MID TERM SAMPLE SP ’18

1. Which of these is an incorrect array declaration?

a) intarr[]=newint[5] b) int [] arr = new int[5]

c) int arr[] = new int[5] d) int arr[] = int [5] new

2. What will this code print?

int arr[] = new int [5];

System.out.print(arr[0]);

a) 0 b) value stored in arr[0] c) 00000 d) Class name@hashcode in hexadecimalform

3. What is the output of this program?

  class array\_output {

      public static void main(String args[])    {

          int array\_variable [] = new int[10];

   for (int i = 0; i < 10; ++i) {

              array\_variable[i] = i;

              System.out.print(array\_variable[i] + " ");

              i++;

          }

      }

  }

a) 0 2 4 6 8 b) 1 3 5 7 9 c) 0 1 2 3 4 5 6 7 8 9 d) 1 2 3 4 5 6 7 8 9 10

4. Look at the following code.

Integer myNumber = new Integer(5);

int var = myNumber;

What is true about the second statement?

a) The statement performs autoboxing.

b) It results in an error because you can’t assign a wrapper class to a primitive variable.

c) The statement performs unboxing.

d) The statement performs unwrapping.

5. Which is the valid declaration within an interface definition?

a) public double methoda(); b) public final double methoda();

c) static void methoda(double d1); d) protected void methoda(double d1);

6. True or False? A private base method can be overridden by some derived public method.

7. Which of these keywords is not a part of exception handling?

a) try b) finally c) thrown d) catch

8. What line of code should replace the missing statement to make this program compile?

/\* Missing Statement ? \*/  
public class foo   
{  
   public static void main(String[]args)throws Exception   
   {  
       java.io.PrintWriter out = new java.io.PrintWriter();   
       new java.io.OutputStreamWriter(System.out);   
       out.println("Hello");   
   }   
}

* 1. No statement required. b) import java.io.\*;

c) include java.io.\*; d) import java.io.PrintWriter;

9. The process of converting one date type to another is called\_\_\_\_\_\_\_\_\_\_.

1. Translating    b) Casting   c) Compiling    d) Declaring

10. Which of the following is the correct declaration statement in java program?

a) int num=int[5] b) int num=new num[5]

c) int[] num=new int[5] d) None

11. \_\_\_\_\_\_\_\_\_\_\_\_method is used to find the nth no. of character of given string s1.

1. 1.index(n) b) s1.substring(n) c) s1.length() d) s1.charAt(n)

12. Which of these can be overloaded?

a) Methods b) Constructors c) both a and b d) None can be overloaded

13. The concept of multiple inheritance is implemented in Java by?

I.   Extending two or more classes.

II.  Extending one class and implementing one or more interfaces.

III. Implementing two or more interfaces.

a) Only (II) b) (I) and (II) c) (II) and (III) d) Only (I) e) Only (III)

14. True or false? Private members of a class are inherited in the sub class.

15. True or false? A method of a super class with a default access modifier can be overridden as protected or public but not as private.

Anything you mark private you cannot override

16. What is the output of following linked list li?

ll.add("F");

ll.add("B");

ll.add("D");

ll.add("E");

ll.add("C");

ll.addLast("Z");

ll.addFirst("A");

ll.add(1, "A2");

a) [A, A2, F, B, D, E, C, Z] b) [ Z, C, E, D, B, F, A2, A]

c) [F, B, F, D, E, C, Z, A, 1 A2] d) [ A, 1 A2, F, B, D, E, C, Z]

17. What will be the output of the following program?

class X {

void method(int a) {

       System.out.println("ONE");

 }

 void method(double d)  {

       System.out.println("TWO");

 }

}

class Y extends X {

  @Override

 void method(double d) {

       System.out.println("THREE");

  }

}

public class MainClass {

   public static void main(String[] args)  {

       new Y().method(100);

   }

}

1. ONE b) TWO c) THREE d) ONE TWO e) Error
2. BECAUSE THE NUMBER PASSED IS AN INT

18. If a superclass does not have a default constructor,

a) then a class that inherits from it, must call one of the constructors that the superclass does have

b) then a class that inherits from it, must contain the default constructor for the superclass

c) then a class that inherits from it, does not inherit the data member fields from the superclass

d) then a class that inherits from it, must initialize the superclass values

19. The binary search algorithm

a) will cut the portion of the array being searched in half each time the loop fails to locate the search value

b) will have an average of N/2 comparisons, where N is the number of elements in the array

c) is less efficient than the sequential search algorithm

20. Which method correctly measures time to a billionth of a second.

a) nanoTimer() b) milliseconds() c) microseconds() d) nanoTime()

Coding and Definitions:

21. What are some differences between an ArrayList and a LinkedList?

22. What is the basic difference between the Comparable and Comparator interfaces?

23. What are some difference between Queue and Stack? How are implementation performed for each?

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

An interface is just a contract, nothing more than a pattern. The interface can't do anything.

An abstract class is actually a class that can have methods that do things. It is more costly because the is a to-do lookup with inheriting from them. You can define a behavior for them. This

25. Define Polymorphism? What are some of its abilities/usefulness?

Polymorphism is the ability of an object to take on many forms. The biggest benefit of polymorphism is that it allows for extensible programs. You can have an API which deals with base types, and requires no knowledge at the time of writing what extra types might be required in the future. But because the API uses polymorphism it means if I create a new class by extending an existing one or implementing an existing interface I know that my new object will work seamlessly with the existing API.

26. Name a minimum of 4 data types (2 primitive and 2 reference types) supported in java?

Primitive: boolean, byte, short, char, int, long, float, double

Reference Types: String, Integer, Double, Character

27. Code the sort method below to sort an arraylist in ascending order? (DO NOT USE ANY PRE DEFINED METHODS)

import java.util.ArrayList;

public class aListClass{

   public static void main(String[] args) {

        ArrayList<Integer> values = new ArrayList<>();

        values.add(1);

        values.add(41);

        values.add(3);

        sort(values);

        for (int i = 0; i < values.size(); i++)

            System.out.println(values.get(i));

    }

    public static void sort(ArrayList<Integer> aList) {

for(int i=0; i<aList.size()-1; i++) {

for(int x=0; x<aList.size()-1; x++) {

if (aList.get(x) > aList.get(x+1)){

int temp = aList.get(x);

aList.set(x, aList.get(x+1));

aList.set(x+1, temp);

}

}

}

aList.size()-1 must be there becausee size()works in 1-n

    }

}

28. Tracing the code! You have a queue with 10 integers Q = { 1, 2, 3, 4, 5, 6, 7, 8, 9, 10 }. The expected output is Q = { 1, 6, 2, 7, 3, 8, 4, 9, 5, 10 }. Fill in any blanks alongside comments where shown to show trace results of the stack or queue.

**public** **class** InterleavingElements {

**public** **static** **void** main(String[] args) {

Queue<Integer> q = **new** LinkedList<Integer>();

//Adding integers from 1 to 10

**for** (**int** i = 1; i <= 10; i++) {

q.add(i); //**1,2,3,4,5,6,7,8,9,10**

}

InterleavingElements ii = **new** InterleavingElements();

System.***out***.println("this is queue " + q.toString());

ii.InterchangingInterleaving(q);

System.***out***.println("this is queue " + q.toString());

}

**public** Queue<Integer> InterchangingInterleaving(Queue<Integer> q){

Stack<Integer> st = **new** Stack<Integer>();

**int** size = q.size()/2;

**for**(**int** i = 1; i <= size; i++){

st.push(q.remove()); S //**1,2,3,4,5**

Q //

}

**while**(!st.isEmpty()){

q.add(st.pop()); S //6,7,8,9,10,5,4,3,2,1

Q //

}

**for**(**int** i = 1; i <= size; i++){

q.add(q.remove()); S//**5,4,3,2,1,6,7,8,9,10**

Q

}

**for**(**int** i = 1; i <= size; i++){

st.push(q.remove()); S//**6,7,8,9,10**

Q

}

**while**(!st.isEmpty()){

q.add(st.pop()); //**1,2,3,4,5**

q.add(q.remove()); //6, 7, 8, 9, 10

}

**return** q;

}

29. Create and define a method called **popList** that gets passed an **arraylist** called list that will accept any numeric value type passed in. The method definition should assign 5 integers to the arraylist via a loop storing the values of 1,2,3,4 and 5 respectively.

public void number

30. A challenge! Finish the code below to draw a bar chart as displayed below, given the following **grades** array and **counter** array which holds the grade range totals being primarily in groups of 10.

00-09:

10-19:

20-29:

30-39:

40-49:

50-59:

60-69: \*\*

70-79: \*\*\*

80-89: \*\*

90-99: \*\*

100: \*

**int** grades[] = { 60, 70, 75, 100, 61, 83, 90, 89, 72, 91 };

**int** counter[] = **new** **int**[grades.length + 1];

**for** (**int** i = 0; i < grades.length; ++i) { // loop over entire array

// inspect each element and increment the index

// if the grade is in a certain range (ex. 0-9, 10-19…)

**if** (grades[i] == 100) // account for the odd ball {

counter[10]++;

**else**

counter[(grades[i] % 100) / 10]++;

}

// show the bar chart per the range above

String[] ranges = {"00-09: ", "10-19: ", "20-29: ", "30-39: ", "40-49: ",

"50-59: ", "60-69: ", "70-79: ", "80-89: ", "90-99: ", "100: " };

// show the bar chart per the range above

for(int i =0; i<=10; i++) {

if (counter[i]!=0) {

System.out.print(ranges[i]);

int num = counter[i];

while (num !=0) {

System.out.print("\*");

num--;

}

System.out.print("\n");

}else {

System.out.println(ranges[i]);

}