Java Question Papers - Exception Handling and Collections

Question Paper 1

1. Which keyword is used to handle exceptions in Java?
   A) try
   B) catch
   C) throw
   D) All of the above

2. What is the parent class for all exceptions in Java?
   A) Exception
   B) RuntimeException
   C) Throwable
   D) Error

3. Which of the following is a checked exception?
   A) NullPointerException
   B) ArrayIndexOutOfBoundsException
   C) IOException
   D) ArithmeticException

4. What is the purpose of the 'finally' block in a try-catch-finally statement?
   A) To handle exceptions
   B) To throw exceptions
   C) To execute code regardless of whether an exception occurs or not
   D) To define custom exceptions

5. Which collection interface does not allow duplicate elements?
   A) List
   B) Set
   C) Map
   D) Queue

6. Which of the following is not a method of the Iterator interface?
   A) hasNext()
   B) next()
   C) remove()
   D) add()
7. Which collection class provides constant-time performance for basic operations?
   A) ArrayList
   B) LinkedList
   C) HashMap
   D) TreeMap
8. What is the time complexity of adding an element to an ArrayList?
   A) O(1)
   B) O(n)
   C) O(log n)
   D) O(n log n)
9. Which interface is used to sort elements in Java collections?
   A) Sortable
   B) Comparable
   C) Comparator
   D) Both B and C
10. What is the default initial capacity of a HashMap in Java?
    A) 8
    B) 16
    C) 32
    D) 64

Question Paper 2

1. What is the purpose of the 'throws' clause in a method declaration?
   A) To handle exceptions
   B) To declare checked exceptions that might be thrown
   C) To create custom exceptions
   D) To catch exceptions

2. Which of the following is true about the 'finally' block?
   A) It is optional
   B) It is always executed
   C) It can be used without a try block
   D) It can only be used with checked exceptions

3. What happens if an exception is not caught in a Java program?
   A) The program continues execution
   B) The program terminates
   C) The exception is automatically handled
   D) The exception is ignored

4. Which of the following is a best practice in exception handling?
   A) Catch all exceptions using Exception class
   B) Throw exceptions in constructors
   C) Use specific exception types
   D) Ignore exceptions

5. Which collection interface allows null elements?
   A) Set
   B) List
   C) Map
   D) All of the above

6. What is the difference between ArrayList and LinkedList?
   A) ArrayList is faster for random access
   B) LinkedList is faster for insertions and deletions
   C) ArrayList uses more memory
   D) All of the above

7. Which method is used to sort a List in Java?
   A) sort()
   B) orderBy()
   C) Collections.sort()
   D) List.sort()

8. What is the time complexity of searching an element in a HashSet?
   A) O(1)
   B) O(n)

C) O(log n)
D) O(n log n)

9. Which of the following is not a valid way to iterate over a List?
   A) for loop
   B) enhanced for loop
   C) iterator
   D) while loop

10. What is the purpose of the Comparable interface?
    A) To compare two objects for equality
    B) To define a natural ordering for a class
    C) To sort collections
    D) To implement custom exceptions

Question Paper 3

1. Which of the following is true about checked exceptions?
   A) They are checked at compile-time
   B) They are subclasses of RuntimeException
   C) They don't need to be declared or caught
   D) They are used for programmer errors

2. What is the correct order of catch blocks when catching multiple exceptions?
   A) Most specific to most general
   B) Most general to most specific
   C) Order doesn't matter
   D) Alphabetical order

3. Which keyword is used to manually throw an exception?
   A) throws
   B) throw
   C) catch
   D) finally

4. What is the purpose of creating custom exceptions?
   A) To handle specific error scenarios
   B) To improve performance

C) To bypass checked exceptions
D) To replace built-in exceptions

5. Which collection interface represents a last-in-first-out (LIFO) stack of objects?
   A) List
   B) Queue
   C) Deque
   D) Set

6. What is the difference between HashMap and Hashtable?
   A) HashMap is synchronized, Hashtable is not
   B) HashMap allows null keys and values, Hashtable doesn't
   C) Hashtable is faster than HashMap
   D) HashMap is deprecated

7. Which method is used to remove all elements from a collection?
   A) removeAll()
   B) clear()
   C) deleteAll()
   D) empty()

8. What is the purpose of the Comparator interface?
   A) To compare two objects for equality
   B) To define multiple sort orders for a class
   C) To implement custom exceptions
   D) To iterate over collections

9. Which collection class maintains insertion order?
   A) HashSet
   B) TreeSet
   C) LinkedHashSet
   D) PriorityQueue

10. What is the time complexity of adding an element to a LinkedList at a specific index?
    A) O(1)
    B) O(n)

C) O(log n)
D) O(n log n)

Question Paper 4

1. What is the purpose of the try-with-resources statement?
   A) To handle multiple exceptions
   B) To automatically close resources
   C) To create custom exceptions
   D) To improve performance
2. Which of the following is an unchecked exception?
   A) IOException
   B) SQLException
   C) NullPointerException
   D) ClassNotFoundException
3. What happens if an exception occurs in the finally block?
   A) It is ignored
   B) It overrides any exception in the try block
   C) It is caught by the catch block
   D) The program terminates
4. Which of the following is a best practice for creating custom exceptions?
   A) Always extend RuntimeException
   B) Use generic names for exceptions
   C) Include relevant information in the exception message
   D) Throw exceptions for all error scenarios
5. Which collection interface allows duplicate elements and maintains insertion order?
   A) Set
   B) List
   C) Map
   D) Queue
6. What is the difference between fail-fast and fail-safe iterators?
   A) Fail-fast iterators throw ConcurrentModificationException, fail-safe don't

B) Fail-safe iterators are faster than fail-fast
C) Fail-fast iterators are thread-safe, fail-safe aren't
D) There is no difference

7. Which method is used to get the number of elements in a collection?
   A) length()
   B) count()
   C) size()
   D) capacity()

8. What is the purpose of the Collections.unmodifiableList() method?
   A) To sort the list
   B) To create a read-only view of the list
   C) To remove duplicates from the list
   D) To reverse the order of the list

9. Which collection class provides guaranteed log(n) time cost for basic operations?
   A) ArrayList
   B) LinkedList
   C) TreeSet
   D) HashMap

10. What is the difference between Comparable and Comparator interfaces?
    A) Comparable is used for natural ordering, Comparator for custom ordering
    B) Comparable is external, Comparator is internal to the class
    C) Comparable can define multiple sort orders, Comparator can't
    D) There is no difference

Question Paper 5

1. Which of the following is true about the ArithmeticException?
   A) It is a checked exception
   B) It occurs when dividing by zero
   C) It must be caught or declared
   D) It is a subclass of IOException

2. What is the purpose of the 'assert' statement in Java?
   A) To handle exceptions
   B) To check assumptions about the program's state
   C) To create custom exceptions
   D) To define invariants

3. Which method of the Throwable class prints the exception details?
   A) getMessage()
   B) printStackTrace()
   C) toString()
   D) getStackTrace()

4. What is exception chaining in Java?
   A) Catching multiple exceptions in a single catch block
   B) Throwing an exception from a catch block
   C) Wrapping one exception inside another
   D) Using multiple try-catch blocks

5. Which collection interface represents a queue with double-ended operations?
   A) Queue
   B) Deque
   C) List
   D) Set

6. What is the purpose of the Collections.synchronizedList() method?
   A) To sort the list
   B) To create a thread-safe list
   C) To remove duplicates from the list
   D) To reverse the order of the list

7. Which of the following is not a valid implementation of Map interface?
   A) HashMap
   B) TreeMap
   C) LinkedHashMap
   D) ArrayList

8. What is the time complexity of removing an element from a HashSet?
   A) O(1)
   B) O(n)

C) O(log n)
D) O(n log n)

9. Which method is used to add all elements of one collection to another?
   A) addAll()
   B) putAll()
   C) appendAll()
   D) insertAll()

10. What is the purpose of the java.util.concurrent package?
    A) To provide thread-safe collection classes
    B) To implement sorting algorithms
    C) To handle exceptions
    D) To manage file I/O operations