**Unit-I**

1. What is stream in java?
2. How to instantiate object of Console class?
3. List and explain the applications of OOPs.
4. What is inheritance? Explain in detail inheritance in java with examples.
5. List and explain java buzzwords.
6. Define class? Explain classes, instances and class hierarchies?
7. Define java byte code. Why java generates byte code?
8. Differentiate method overloading with method overriding with examples.
9. What are the problems with procedure languages? How object oriented languages

Overcome the problems of procedural languages.

1. Write the structure of java program.
2. Differentiate between class and object.
3. Give a brief note on operators in java
4. Write and explain the syntax of constructor with example
5. Write about Object class in detail.
6. How to assign the values to the variables in the class at the time of creation of object to that class? Explain with example
7. Write uses of Super keyword, and discuss accessing the member of a super class.
8. Discuss about polymorphism. Explain runtime polymorphism with a program.
9. What is an array? How arrays are declared and initialized? Explain with examples
10. Write about various Stream Classes in java.
11. Discuss about the FileInputStream and FileOutputStream in java with examples
12. Write about the various CharacterStreams in java.
13. Write about the various ByteStreams in java?
14. Write a JAVA program to read a character from user by using BufferedReader class.

**Unit-II**

**Short Answer Questions**

1. How can you prevent a class from instantiation?
2. When do we declare a method or class final?
3. How to compile a package program?
4. Differentiate between inteface and abstract clas.
5. What is CLASSPATH?
6. What is a package?
7. What is an interface?

**Long Answer Questions**

1. Describe different levels of access protections available in java.

2. Explain in detail about accessing a package.

3. Write short note on CLASSPATH environmental variable.

4. Explain implicit and explicit import statement.

5. How to extend one interface by the other interface? Explain with an example.

6. How to design and implement an interface. Explain with example?

7. Define a package? What is the necessity of packages?

8. What is the major difference between an interface and class?

(or)

Compare and contrast between class and an interface.

(or)

What is interface? Write a program to demonstrate how interfaces can be extended.

9. Write a program to implement a class Teacher contains two fields Name and Qualification.

Extend the class to Department, it contains Dept. No and Dept. Name. An Interface named as

College it contains one field Name of the College. Using the above classes and Interface get the

appropriate information and display it.

10. Prove that the fields in an interface are implicitly static and final.

11. What is package? Explain the procedure to create a package with the help of example.

12. Write a program to create a class with a non default constructor and no default constructor. Create a second class that has a method which returns a reference to the first class. Create the object to return by making an anonymous inner class that inherits from the first class.

13. Prove that all the methods in an interface are automatically public

14. a) What is a package? How do we design a package?

(or)

Write a sample program to illustrate packages.

(or)

Give general form of the package statement. Give an example package creation statement.

b) How do we add a class or interface to a package?

15. a) Give general form of a multi leveled package statement. What is the significance of the

CLASSPATH environment variable in creating/using a package

b) Give the general form of the import statement. Illustrate a Java program that creates a package and uses it.

16. Write a program to create an interface containing a static inner class. Implement this interface and create an instance of the inner class.

17. Write an interface called shape with necessary methods. Derive classes circle, rectangle,

triangle,cone, sphere and cube with appropriate constructors and methods for area, volume also setting & displaying.

18. What is package? How do you create a package? Explain about the access protection in

packages?

19. Write a program to get n numbers from the users and print largest number.

20. Discuss in detail about Nested interfaces.

21. What happens when an interface is partially implemented ?Explain.

22. Write a java program to print the sum of number that are supplied as command line arguments.

23. Write a java program that depicts how to read ‘text’ from the file using FileReader.

25. Give an example where interface can be used to support multiple inheritance.

26. Describe the process of importing and accessing a package with suitableexamples.

**UNIT-III**

**Short Answer questions**

1. Define Exception. What is the difference between error and an exception?

2. Write benefits of exception handling.

3. Write the classification of exceptions.

4. Define checked and unchecked exceptions.

5. Define built in exceptions.

6. Write the usage of try and catch.

7. Write the usage of throw, throws and finally.

8. Distinguish between throw and throws.

9. Differentiate between iteration and recursion

10. define Recursion.

11. List out types of recursion.

12.what is Linear Recursion.

13. What is Binary recursion.

14. Give the complexity of Linear recursion.

15. Give the complexity of Binary recursion.

**Long Answer questions**

1. Write about exception handling mechanisms.

Or

What is an Exception? How is an Exception handled in JAVA?

2. Write about try, catch, finally with examples.

3. What are the different ways to handle exceptions? Explain.

4. What are advantages of using Exception handling mechanism in a program?

5. Define throw keyword. Explain with an example program.

6. Define throws keyword. Explain with an example program

7. Differentiate between Checked and Unchecked Exceptions with examples.

8. Write a java program to implement Built in exceptions.

9. Write a java program to create own exceptions.

10. Write a java program to implement nested try statements.

11. What is an Exception? How is an Exception handled in JAVA?

12. Explain recursion. Write a recursive algorithm to calculate factorial of a

Number analyse complexity of algorithm.

1. Explain recursion. Write a recursive algorithm to calculate Binary search and analyse complexity of Binary search.
2. Explain briefly the types of Recursion with example.

Or

Try to analyse the types of Recursion with example.

Or

Define and calculate the complexity of the following recursions

1. Linear B) Binary/Tree
2. Try to analyse Linear recursion with example.
3. Discuss and analyse Binary recursion with example.\

**Unit-4**

**Sorting, Searching & Data Structure**

Introduction to Sorting, Bubble Sort, Insertion Sort, Introduction to Searching, Linear Search and Binary Search.

**Data Structures Fundamentals**: Using Arrays, Singly Linked Lists, Circularly Linked Lists, Doubly Linked Lists.

**Short answer questions**

1. What is a data structure?
2. Why do we need data structures?
3. List some common data structures.
4. Define ADT (Abstract Data Type)
5. What are the types of linked list?
6. When singly linked list can be represented as circular linked list?
7. List down the applications of List.
8. What is a circular linked list?
9. What is the need for the header in List?
10. Disadvantages of Array over Linked List.
11. How the doubly linked list can be represented?
12. How the singly linked lists can be represented?
13. Write the applications of Doubly linked list.
14. What are the disadvantages of linked list?
15. Mention the advantages of linked list?
16. Differentiate between linear and non-linear data structures.

**Long answer questions**

1. Write a JAVA program to sort a list using bubble sort.
2. Write a JAVA program to sort a list using insertion sort.

Or

Write a JAVA program for insertion sort. Explain with the help of example

What is stack? Why it is known as LIFO? Write algorithm of PUSH and

POP operation on stack.

3. What is queue? Why it is known as FIFO? Write an algorithm to insert and

delete an element from a simple queue.

Explain insertion sort. Construct insertion sort for the initial key set 42, 23, 74,11,

65,58,94,36,99,87.

Discuss the advantages and disadvantages of linked list over array?

singly linked lists

Write and explain algorithm to insert element at the beginning of singly

linked list.

Explain algorithm to delete element from singly linked list.

Explain how to represent singly linked list with help of diagram and

example.

doubly linked lists

Write and explain algorithm to insert element at the beginning of doubly

linked list

Explain algorithm to delete element from doubly linked list

circularly linked lists

Write and explain algorithm to insert element at the beginning of circular

linked list.

Explain algorithm to delete element from circular linked list

1. Differentiate linear and non-linear data structure.
2. Explain the operations of singly linked lists
3. Explain the operations of doubly linked lists
4. Explain the operations of circularly linked lists
5. Write a JAVA program for linked list implementation of List.

Write and explain algorithm to insert element at the beginning of circular

linked list.

8. Explain algorithm to delete element from circular linked list.

9. Write and explain algorithm to insert element at the beginning of singly

linked list.

10.Explain algorithm to delete element from singly linked list.

11.Write and explain algorithm to insert element at the beginning of doubly

linked list.

12.Explain algorithm to delete element from doubly linked list

**Unit-5**

**Stacks, Queues, and Deques**

Stack, Queue, Double – ended queues.

List and Iterator ADTs: The List ADT, Array List, Positional Lists, Iterators, Java Collection Frameworks

**Short answer questions**

1. Define Stack.
2. What are the operations of the stack?
3. Write the routine to push a element into a stack.
4. What are the applications of stack?
5. List out some the applications of arrays.
6. What are the operations to implement stack in JAVA?
7. Give the features of abstract data type (ADT).

**Long answer questions**

1. Explain Stack and its operations.

Or

What is stack? Why it is known as LIFO? Write algorithm of PUSH and

POP operation on stack.

1. Explain array based implementation of Stacks.
2. Explain linked list implementation of Deque.
3. Explain queue and its operations.

Or

What is queue? Why it is known as FIFO? Write an algorithm to insert and

delete an element from a simple queue.

1. Explain array based implementation of queues.
2. Explain double ended queue(Deque ADT) and its methods with implementation.

Or

Explain double ended queue? Write a JAVA program to implement Deque using ArrayList.

Or

Explain double ended queue? Write a JAVA program to implement Deque using linkedList.

1. Explain the various methods of the List ADT with implementation.
2. Define PositionList.Give implementation of PositionList.
3. List and explain the methods specified in PositionList.