90 Minute(s)

(40 Questions)

Instructions

Answer as much as you can the full mark will be obtained for the correct answer of 40 questions

Question 1:

Score : 1/ 1

```
What is the value of tip after executing the following code snippet? int meal = 5;
int tip = 2; var total = meal + (meal>6 ? tip++ : tip--);
```

- [x] 1
- [ ] 2
- [ ] 3
- [ ] 7
- [ ] None of the above

Question 2:

Score : 0/ 1

What variable type of red allows the following application to compile?

```
package tornado;
public class Kansas {
public static void main(String[] args) {
int colorOfRainbow = 10;
red = 5;
switch(colorOfRainbow) {
default:
System.out.print("Home");
break;
case red:
System.out.print("Away");
}
}
}
```

- ( ) long

- double
- int
- String
- None of the above

Question 3:

Score : 0.5/ 1

Which of the following are correct? (Choose two.) public class Phone { private int size; // insert constructor here public static void sendHome(Phone p, int newSize) { p = new Phone(newSize); p.size = 4; } public static final void main(String... params) { final var phone = new Phone(3); sendHome(phone,7); System.out.print(phone.size); } }

- [ ] The following is a valid constructor: public static Phone create(int size) { return new Phone(size); }
- [ ] The following is a valid constructor: public static Phone newInstance(int size) { return new Phone(); }
- [x] The following is a valid constructor: public Phone(int size) { this.size=size; }
- [x] The following is a valid constructor: public void Phone(int size) { this.size=size; }
- [ ] With the correct constructor, the output is 3.

Question 4:

Score : 0/ 1

What is the output of the following code snippet? int count = 0; var stops = new String[] { "Washington", "Monroe", "Jackson", "LaSalle" }; while (count < stops.length) if (stops[++count].length() < 8) break; else continue; System.out.println(count);

- 0
- 1
- 2
- 3

None of the above.

Question 5:

Score : 0/ 1

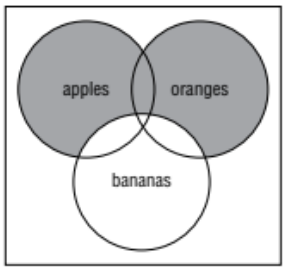
Consider the following class: 1. public class Test { 2. public static <T> int count(T[] array, T elem) { 3. int count = 0; 4. for (T e : array) 5. if(e.compareTo(elem) > 0) ++count; 6. 7. return count; 8. } 9. public static void main(String[] args) { 10. Integer[] a = {1,2,3,4,5}; 11. int n = Test.<Integer>count(a, 3); 12. System.out.println(n); 13. } 14. } What will be the result?

- [ ] 2
- [ ] 3
- [ ] The code will not compile because of line 5.
- [x] An exception is thrown.
- [ ] None of Above.

Question 6:

Score : 0/ 1

Given the following Venn diagram and the boolean variables, apples, oranges, and bananas, which expression most closely represents the filled-in region of the diagram?



- [x] `apples && oranges && !bananas`
- [ ] `orange || (oranges && !bananas)`
- [ ] `(apples || bananas) && oranges`
- [x] `oranges && apples`
- [ ] `(apples || oranges) && !bananas`

Question 7:

Score : 1/ 1

What is the output of the following application?

```
package dinosaur;
public class Park {
public final static void main(String... arguments) {
int pterodactyl = 8;
long triceratops = 3;
if(pterodactyl % 3 > 1 + 1)
triceratops++;
triceratops--;
System.out.print(triceratops);
}
}
```

- (●) 2
- ( ) 3
- ( ) 4
- ( ) The code does not compile.
- ( ) The code compiles but throws an exception at runtime.

Question 8:

Score : 0/ 1

How many lines of text does the following program print?

```
package lighting;
import java.io.IOException;
public class Light {
public static void main(String[] v) throws Exception {
try {
new Light().turnOn();
} catch (RuntimeException v) { // y1
System.out.println(v);
throw new IOException(); // y2
} finally {
System.out.println("complete");
}
}
public void turnOn() throws IOException {
```

```
new IOException("Not ready"); // y3
}
}
```

- One.
- Two.
- The code does not compile because of line y1.
- The code does not compile because of line y2.
- The code does not compile because of line y3.

Question 9:

Score : 1/ 1

```
Given the following code, which option, if used to replace /* INSERT CODE HERE */, will make the code print 1? (Select 1 option.) try { String[][] names = {{"Andre", "Mike"}, null, {"Pedro"}}; System.out.println (names[2][1].substring(0, 2)); } catch (/*INSERT CODE HERE*/) { System.out.println(1); }
```

- IndexPositionException e
- a) NullPointerException e
- a) ArrayIndexOutOfBoundsException e
- a) ArrayOutOfBoundsException e

Question 10:

Score : 0/ 1

```
What is output by the following? 10: int m = 0, n = 0; 11: while (m < 5) { 12: n++; 13: if (m == 3) 14: continue; 15: 16: switch (m) { 17: case 0: 18: case 1: 19: n++; 20: default: 21: n++; 22: } 23: m++; 24: } 25: System.out.println(m + " " + n);
```

- 3 10
- 5 10
- 5 12
- The code does not compile.
- None of the above.

Question 11:

Score : 0/ 1

```
What is the output of the following application? package transporter; public class Rematerialize { public static void main(String[] input) { int init = 11; int split = 3; int partA = init / split; int partB = init % split; int result = split * (partB + partA); System.out.print(result); } }
```

- 9
- 11
- 12
- 15
- None of the above.

Question 12:

Score : 1/ 1

```
Which of the following statements compile and create infinite loops at runtime? (Choose all that apply.)
```

- [x] `while (!false) {}`
- [x] `do {}`
- [ ] `for( : ) {}`
- [x] `do {} while (true);`
- [x] `for( ; ; ) {}`

Question 13:

Score : 1/ 1

```
What best describes a reduction?
```

- A source operation that creates a small value
- An intermediate operation where it filters the stream it receives
- An intermediate operation where it mathematically divides each element in the stream

- (●) A terminal operation where a single value is generated by reading each element in the prior step in a stream pipeline
- ( ) A terminal operation where one element is returned from the prior step in a stream pipeline without reading all the elements

Question 14:

Score : 0.5/ 1

`Which of the following can replace the body of the perform() method to produce the same output on any nonempty input? (Choose two.) public void perform(String[] circus) { for (int i=circus.length-1; i>=0; i--) System.out.print(circus[i]); }`

- [x] `for (int i=circus.length; i>0; i--) System.out.print(circus[i-1]);`
- [ ] `for-reversed (String c = circus) System.out.print(c);`
- [x] `for (var c : circus) System.out.print(c);`
- [ ] `for(var i=0; i<circus.length; i++) System.out.print(circus[circus.length-i-1]);`
- [ ] `for (int i=circus.length; i>0; i--) System.out.print(circus[i+1]);`

Question 15:

Score : 1/ 1

`What is the output of the following? var teams = new String("694"); teams.concat("1155"); teams.concat(" 2265"); teams.concat(" 2869"); System.out.println(teams);`

- (●) 694
- ( ) 694 1155 2265 2869
- ( ) The code compiles but outputs something else.
- ( ) The code does not compile.

Question 16:

Score : 0/ 1

`Which fills in the blank so the code is guaranteed to print 1? var stream = Stream.of(1, 2, 3); System.out.println(stream._____);`

- ( ) anyMatch()
- ( ) findAny()

- [x] first()
- [ ] min()
- [ ] None of the above

Question 17:

Score : 1/ 1

What is the output of the following?

```
var teams = new StringBuilder("333");
teams.append(" 806");
teams.append(" 1601");
System.out.print(teams);
```

- [x] 333
- [x] 333 886 1601
- [ ] The code compiles but outputs something else.
- [ ] The code does not compile.

Question 18:

Score : 0/ 1

How many of these compile?

```
18: Comparator<String> c1 = (j, k) -> 0;
19: Comparator<String> c2 = (String j, String k) -> 0;
20: Comparator<String> c3 = (var j, String k) -> 0;
21: Comparator<String> c4 = (var j, k) -> 0;
22: Comparator<String> c5 = (var j, var k) -> 0;
```

- [ ] 0
- [ ] 1
- [ ] 2
- [ ] 3
- [x] 4

Question 19:

Score : 0/ 1

What does this code output?

```
var babies = Arrays.asList("chick", "cygnet", "duckling");
babies.replaceAll(x -> { var newValue = "baby";
return newValue; });
System.out.println(babies);
```

- [ ] [baby]
- [ ] [baby, baby, baby]
- [ ] [chick, cygnet, duckling]
- [ ] None of the above.
- [x] The code does not compile.

Question 20:

Score : 1/ 1

```
Given the following class: 1. class Singleton { 2. private int count = 0; 3. priva
te Singleton(){}; 4. public static final Singleton getInstance(){ return new Singl
eton(); }; 5. public void add(int i){ count+=i; }; 6. public int getCount(){ retur
n count;}; 7. } 8. 9. public class Program { 10. public static void main(String[]
args) { 11. Singleton s1 = Singleton.getInstance(); 12. s1.add(3); 13. Singleton s
2 = Singleton.getInstance(); 14. s2.add(2); 15. Singleton s3 = Singleton.getInstan
ce(); 16. s2.add(1); 17. System.out.println(s1.getCount()+s2.getCount()+s3.getCoun
t()); 18. } 19. } What will be the result?
```

- [ ] 18
- [ ] 7
- [x] 6
- [ ] The code will not compile.
- [ ] None of above

Question 21:

Score : 1/ 1

```
The author of this method forgot to include the data type. Which of the following reference types can best fill in the blank to complete this method? public static void secret(___________ mystery) { char ch = mystery.charAt(3); mystery = mystery.insert(1, "more"); int num = mystery.length(); }
```

- String
- StringBuilder
- Both
- Neither

Question 22:

Score : 0/ 1

```
What is the output of the following? class Magazine { private String name; public Magazine(String name) { this.name = name; } public int compareTo(Magazine m) { return name.compareTo(m.name); } public String toString() { return name; } } public class Newsstand { public static void main(String[] args) { var set = new TreeSet<Magazine>(); set.add(new Magazine("highlights")); set.add(new Magazine("Newsweek")); set.add(new Magazine("highlights")); System.out.println(set.iterator().next()); } }
```

- `highlights`
- `Newsweek`
- `null`
- `The code does not compile.`
- `The code compiles but throws an exception at runtime.`

Question 23:

Score : 0/ 1

Given the following code snippet, what is the value of dinner after it is executed?

```
int time = 9;
int day = 3;
var dinner = ++time >= 10 ? day-- <= 2
? "Takeout" : "Salad" : "Leftovers";
```

- Takeout
- Leftovers

- Salad
- The code does not compile but would compile if parentheses were added.
- None of the above.

Question 24:

Score : 0/ 1

`What is the output of the Turnip class? package animal; interface GameItem { int sell(); } abstract class Vegetable implements GameItem { public final int sell() { return 5; } } public class Turnip extends Vegetable { public final int sell() { return 3; } public static void main(String[] expensive) { System.out.print(new Turnip().sell()); } }`

- (selected) 3
- 5
- The code does not compile.
- The code compiles but throws an exception at runtime.
- None of the above.

Question 25:

Score : 0.5/ 1

`Which of the following modifiers can be applied to an abstract method?`

- [ ] `final`
- [ ] `private`
- [x] `public`
- [x] `default`
- [ ] `protected`

Question 26:

Score : 1/ 1

`When working with a Stream<String>, which of these types can be returned from the collect() terminal operator by passing arguments to Collectors.groupingBy()?`

- Only Map<Boolean, HashSet<String>>
- Only Map<Integer, List<String>>
- Both Map<Boolean, HashSet<String>> and Map<Integer, List<String>>
- Only List<Integer>
- Both List<Integer> and List<String>

Question 27:

Score : 0/ 1

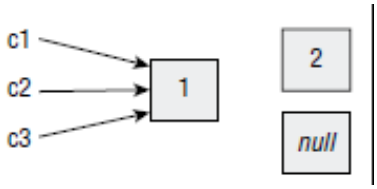
```
What is the output of the following class? 1: package rocket; 2: public class Coun
tdown { 3: public static void main(String[] args) { 4: var builder = new StringBui
lder("54321"); 5: builder.substring(2); 6: System.out.println(builder.charAt(1));
7: } 8: }
```

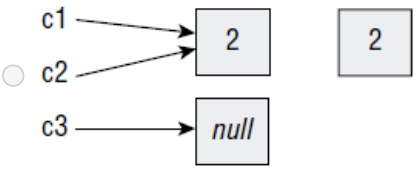
- 1
- 2
- 3
- 4
- Does not compile

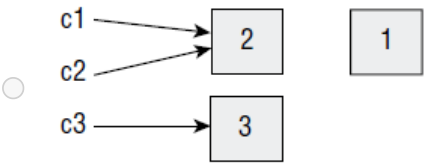
Question 28:

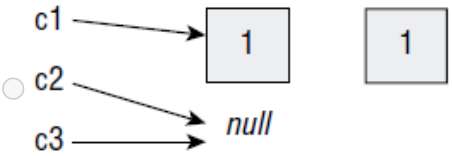
Score : 0/ 1

```
Suppose you have the following code. Which of the images best represents the state
of the references c1, c2, and c3, right before the end of the main() method, assum
ing garbage collection hasn’t run? In the diagrams, each box represents a Chicken
object with a number of eggs. 1: public class Chicken { 2: private Integer eggs =
2; 3: { this.eggs = 3; } 4: public Chicken(int eggs) { 5: this.eggs = eggs; 6: }
7: public static void main(String[] r) { 8: var c1 = new Chicken(1); 9: var c2 = n
ew Chicken(2); 10: var c3 = new Chicken(3); 11: c1.eggs = c2.eggs; 12: c2 = c1; 1
3: c3.eggs = null; 14: } }
```









Question 29:

Score : 0/ 1

```
What does the following output? var list = new ArrayList<String>(); list.add("Austin"); list.add("Boston"); list.add("San Francisco"); var c = list.stream() .filter(a -> a.length() > 10) // line x .count(); System.out.println(c + " " + list.size());
```

- 1 1
- 1 3
- 2 3
- The code does not compile due to line x.
- None of the above.

Question 30:

Score : 0/ 1

```
What is the output of the following application? package dessert; public class IceCream { public final static void main(String... args) { var flavors = 30; int eaten = 0; switch(flavors) { case 30: eaten++; case 40: eaten+=2; default: eaten--; } System.out.print(eaten); } }
```

- 1
- 2
- 3

- [x] The code does not compile because var cannot be used in a switch statement.
- [ ] The code does not compile for another reason.

Question 31:

Score : 1/ 1

```
What is the output of the following application? package dnd; final class Story {
void recite(int chapter) throws Exception {} } public class Adventure extends Stor
y { final void recite(final int chapter) { // g1 switch(chapter) { // g2 case 2: S
ystem.out.print(9); default: System.out.print(3); } } public static void main(Stri
ng... u) { var bedtime = new Adventure(); bedtime.recite(2); } }
```

- [ ] 3
- [ ] 9
- [ ] The code does not compile because of line g1.
- [ ] The code does not compile because of line g2.
- [x] None of the above.

Question 32:

Score : 0/ 1

Which of the following are not valid variable names?

- [x] _
- [x] _blue
- [ ] 2blue
- [ ] blue$
- [x] Blue

Question 33:

Score : 1/ 1

What is the output of the following application?
package ai;
interface Pump {

```
void pump(double psi);
}
interface Bend extends Pump {
void bend(double tensileStrength);
}
public class Robot {
public static final void apply(
Bend instruction, double input) {
instruction.bend(input);
}
public static void main(String... future) {
final Robot r = new Robot();
r.apply(x -> System.out.print(x+" bent!"), 5);
}
}
```

- 5 bent!
- 5.0 bent!
- The code does not compile because Bend is not a functional interface.
- The code does not compile because of the apply() method declaration.
- None of the above.

Question 34:

Score : 1/ 1

`Which of the following iterates a different number of times than the others?`

- `for (int k=0; k < 5; k++) {}`
- `for (int k=1; k <= 5; k++) {}`
- `int k=0; do { } while(k++ < 5);`
- `int k=0; while (k++ < 5) {}`
- `All of these iterate the same number of times.`

Question 35:

Score : 1/ 1

What is the output of the following code? public class Sales { public static void main(String args[]) { int salesPhone = 1; System.out.println(salesPhone++ + ++salesPhone + ++salesPhone); } }

- [ ] 5
- [ ] 6
- [x] 8
- [ ] 9

Question 36:

Score : 0/ 1

What is the output of the following application? package musical; interface Speak { default int talk() { return 7; } } interface Sing { default int talk() { return 5; } } public class Performance implements Speak, Sing { public int talk(String... x) { return x.length; } public static void main(String[] notes) { System.out.print(new Performance().talk()); } }

- [x] 7
- [ ] 5
- [ ] The code does not compile
- [ ] The code compiles without issue, but the output cannot be determined until runtime.
- [ ] None of the above.

Question 37:

Score : 0/ 1

The code contains six pairs of curly braces. How many pairs can be removed without changing the behavior? 12: public static void main(String[] args) { 13: int secret = 0; 14: for (int i = 0; i < 10; i++) { 15: while (i < 10) { 16: if (i == 5) { 17: System.out.println("if"); 18: } else { 19: System.out.println("in"); 20: System.out.println("else"); 21: } 22: } 23: } 24: switch (secret) { 25: case 0: System.out.println("zero"); 26: } 27: }

- [ ] One
- [x] Two
- [ ] Three

- Four
- Five

Question 38:

Score : 1/ 1

We are running a library. Patrons select books by name. They get at the back of the checkout line. When they get to the front, they scan the book's ISBN, a unique identification number. The checkout system finds the book based on this number and marks the book as checked out. Of these choices, which data structures best represent the line to check out the book and the book lookup to mark it as checked out, respectively?

- `ArrayList, HashSet`
- `ArrayList, TreeMap`
- `ArrayList, TreeSet`
- `LinkedList, HashSet`
- `LinkedList, TreeMap`

Question 39:

Score : 1/ 1

What is the output of the following application? public class Airplane { static int start = 2; final int end; public Airplane(int x) { x = 4; end = x; } public void fly(int distance) { System.out.print(end-start+" "); System.out.print(distance); } public static void main(String... start) { new Airplane(10).fly(5); } }

- 2 5
- 8 5
- 6 5
- The code does not compile.
- None of the above.

Question 40:

Score : 1/ 1

What is the output of the following code snippet? `int height = 2, length = 3; boolean w = height > 1 | --length < 4; var x = height!=2 ? length++ : height; boolean z = height % length == 0; System.out.println(w + "-" + x + "-" + z);`

- (selected) true-2-true
- false-2-false
- true-2-false
- true-3-false
- true-3-true