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Object-based Programming

Week 7 – Problems Exercise

Question #1

https://bit.ly/3B2zJrL

Which of the following are valid Java identifiers?
(Choose all that apply)

a) A$B

b) _helloWorld

c) true

d) java.lang

e) Public

f) 1980_s

Question #1 - Answer

Which of the following are valid Java identifiers?
(Choose all that apply)

a) A$B

b) _helloWorld

c) true

d) java.lang

e) Public

f) 1980_s

Question #2

https://bit.ly/3B2zJrL

Which of the following are true?

a) Line 4 generates a compiler error
b) Line 5 generates a compiler error
c) Line 6 generates a compiler error
d) Line 7 generates a compiler error
e) Line 8 generates a compiler error

```
4.   short numPets = 5;
5.   int numGrains = 5.6;
6.   String name = “Scruffy”;
7.   numPets.length();
8.   numGrains.length();
9.   name.length();
```

Question #2 - Answer

Which of the following are true?

a) Line 4 generates a compiler error
b) Line 5 generates a compiler error
c) Line 6 generates a compiler error
d) Line 7 generates a compiler error
e) Line 8 generates a compiler error

```
4.   short numPets = 5;
5.   int numGrains = 5.6;
6.   String name = “Scruffy”;
7.   numPets.length();
8.   numGrains.length();
9.   name.length();
```

Question #3

https://bit.ly/3B2zJrL

What is the result of the following class?

a) Compiler error on line 1
b) Compiler error on line 2
c) Compiler error on line 4
d) Compiler error on line 5
e) Compiler error on line 6

```
[1]     public class _C {
[2]         private static int $;
[3]         public static void main(String[] args) {
[4]             String a_b;
[5]             System.out.print($);
[6]             System.out.print(a_b);
[7]         }
[8]     }
```

Question #3 - Answer

What is the result of the following class?

a) Compiler error on line 1
b) Compiler error on line 2
c) Compiler error on line 4
d) Compiler error on line 5
e) Compiler error on line 6

```
[1]     public class _C {
[2]         private static int $;
[3]         public static void main(String[] args) {
[4]             String a_b;
[5]             System.out.print($);
[6]             System.out.print(a_b);
[7]         }
[8]     }
```

Option E is correct because local variables require assignment before referencing them.

If `a_b` was an instance variable (class variable), the code would compile and output `0null`.

Question #4

https://bit.ly/3B2zJrL

What is the output of the following code?

a) Compiler error on line 3
b) Compiler error on line 5
c) Compiler error on line 7
d) 2
e) 4

```
1.  interface HasTail { int getTailLength(); }
2.  abstract class Puma implements HasTail {
3.     protected int getTailLength() { return 4; }
4.  }
5.  public class Cougar extends Puma {
6.     public static void main(String[] args) {
7.        Puma puma = new Puma();
8.        System.out.println(puma.getTailLength());
9.     }
10.    public int getTailLength(int length) {
11.       return 2;
12.    }
13. }
```

Question #4 - Answer

What is the output of the following code?

a) Compiler error on line 3

b) Compiler error on line 5

c) Compiler error on line 7

d) 2

e) 4

```
1.    interface HasTail { int getTailLength(); }
2.    abstract class Puma implements HasTail {
3.       protected int getTailLength() { return 4; }
4.    }
5.    public class Cougar extends Puma {
6.       public static void main(String[] args) {
7.          Puma puma = new Puma();
8.          System.out.println(puma.getTailLength());
9.       }
10.      public int getTailLength(int length) {
11.         return 2;
12.      }
13.   }
```

The method `getTailLength()` in the interface is assumed to be `public` (part of an interface). The implementation of the method on line 3 is therefore an invalid override.

So, the class `Cougar` should implements public version of the method. Thus, line 5 is invalid.

Option E is incorrect, since `Puma` is marked abstract and cannot be instantiated.

Question #5

https://bit.ly/3B2zJrL

What is the output of the following program?

a) 4

b) 5

c) 6

d) 7

e) 13

```
1.    public class FeedingSchedule {
2.       public static void main(String[] args) {
3.          boolean keepGoing = true;
4.          int count = 0;
5.          int x = 3;
6.          while (count++ < 3) {
7.             int y = (1 + 2 * count) % 3;
8.             switch (y) {
9.                default:
10.                case 0: x -= 1; break;
11.                case 1: x += 5;
12.            }
13.         }
14.         System.out.println(x);
15.   } }
```

Question #5 - Answers

What is the output of the following program?

a) 4

b) 5

c) 6

d) 7

e) 13

```
1.    public class FeedingSchedule {
2.       public static void main(String[] args) {
3.          boolean keepGoing = true;
4.          int count = 0;
5.          int x = 3;
6.          while (count++ < 3) {
7.             int y = (1 + 2 * count) % 3;
8.             switch (y) {
9.                default:
10.                case 0: x -= 1; break;
11.                case 1: x += 5;
12.            }
13.         }
14.         System.out.println(x);
15.   } }
```

Question #6

https://bit.ly/3B2zJrL

What is the output of the following code snippet?

a) abe

b) abce

c) abde

d) abcde

e) The code does not compile

```
1.    System.out.print(“a”);
2.    try {
3.       System.out.print(“b”);
4.       throw new IllegalArgumentException();
5.    } catch (RuntimeException e) {
6.       System.out.print(“c”);
7.    } finally {
8.       System.out.print(“d”);
9.    }
10.   System.out.print(“e”);
```

Question #6 - Answers

What is the output of the following code snippet?

a) abe

b) abce

c) abde

d) abcde

e) The code does not compile

```
1.    System.out.print(“a”);
2.    try {
3.       System.out.print(“b”);
4.       throw new IllegalArgumentException();
5.    } catch (RuntimeException e) {
6.       System.out.print(“c”);
7.    } finally {
8.       System.out.print(“d”);
9.    }
10.   System.out.print(“e”);
```

Question #7

https://bit.ly/3B2zJrL

What is the result of the following code?

a) [8]

b) [9]

c) Something like [Ljava.lang.String;@160bc7c0]

d) An exception is thrown

e) The code does not compile

```
1.    int[] array = {6, 9, 8};
2.    List<Integer> list = new ArrayList<>();
3.    list.add(array[0]);
4.    list.add(array[2]);
5.    list.set(1, array[1]);
6.    list.remove(0);
7.    System.out.println(list);
```

Question #7 - Answer

What is the result of the following code?

a) [8]

b) [9]

c) Something like [Ljava.lang.String;@160bc7c0]

d) An exception is thrown

e) The code does not compile

```
1.    int[] array = {6, 9, 8};
2.    List<Integer> list = new ArrayList<>();
3.    list.add(array[0]);
4.    list.add(array[2]);
5.    list.set(1, array[1]);
6.    list.remove(0);
7.    System.out.println(list);
```

Question #8

https://bit.ly/3B2zJrL

Given the following class, which of the following is true? (Choose all that apply)

a) If `String result = "done";` is inserted on line 2, the code will compile

b) If `String result = "done";` is inserted on line 4, the code will compile

c) If `String result = "done";` is inserted on line 6, the code will compile

d) If `String result = "done";` is inserted on line 9, the code will compile

e) None of the above changes will make the code compile

```
1.    public class Snake {
2.
3.       public void shed(boolean time) {
4.
5.          if (time) {
6.
7.          }
8.          System.out.println(result);
9.
10.      }
11.   }
```

Question #8 - Answer

Given the following class, which of the following is true? (Choose all that apply)

a) If `String result = "done";` is inserted on line 2, the code will compile

b) If `String result = "done";` is inserted on line 4, the code will compile

c) If `String result = "done";` is inserted on line 6, the code will compile

d) If `String result = "done";` is inserted on line 9, the code will compile

e) None of the above changes will make the code compile

```
1.    public class Snake {
2.
3.        public void shed(boolean time) {
4.
5.            if (time) {
6.
7.            }
8.            System.out.println(result);
9.
10.       }
11.   }
```

Question #9

https://bit.ly/3B2zJrL

Which of the following are true? (Choose all that apply)

```
public class Bunny {
    public static void main(String[] args) {
        Bunny bun = new Bunny();
    }
}
```

a) Bunny is a class
b) bun is a class
c) main is a class
d) Bunny is a reference to an object
e) bun is a reference to an object

Question #9 - Answer

Which of the following are true? (Choose all that apply)

```
public class Bunny {
    public static void main(String[] args) {
        Bunny bun = new Bunny();
    }
}
```

a) Bunny is a class
b) bun is a class
c) main is a class
d) Bunny is a reference to an object
e) bun is a reference to an object

Question #10

https://bit.ly/3B2zJrL

Which of the following Java operators can be used with boolean variables? (Choose all that apply)

a) ==

b) +

c) --

d) !

e) %

Question #10 - Answer

Which of the following Java operators can be used with boolean variables? (Choose all that apply)

a) ==

b) +

c) --

d) !

e) %

Question #11

https://bit.ly/3B2zJrL

What is the output of the following code?

```
public class ArithmeticSample {
    public static void main(String[] args) {
        int x = 5 * 4 % 3;
        System.out.println(x);
    }
}
```

a) 2
b) 3
c) 5
d) 6
e) The code will not compile

Question #11 - Answer

What is the output of the following code?

```
public class ArithmeticSample {
    public static void main(String[] args) {
        int x = 5 * 4 % 3;
        System.out.println(x);
    }
}
```

a) 2
b) 3
c) 5
d) 6
e) The code will not compile

Question #12

https://bit.ly/3B2zJrL

Which of the following methods compile? (Choose all that apply)

a) `public void methodA() { return; }`

b) `public void methodB() { return null; }`

c) `public void methodC() { }`

d) `public int methodD()  { return 9; }`

e) `public int methodE    { return 9.0; }`

Question #12 - Answer

Which of the following methods compile? (Choose all that apply)

a) `public void methodA() { return; }`

b) `public void methodB() { return null; }`

c) `public void methodC() { }`

d) `public int methodD()  { return 9; }`

e) `public int methodE    { return 9.0; }`

References

- Herbert Schildt. Java The Complete Reference.