HILL COMPANY.
4. DEITEL &DEITEL. JAVA TM: HOW TO PROGRAM, PHI (2007)
5. JAVA PROGRAMMING: FROM PROBLEM ANALYSIS TO PROGRAM DESIGN- D.S MALLIK
6. OBJECT ORIENTED PROGRAMMING THROUGH JAVA BY P. RADHA KRISHNA, UNIVERSITIES PRESS (2008)

## **STUDENT ACTIVITY:**

1. CREATE A FRONT END USING JAVA FOR THE STUDENT DATABASE CREATED
2. LEARN THE DIFFERENCE BETWEEN ODBC AND JDBC

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**THIRD SEMESTER EXAMINATIONS**

**OBJECT ORIENTED PROGRAMMING USING JAVA**

**TIME: 3 HOURS**

**MAX. MARKS:**

**75**

**NOTE:** THIS QUESTION PAPER CONTAINS TWO PARTS A AND B.

PART A IS COMPULSORY WHICH CARRIES 25 MARKS. ANSWER ANY FIVE OF THE FOLLOWING

QUESTIONS IN PART A.

PART B CONSISTS OF 5 UNITS. ANSWER ANY ONE FULL QUESTION FROM EACH UNIT.

EACH QUESTION CARRIES 10 MARKS

**PART - A**

**ANSWER ANY FIVE OF THE FOLLOWING. ALL QUESTIONS CARRY EQUAL MARKS**

**5 X 5 = 25 MARKS**

1. WRITE A SIMPLE JAVA PROGRAM STRUCTURE?
2. WHAT ARE JAVA TOKENS?
3. WHAT IS A CONSTRUCTOR?
4. WRITE A PROGRAM USING CONDITIONAL OPERATORS?
5. HOW CAN WE IMPLEMENT INTERFACES IN JAVA?
6. DESCRIBE ABOUT FRIEND CLASS?
7. WRITE ON THREAD METHODS?
8. WHAT ARE THE STATES OF IDLE AND DEAD STATE?

**PART - B**

**ANSWER ONE QUESTION FROM EACH UNIT. ALL QUESTIONS CARRY EQUAL MARKS**

**5 X 10 = 50 MARKS**

**UNIT - I**

9. (A) WRITE A PROGRAM USING COMMAND LINE ARGUMENTS IN JAVA.  
(B) EXPLAIN JAVA VIRTUAL MACHINE?

**OR**

10. WHAT ARE OPERATORS AVAILABLE IN JAVA PROGRAM? EXPLAIN WITH EXAMPLE.

## **UNIT-II**

11. WHAT ARE THE BRANCHING STATEMENTS AND LOOPING STATEMENTS IN JAVA?

**OR**

12. WRITE A JAVA PROGRAM FOR METHOD OVERLOADING?

## **UNIT-III**

13. WHAT IS AN ARRAY? EXPLAIN 2-DIMENSIONAL ARRAY WITH EXAMPLE?

**OR**

14. DEFINE INTERFACE? WRITE A PROGRAM FOR INTERFACES.

## **UNIT-IV**

15. WHAT IS A THREAD? EXPLAIN ITS LIFE CYCLE?

**OR**

16. WRITE A PROGRAM FOR MULTIPLE CACHE BLOCKS WITH EXCEPTIONS?

## **UNIT-V**

17. WHAT IS PACKAGE? CREATE A PACKAGE WITH NAMING CONVENTIONS?

**OR**

18. (A) EXPLAIN STREAMING CLASSES?

(B) EXPLAIN LIFE CYCLE OF APPLLET.

## **BCA II YEAR III SEMESTER**

### **OBJECT ORIENTED PROGRAMMING USING JAVA LAB**

1. JAVA PROGRAM TO DEMONSTRATE THE USE OF HARMONIC SERIES.
2. JAVA PROGRAM TO DISPLAY A NUMBER OF EVEN, ODD AND SUM OF EVEN, ODD PROGRAM.
3. JAVA PROGRAM TO FIND A SUB STRING IN THE GIVEN STRING.
4. JAVA PROGRAM TO ARRANGE THE GIVEN STRINGS IN ALPHABETIC ORDER.
5. JAVA PROGRAM TO IMPLEMENTS ADDITION AND MULTIPLICATION OF TWO MATRICES.
6. JAVA PROGRAM TO DEMONSTRATE THE USE OF CONSTRUCTOR.
7. JAVA PROGRAM TO DISPLAY A USE OF METHOD OVERLOADING.
8. JAVA PROGRAM TO DEMONSTRATE THE USE OF OVERRIDING METHOD.
9. JAVA PROGRAM FOR SINGLE INHERITANCE.
10. JAVA PROGRAM FOR IMPLEMENTING INTERFACE.
11. JAVA PROGRAM ON MULTIPLE INHERITANCE.
12. JAVA PROGRAM FOR TO IMPLEMENT THREAD, THREAD PRIORITY,
13. JAVA PROGRAM TO DEMONSTRATE EXCEPTION HANDLING.
14. JAVA PROGRAM TO DEMONSTRATE APPLLET PROGRAM.

**DATA STRUCTURES**

**UNIT I LINEAR DATA STRUCTURES :** Abstract Data Types - Asymptotic Notations: Big-Oh, Omega and Theta – Best, Worst and Average case Analysis: Definition and an example – Arrays and its representations – Stacks and Queues – Linked lists – Linked list based implementation of Stacks and Queues – Evaluation of Expressions – Linked list based polynomial addition.

**UNIT II NON-LINEAR DATA STRUCTURES**

Trees – Binary Trees – Binary tree representation and traversals – Threaded binary trees – Binary tree representation of trees – Application of trees: Set representation and Union-Find operations – Graph and its representations – Graph Traversals – Connected components.

**UNIT III SEARCH STRUCTURES AND PRIORITY QUEUES:** AVL Trees – Red-Black Trees – Splay Trees – Binary Heap – Leftist Heap

**UNIT IV SORTING:** Insertion sort – Merge sort – Quick sort – Heap sort – Sorting with disks – k-way merging – Sorting with tapes – Polyphase merge.

**UNIT V SEARCHING AND INDEXING:** Linear Search – Binary Search - Hash tables – Overflow handling – Cylinder Surface Indexing – Hash Index – B-Tree Indexing.

**TEXT BOOKS:** 1. Ellis Horowitz and SartajSahni, Fundamentals of Data Structures, Galgotia Book Sorce, Gurgaon, 1976. 2. Gregory L. Heilman, Data Structures, Algorithms and Object Oriented Programming, Tata Mcgraw-Hill, New Delhi, 2002.

**REFERENCES:** 1. Jean-Paul Tremblay and Paul G. Sorenson, An Introduction to Data Structures with Applications, Second Edition, Tata McGraw-Hill, New Delhi, 1991. 2. Alfred V. Aho, John E. Hopcroft and Jeffry D. Ullman, Data Structures and Algorithms, Pearson Education, New Delhi, 2006.

Code No:

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**Third Semester Examinations**  
**DATA STRUCTURES**

**Time: 3 Hours**

**Max. Marks: 75**

**Note:** This question paper contains two parts A and B.  
Part A is compulsory which carries 25 marks. Answer any five of the following Questions in Part A.  
Part B consists of 5 Units. Answer any one full question from each unit.  
Each question carries 10 marks

**PART - A**

**Answer any Five of the following. All questions carry equal marks**

**5 x 5 = 25 Marks**

1. Explain Big-Ö?
2. Define Stack and Explain Stack ADT Abstract Methods?
3. Explain Queue concept in brief?
4. Write about array representation?
5. What is connected components?
6. Describe Hash Index?
7. Define Tree with diagram with nodes?
8. Explain about AVL tree?

**PART - B**

**Answer one question from each Unit. All questions carry equal marks**

**5 x 10 = 50 Marks**

**UNIT - I**

9. Explain about Stack ADT with program representation?

OR

10. Define Linked list based implementation with Queue?

UNIT-II

11. Explain about Binary Search tree with a program?

OR

12. Explain the representation of unweighted Graphics?

UNIT-III

13. Explain briefly the representation of Red-Black Trees with diagrams?

OR

14. Write about Binary Heap Tree?

UNIT-IV

15. Explain about Quick Sort with a suitable program?

OR

16. Explain about merge sort with graphical description?

UNIT-V

17. Explain about Linear Search with a suitable program?

OR

18. Write about B-Tree indexing?

**BCA II YEAR III SEMESTER**

**TALLY LAB**

1) KIRAN STARTED A BUSINESS WITH THE FOLLOWING TRANSACTIONS

- I) KIRAN STARTED BUSINESS WITH RS. 1,00,000/-
- II) KIRAN PURCHASED GOODS WITH RS. 20,000/-
- III) KIRAN SOLD PRODUCTS FOR RS. 40,000/-
- IV) AND HE SPENT RS. 5,000/- TOWARDS FOR SALARIES.

**I. PRACTICAL EXERCISE FOR THE ABOVE TRANSACTIONS ARE**

- A) CREATING COMPANY TRANSACTIONS
- B) CREATION OF LEDGERS.
- C) RECORD OF VOUCHERS.
- D) PREPARATION OF BALANCE SHEET.
- E) PREPARATION OF PROFIT AND LOSS ACCOUNT
- F) TRIAL BALANCE
- G) DAY BOOK

2) **CREATE THE ABOVE RECORDS FOR ANY ORGANIZATION AND GET CERTIFIED BY THEM WITH COMMENTS**