SRI VENKATESWARA UNIVERSITY

BCA (Artificial Intelligence) Honours – W.E.F. 2024-25

Year	Semester	Course	Title of the Course	No. of Hrs	No. of
II	III	5	Database Management System	3	3
			Database Management System Lab	2	1
		6	Mathematical and Statistical Foundation	3	3
			Mathematical and Statistical Foundation Lab	2	1
		7	JAVA and Data Structure	3	3
			JAVA and Data Structure Lab	2	1
		8	Artificial Intelligence	3	3
			Artificial Intelligence Lab	2	1

Note: Course 5, 6, and 7 are common to all BCA specializations

COURSE 5: DATABASE MANAGEMENT SYSTEM

(W.E.F. 2024-25)

__Theory__   Credits: 3   __3 hrs/week__

Course Objectives:

- Graduates will have the expertise in analyzing real time problems and providing appropriate solutions related to Computer Science & Engineering.
- Graduates will have the knowledge of fundamental principles and innovative technologies to succeed in higher studies and research.
- Graduates will continue to learn and to adapt technology developments combined with deep awareness of ethical responsibilities in profession.

Course Outcomes:

- An ability to apply Knowledge of computing and mathematics in Computer Science & Engineering.
- An ability to analyze a problem, identify and define the computing requirements appropriate to its solution.
- An ability to design, implement and evaluate a computer-based system to meet desired needs with appropriate societal considerations.
- An ability to conduct investigations, interpret data and provide conclusions in investigating complex problems related to Computer Science & Engineering.
- An ability to engage in continuing professional development and life-long learning.

UNIT-I

Overview of Data base Systems: Introduction: Database system, Characteristics

(Data base Vs File System), Database Users, Advantages of Database systems, Database applications.

Data Models: Introduction; types of data models, Concepts of Schema, Instance and data independence; Three tier schema architecture for data independence;

Case Study:

1. Describe the differences between Database systems and File based systems

2. Study about data base models and their advantages and dis-advantages

UNIT-II

Relational Model: Introduction to relational model, Codd's rules, concepts of domain, attribute, tuple, relation, constraints (Domain, Key constraints, integrity constraints) and their importance, concept of keys (super key, candidate key, primary key, foreign key).

Normalization: Purpose of Normalization or schema refinement, concept of functional dependency, normal forms based on functional dependency (1NF, 2NF, and3 NF), Boyce-codd normal form (BCNF)

Case Study: Describe Relational model and normalization for database design

UNIT-III:

Entity Relationship Model: Introduction, Representation of entities, attributes, entity set, relationship, relationship set, constraints, subclasses, super class, inheritance, specialization, generalization using ER Diagrams,

BASIC SQL: Database schema, data types, DDL operations (create, alter, drop, rename), DML operations (insert, delete, update), basic SQL querying (select and project) using where clause, arithmetic & logical operations, aggregation, grouping, ordering.

Case Study:

1. Examine issues in data storage and query processing using SQL.
2. Create, maintain and manipulate a relational database using SQL

UNIT–IV

SQL: Nested queries / sub queries, implementation of different types of joins, SQL functions (Date, Numeric, String, Conversion functions), Creating tables with relationship, implementation of key and integrity constraints, views, relational set operations, Transaction Control Language: commit, Rollback, Save point, DCL: Grant, Revoke.

Case Study:

1. Try to convert some sample data to information and show how it can you be used in decision making.

UNIT–V

PL/SQL: Introduction, PL/SQL program Structure, Data types, Control Structures, Cursors, Procedure, Function, Exception Handling, Triggers, Packages.

Case Study:
1. Study about Triggers and their usages.

Text Books

- Database Management Systems, 3rd Edition, Raghurama Krishnan, Johannes Gehrke, TMH
- Database System Concepts, 5th Edition, Silberschatz, Korth, TMH

SRI VENKATESWARA UNIVERSITY::TIRUPATI

Common to all BCA Honours

General/Data Science/Big Data/Artificial Intelligence/Cloud Computing

SEMESTER–III

COURSE 5: DATA BASE MANAGEMENT SYSTEM

Practicals   **Credits: 1**   **2 hrs/week**

List of Experiments

SQL:

Cycle-I: Aim: Marketing company wishes to computerize their operations by using following tables.

Table Name: Client–Master
Description: Used to store client information

Column	Data Type	S	Attribute
			Primary key
NAME	Varchar2	2	Not null
ADDRESS1	Varchar2	3	
ADDRESSS	Varchar2	3	
CITY	Varchar2	1	
PINCODE	Varchar2	8	
STATE	Varchar2	1	
BAL_DUE	Number	1	

Table Name: Product_Master
Description: Used to store product information

ColumnNam	DataType	S	Attribute
			Primary key
DESCRIPTIO	Varchar2	1	Not null

Column Name	Data Type	Size	Attribute
	Number		
	Varchar2		
	Number		
	Number		
	Number		
	Number		

Table Name: Salesman_master

Description: Used to store salesman information working for the company.

Column Name	Data Type	Size	Attribute
SALESMAN N	Varchar	6	Primarukeu
SALESMAN N	Varchar	20	Not null
	Varchar		
	Varchar		
	Varchar		
	Number		
	Vachar2		
	Number		
	Number		
	Number		
	Varchar		

Table Name: SALES- ORDER

Description: Used to store client's orders

Column	Data Type	Size	Attribute
CLIENT NO	Varchar2	6	Foreign Key
	Date		
	Varchar2		
	Varchar2		

	Char		
	Char		
DELY DATE	Date		Can't be less than order date
	Varchar2		Values("In Process",

Table Name: SALES_ORDER_DETAILS

Description : Used to store client's order with details of each product ordered.

Column	Data Type	Size	Attribute
PRODUCT_N	Varc	6	Foreign Key references
	Num		
	Num		
	Num		

Solve the following queries by using above tables.
1. Retrieve the list of names, city and the state of all the clients.
2. List all the clients who are located in 'Mumbai' or 'Bangalore'.
3. List the various products available from the product_master table.
4. Find the names of salesman who have a salary equal to Rs.3000.
5. List the names of all clients having 'a' as the second letter in their names.
6. List all clients whose Baldueis greater than value 1000.
7. List the clients who stay in a city whose first letter is 'M'.
8. List all information from sales-order table for orders placed in the month of July.
9. List the products whose selling price is greater than 1000 and less than or equal
   to 3000.
10. Find the products whose selling price is greater than 1000 and also find the new selling price as original selling price 0.50.

Cycle-II Supplier

Aim:A manufacturing company deals with various parts and various suppliers supply these parts. It consists of three tables to record its entire information. Those are as follows.

Supplier (Supplier_No, Sname, City, status) Part(Part_no, pname, color, weight, city,cost) Shipment (supplier_No, Part_no, city) JX(project_no, project_name,city) SPJX(Supplier_no,part_no, project_no,city)

1. Get supplier numbers and status for suppliers in Chennai with status>20.
2. Get project names for projects supplied by supplier 'S'.
3. Get colors of parts supplied by supplier 'S'.
4. Get part numbers for parts supplied to any project in Mumbai.
5. Find the id's of suppliers who supply ared or pinkparts.

Cycle–III Employee Database

Aim: An enterprise wishes to maintain a database to automate its operations. Enterprise divided into a certain departments and each department consists of employees. The following two tables describes the automation schemas.

Emp(Empno, Ename, Job, Mgr, Hiredate, Sal, Comm, Deptno)

Dept(Deptno, Dname,Loc)

1. List the details of employees who have joined before the end of September '81.
2. List the name of the employee and designation of the employee, who does not report to anybody.
3. List the name, salary and PF amount of all the employees (PF is calculated as 10% of salary)
4. List the names of employees who are more than 2 years old in the organization.
5. Determine the number of employees, who are taking commission.
6. Update the employee salary by 20%, whose experience is greater than 12 years.
7. Determine the department does not contain any employees.
8. Create a view, which contains employee name and their manager names working in sales department.
9. Determine the employees, whose total salary is like the minimum salary of any department.
10. List the department numbers and number of employees in each department.

PL/SQL PROGRAMS

1. Write a PL/SQL program to check the given string is palindrome or not.
2. The HRD manager has decide to raise the employee salary by 15% write a PL/SQL block to accept the employee number and update the salary of that employee. Display appropriate message based on the existence of the record in Emp table.
3. Write a PL/SQL program to display top 10 rows in Emp table based on their job and salary.
4. Write a PL/SQL program to raise the employee salary by 10% for department number 30 people and also maintain the raised details in the raise table.
5. Create a procedure to update the salaries of Employees by 20%, for those who are not getting commission

6. Write a PL/SQL procedure to prepare an electricity bill by using following table. Table used: Elect

Name	Null?	Type
MNNO	NOT	NUMBER(3)
CNAME		VARCHAR2(20)
CUR_READ		NUMBER(5)
PREV_READ		NUMBER(5)
NO_UNITS		NUMBER(5)
AMOUNT		NUMBER(8,2)
SER_TAX		NUMBER(8,2)
NET_AMT		NUMBER(9,2)

7. Create a trigger to avoid any transactions (insert, update, delete) on EMP table on Saturday & Sunday.

MODEL QUESTION PAPER
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Common to all BCA Honours
General/Data Science/Big Data/Artificial Intelligence/Cloud Computing
II Year III Semester
COURSE 5: DATABASE MANAGEMENT SYSTEM
(w.e.f. 2024-25)

Time : 3 Hrs   Max Marks : 75

SECTION – A

Answer any Five of the following   5 X 3= 15 Marks

1. Short answer question from Unit-1
2. Short answer question from Unit-1
3. Short answer question from Unit-2
4. Short answer question from Unit-2
5. Short answer question from Unit-3
6. Short answer question from Unit-3
7. Short answer question from Unit-4
8. Short answer question from Unit-4
9. Short answer question from Unit-5
10. Short answer question from Unit-5

SECTION – B

Answer any Five of the following   5 X 12= 60 Marks

11. Long answer question from Unit-1
12. Long answer question from Unit-1
13. Long answer question from Unit-2
14. Long answer question from Unit-2
15. Long answer question from Unit-3
16. Long answer question from Unit-3
17. Long answer question from Unit-4
18. Long answer question from Unit-4

19. Long answer question from Unit-5
20. Long answer question from Unit-5

General / Data Science/Big Data/Artificial Intelligence/Cloud Computing
II Year III Semester
COURSE6: Mathematical and Statistical Foundation
(w.e.f. 2024-25)

Theory	**Credits: 3**	**3 hrs/week**

Learning Outcomes: After successful completion of this course, the student will be able to;

1. Have an idea about basic mathematical techniques which are necessary to analyze the statically technique.

2. Able to know the concept of matrices and its operations.

3. Able to complete the adjoint and determinate of a square matrix, hence it's inverse.

4. Capable of solving the simultaneous equations using matrix method.

5. Understands the technique differentiation, integration and its applications.

UNIT-I

Matrix Algebra-I: Introduction-Definition of Matrix–Various types of Matrices- Addition of Matrices-Subtraction of Matrices-Multiplication of Matrices and their applications. Transpose of a Matrix-Symmetric Matrix-Skew Symmetric Matrix Orthogonal Matrix-Singular Matrix-Non SingularMatrix.

UNIT-II

Matrix Algebra- II: Determinant of a Matrix- Adjoint of a Square Matrix - Inverse of a Matrix up to3 order only, Rank of a Matrix.

Solutions ofLinearequations: 1.Matrix inversion method 2. Cramer's Rule upto3 order only

UNIT-III

Set Theory: Definition of Set-Types of Sets-Union of Sets-Intersection of Sets-Venn diagrams-Operations on Sets-Complement of Set-Distributive Laws-De'Morgan's Laws.

Note:

1. Concentration on numerical problems only.

2. Proofs of theorems and Derivations of are omitted.

UNIT-IV

Basics of Statistics: Classification – Tabulation - Frequency distribution table – One-way Frequency distribution table – Two-way Frequency distribution table

UNIT-V: Statistical Measures: Measure of averages – Mean – combined mean – Median – Quartiles- Deciles – Percentiles - Mode – Empirical relationship between mean, median and mode.

References:

TextBooks:

1.MathematicalMethodsbyDr.T.K.V.Ivengar,Dr.B.KrishnaGandhi,Dr.S.Ranganatham,andDr.M.V.S.S.N. PrasadbyS.Chand publications 6th revised edition2011.

2.QuantitativeTechniquesbyC.Satyadeviby S.chandCompany

3. Statistical Methods by S.P. Gupta

COURSE6:Mathematical and Statistical Foundation

Practicals   **Credits: 1**   **2 hrs/week**

List of Lab Experiments & simple implementation using any programming language

1. Addition, Subtraction of Matrices.
2. Multiplication of Matrices.
3. Determinant of a Matrix and Inverse of a Matrix.
4. Singular and Non-Singular Matrices.
5. Cramer's Rule and Matrix Inversion Method.
6. Rank of a Matrix.
7. Preparation of two – way frequency table
8. Problem on Histogram
9. Problem on Mean and Median.
10. Empirical relationship between mean, median and mode

Common to BCA Honours
General / Data Science/Big Data/Artificial Intelligence/Cloud Computing
II Year III Semester
COURSE6: Mathematical and Statistical Foundation
(w.e.f. 2024-25)
<u>**Theory**</u>   **Credits: 3**   **3 hrs/week**
Model Question Paper
Section - A
Answer any five questions each question carries equal marks
5 X 3 = 15

1.What is the necessary condition for the addition of two matrices?

2.What is necessary condition for matrix multiplication?

3.Define inverse of a matrix?

4.If B = $\begin{bmatrix} 2 & -3 \\ 1 & 6 \end{bmatrix}$ then find transpose matrix

5.In a class of 40 students, 22 play hockey, 26 play basketball, and 14 play both. How many students do not play either of the games?

6.If set A = {1, 3, 5, 7, 9} and set B = {1, 2, 3, 4, 5}, find A ∪ B and A ∩ B.

7.Classification

8.Frequency Distribution

9. Mean=16;Median=18, Find Mode

10. Find Combined Mean
$\bar{x}_1 = 150; \bar{x}_2 = 160;$ N_1=60;N_2=40;

Section - B

Answer any five questions   **12 X 5 = 60**

11. Discuss laws of Matrix Algebra.
12. If A=$\begin{bmatrix} -3 & 8 \\ 3 & 5 \end{bmatrix}$andB=$\begin{bmatrix} 3 & -8 \\ 3 & -5 \end{bmatrix}$ find B-A

13. Find the transpose of: $\begin{bmatrix} 5 & 6 & -7 \\ 4 & 3 & 0 \\ -6 & 2 & 1 \end{bmatrix}$

14.Find the inverse of matrix shown below. $\begin{bmatrix} 2 & 0 \\ 0 & 0 \end{bmatrix}$

15. In a group of 120 people, 54 like Coca Cola and 84 like Pepsi and each person likes at least one of the two beverages. How many like both Coca Cola & Pepsi?

16. Write an example of equal sets.

17. Draw a frequency distribution table. The marks scored by 25 students are given Below.

Marks:18, 24, 32, 40, 48, 52, 59, 60, 09, 11, 05, 13, 26,
 30, 41, 50, 52, 62, 19, 23, 36, 50, 51

18. Following figures give the ages of newly married husbands and their wives in years.
Represent the data by a two-way frequency distribution.

28	24	27	28	25	26	25	26	27	25	27	26	2!
20	18	18	19	18	19	17	18	19	19	20	19	1'

19. Calculate Mean

x	0-10	10-20	20-30	30-40	40-50	50-60	60-70
f	4	6	10	20	10	6	4

20. Calculate Mode

Class	0 - 10	10 - 20	20 - 30	30 - 40	40 - 50	50 - 60	60 - 70
Frequency	14	16	20	40	20	16	14

Yours Truly
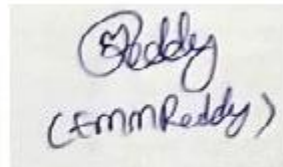
(A. Ravi Prasad)
CHAIRPERSON
BOS (PASS) IN COMPUTER SCIENCE
S.V. UNIVERSITY
TIRUPATI

BOS Members

(B. Kanjithkumar)

(S. Saravana)

(EmmReddy)

(SK. MUNWAR)

COURSE7:JAVA and Data Structures
(w.e.f. 2024-25)

__Theory__   Credits: 3   __3 hrs/week__

Course Objectives:

To make the students understand the fundamentals of Java programming and organize and manage data, based on data structures for efficient access.

- To expose the students to Concepts of OOP and JAVA
- To make the students to design appropriate Exception Handling in Java
- Identifying various data structures and their real-time applications
- Implementing different sorting & searching techniques

Course Outcomes:

The student would become competent enough towrite, debug, and document well-structured java applications
- Demonstrate good object-oriented programming skills in Java
- Able to describe recognize, apply, and implement selected design patterns in Java
- Understand the capabilities and limitations of Java
- Be familiar with common errors in Java and its associated libraries
- Develop excellent debugging skills

UNIT-I

Introduction to OOPS: Paradigms of Programming Languages – Basic concepts of Object Oriented Programming– Benefits of OOPs – Application of OOPs, History and Evolution of Java–Java features – Java

Environment. Introduction to Java: Creating and Executing a Java program– Java Tokens–Data Types - Variables–Scope of variables–Type casting– Operators– control statements – arrays

Case Study:

Study the evolution of JAVA, why it was developed, and how it changed the software industry scenario.

Study the difference between the looping structured in JAVA and Programming in C.

UNIT – II

Class and objects: Defining a class–Methods–Creating objects–Accessing class members– Overloading methods – Constructors.

Inheritance: Defining inheritance–types of inheritance–Method overloading– Static members–this keyword-Overriding methods–Final variables and methods.

Interfaces: Defining interface–Extending interface – Implementing Interface

Case Study:

Study the limitation of Constructors in JAVA.

Study the inheritance types available in JAVA and try to identify the limitations

UNIT–III

Packages: Java API Packages–Defining a Package, System Packages– Naming Conventions– Creating & Package Member Access

Exception Handling: Types of Errors –Basics of Exception Handling-Advantages of Exception Handling – Syntax of Exception Handling Code, Multiple Catch Statements, Using finally Statement

Applets: Introduction, Java applications versus Java Applets, Applet Life-cycle

Case Study:

Study the advantages of Package compared to Libraries in Procedural languages

UNIT–IV

Data structure: Introduction and Overview– Elementary Data Organization, Data Structures classification, Data Structure Operations.
Arrays – Sorting(bubble, selection, insertion, and quick) – Searching(linear and Binary)
Linear Data Structures: Linked Lists, Stacks and Queues,
Implementation using arrays and Linked List

Case Study:

Linked list verses Arrays.
Application of Stacks, Queues.

UNIT–V

Trees – Basic Terminology – applications of trees – Binary trees, Representing and traversing binary trees, Binary Search Trees.
Graphs– Terminology – applications of graphs, Sequential representation of Graphs, Linked representation of Graphs, Operations on Graphs, Traversing a Graph.

Case Study:
Applications of Trees and Graphs

TEXT BOOKS:

1. **Object Oriented Programming through Java,** Universities Press, byP. Radha Krishna.

2. E. Balagurusamy, "Programming with Java",TataMc-GrawHill,5thEdition.

3. Data Structures by Seymour Lipschutz,McGrawHill(Schaum'sOutlines).

4. Data Structures using C ,Second edition , Dr. ReemaThareja, Oxford UniversityPress.

REFERENCES:

- Herbert Schildt, "The complete reference Java",TataMc-GrawHill, 7th Edition.
- Theory and Problems of Data Structures by Seymour Lipschutz, McGraw Hill (Schaum'sOutlines)

Common to all BCA Honours

General/Data Science/Big Data/Artificial Intelligence/Cloud Computing

II Year III Semester

COURSE7: JAVA and Data Structures

Practicals   **Credits: 1**   **2 hrs/week**

List of Lab Experiments

1. Write a program to print Biggest of 3 Numbers using Logical Operators.
2. Write a program to Test the Prime number.
3. Write a program to create a Simple class to find out the Area and perimeter of rectangle and box using super and this keyword.
4. Write a program to design a class account using the inheritance and static that's how all function of bank (withdrawal, deposit).
5. Write a program to handle the exception using try and multiple catch block.
6. Write a program to implement stack using arrays.
7. Write a program to implement queue using arrays.
8. Write a program to implement Sorting
9. Write a program to implement searching
10. Write a program to implement tree traversals
11. Write a program to implement binary search trees
12. Write a program to traversing a graph.

MODEL QUESTION PAPER
SRI VENKATESWARA UNIVERSITY::TIRUPATI
Common to all BCA Honours
General/Data Science/Big Data/Artificial Intelligence/Cloud Computing
II Year III Semester
COURSE 7: JAVA and Data Structure
(w.e.f. 2024-25)

Time : 3 Hrs   Max Marks : 75

SECTION – A

Answer any Five of the following   **5 X 3= 15 Marks**

1. Short answer question from Unit-1
2. Short answer question from Unit-1
3. Short answer question from Unit-2
4. Short answer question from Unit-2
5. Short answer question from Unit-3
6. Short answer question from Unit-3
7. Short answer question from Unit-4
8. Short answer question from Unit-4
9. Short answer question from Unit-5
10.   Short answer question from Unit-5

SECTION – B

Answer any Five of the following   **5 X 12= 60 Marks**

11.   Long answer question from Unit-1
12.   Long answer question from Unit-1
13.   Long answer question from Unit-2
14.   Long answer question from Unit-2
15.   Long answer question from Unit-3
16.   Long answer question from Unit-3
17.   Long answer question from Unit-4
18.   Long answer question from Unit-4

19. Long answer question from Unit-5

20. Long answer question from Unit-5

SRI VENKATESWARA UNIVERSITY::TIRUPATI
BCA (ARTIFICIAL INTELLIGENCE) Honours
II Year III Semester

COURSE8: ARTIFICIAL INTELLIGENCE

(w.e.f. 2024-25)

<u>**Theory**</u>   <u>**Credits: 3**</u>   <u>**3 hrs/week**</u>

Learning Outcomes: Upon completion of the course, the students should be able to:

1. Apply searching techniques for solving a problem
2. Design Intelligent Agents
3. Develop Natural Language Interface for Machines
4. Design mini robot
5. Summarize past, present and future of Artificial Intelligence

UNIT– I

Knowledge Representation: Introduction, Approaches to Knowledge Representation, Knowledge Representation using Semantic Network, Extended Semantic NetworksforKR, Knowledge Representation using Frames.

UNIT– II

Representing Knowledge Using Rules: Procedural Versus Declarative Knowledge, Logic Programming, Forward Versus Backward Reasoning, Matching, Control Knowledge

UNIT– III

Natural Language Processing: Language Models, Text Classification, Information Retrieval, Information Extraction.

Natural Language for Communication: Phrase structure grammars, Syntactic Analysis, Augmented Grammars and semantic Interpretation, Machine Translation, Speech Recognition

UNIT-IV

Introduction: Introduction to Expert System, Definitions, Importance of Expert System, Characteristic features of Expert System, Applications of Expert System, Different Categories of Expert Systems.

UNIT-V

Expert System and Applications: Introduction, Phases in Building Expert Systems, Expert System Architecture, Expert Systems versus Traditional Systems, Rule Based Expert Systems, Blackboard Systems, Truth Maintenance Systems.

Textbook:

Stuart J.Russell, Peter Norvig, "Artificial Intelligence A Modern Approach", 3rdEdition, Pearson Education, 2019.

References:

o Nilsson, NilsJ.,and Nils Johan Nilsson. Artificial intelligence: a news ynthesis. Morgan Kaufmann, 1998.
o Johnson, Benny G., Fred Phillips, and Linda G. Chase. "An intelligent tutoring system for the accounting cycle: Enhancing textbook homework with artificial intelligence." Journal of Accounting Education 27.1 (2009):30-39.

COURSE8: ARTIFICIAL INTELLIGENCE

<u>Practicals</u>   <u>Credits: 1</u>   <u>2 hrs/week</u>

1. Write a program to implement DFS
2. Write a program to implement BFS.
3. Write a program to implement BST.
4. Write a program to implement to Towers of Hanoi problem.
5. Write a Program to find the solution for travelling salesman Problem
6. Write a program to implement 8 puzzle problem.
7. Write a program to implement A*Algorithm
8. Write a program to implement Hill Climbing Algorithm
9. Write a program to implement Simulated Annealing Algorithm
10.   Build a Chatbot using Whatsapp.

MODEL QUESTION PAPER

SRI VENKATESWARA UNIVERSITY::TIRUPATI

BCA (ARTIFICIAL INTELLIGENCE) Honours

II Year III Semester

COURSE 8: ARTIFICIAL INTELLIGENCE

(W.E.F. 2024-25)

Time : 3 Hrs   Max Marks : 75

SECTION – A

Answer any Five of the following   5 X 3= 15 Marks

1. Short answer question from Unit-1
2. Short answer question from Unit-1
3. Short answer question from Unit-2
4. Short answer question from Unit-2
5. Short answer question from Unit-3
6. Short answer question from Unit-3
7. Short answer question from Unit-4
8. Short answer question from Unit-4
9. Short answer question from Unit-5
10. Short answer question from Unit-5

SECTION – B

Answer any Five of the following   5 X 12= 60 Marks

11. Long answer question from Unit-1
12. Long answer question from Unit-1
13. Long answer question from Unit-2
14. Long answer question from Unit-2
15. Long answer question from Unit-3

16. Long answer question from Unit-3
17. Long answer question from Unit-4
18. Long answer question from Unit-4
19. Long answer question from Unit-5
20. Long answer question from Unit-5