

<b>Started on</b>	Monday, 15 February 2021, 5:49 PM
<b>State</b>	Finished
<b>Completed on</b>	Monday, 15 February 2021, 6:10 PM
<b>Time taken</b>	20 mins 18 secs
<b>Marks</b>	8.00/10.00
<b>Grade</b>	<b>80.00</b> out of 100.00

## Question 1

Incorrect

Mark 0.00 out of  
1.00

How many final modifiers would need to be removed for this application to compile?

```
package end;
```

```
public final class Games {  
    public final static int finish(final int score) {  
        final int win = 3;  
        final int result = score++ < 5 ? 2 : win;  
        return result+=win;  
    }  
    public static void main(final String[] v) {  
        System.out.print(finish(Integer.parseInt(v[0])));  
    }  
}
```

Select one:

- ☐ a. None
- ☒ b. One



- ☐ c. Two
- ☐ d. The code will not compile regardless of the number of final modifiers that are removed.

The correct answer is: Two

## Question 2

Correct

Mark 1.00 out of 1.00

Which line of code, inserted at line p1, causes the application to print 5?

```
package games;

public class Jump {
    private int rope = 1;
    protected boolean outside;
    public Jump() {
        // p1
        outside = true;
    }
    public Jump(int rope) {
        this.rope = outside ? rope : rope+1;
    }
    public static void main(String[] bounce) {
        System.out.print(new Jump().rope);
    }
}
```

Select one:

☒ a. **this(4);**



First off, all of the lines compile but they produce various different results. Remember that the default initialization of a boolean instance variable is false, making outside false at line p1. Therefore, this(4) will cause rope to be set to

5,  
while this(5) will cause rope to be set to 6. Since 5 is the number we are looking for,  
Option A is correct, and Option C is incorrect. Option B is incorrect. While the statement does create a new instance of Jump, with rope having a value of 5, that  
instance is nested and the value of rope does not affect the surrounding instance of  
Jump that the constructor was called in. Option D is also incorrect. The value assigned  
to rope is 4, not the target 5.

- ☐ **b. new Jump(4);**
- ☐ **c. this(5);**
- ☐ **d. rope = 4;**

The correct answer is: this(4);

### Question 3

Correct

Mark 1.00 out of 1.00

In a paged memory, the page hit ratio is 0.40. The time required to access a page in secondary memory is equal to 120 ns. The time required to access a page in primary memory is 15 ns. The average time required to access a page is \_\_\_\_\_.

Select one:

- ☐ a. 75
- ☐ b. 68
- ☒ c. 78



Average access time = hit ratio \* primary memory access time + (1 – hit ratio) \* secondary memory access time

Average access time =  $0.4 * 15 + 0.6 * 120$

Average access time =  $6 + 72$

Average access time = 78.

So, option (D) is correct.

- ☐ d. 105

The correct answer is: 78

## Question 4

Correct

Mark 1.00 out of  
1.00

The first address in a range of addresses is 14.11.45.96. If the number of addresses in the range is 32, what is the last address?

Select one:

- ☐ a. 14.11.44.64
- ☒ b. 14.11.45.127



Last Address =  $(14.11.45.96 + 0.0.0.31)_{256} = 14.11.45.127$ .

- ☐ c. 14.11.44.128
- ☐ d. 14.12.44.128

The correct answer is: 14.11.45.127

## Question 5

Correct

Mark 1.00 out of  
1.00

Given the class below, which method signature could be successfully added to the class as an overloaded version of the findAverage() method?

```
public class Calculations {  
    public Integer findAverage(int sum) { return sum; }  
}
```

Select one:

- ☐ a. **public Long findAverage(int sum)**
- ☒ b. **public Long findAverage(int sum, int divisor)**



Options A and D would not allow the class to compile because two methods in the class cannot have the same name and arguments, but a different return value. Option C would allow the class to compile, but it is not a valid overloaded form of our findAverage() method since it uses a different method name. Option B is a valid overloaded version of the findAverage() method, since the name is the same but the argument list differs.

- ☐ c. **public Integer average(int sum)**
- ☐ d. **private void findAverage(int sum)**

The correct answer is: public Long findAverage(int sum, int divisor)



## Question 6

Correct

Mark 1.00 out of  
1.00

What is a possible output of the following application?

```
package wrap;
```

```
public class Gift {  
    private final Object contents;  
    protected Object getContents() {  
        return contents;  
    }  
    protected void setContents(Object contents) {  
        this.contents = contents;  
    }  
    public void showPresent() {  
        System.out.print("Your gift: "+contents);  
    }  
    public static void main(String[] treats) {  
        Gift gift = new Gift();  
        gift.setContents(gift);  
        gift.showPresent();  
    }  
}
```

Select one:

- ☐ a. Your gift: wrap.Gift@29ca2745
- ☐ b. Your gift: Your gift:

☒ **c. It does not compile.**



The code contains a compilation problem in regard to the contents instance variable. The contents instance variable is marked final, but there is a `setContents()` instance method that can change the value of the variable. Since these two are incompatible, the code does not compile, and Option C is correct. If the final modifier was removed from the contents variable declaration, then the expected output would be of the form shown in Option A.

☐ **d. It compiles but throws an exception at runtime.**

The correct answer is: It does not compile.

## Question 7

Correct

Mark 1.00 out of  
1.00

Find the number of addresses in a range if the first address is 146.102.29.0 and last address is 146.102.32.255.

Select one:

- ☐ a. 578
- ☐ b. 512
- ☐ c. 1028
- ☒ d. 1024



Explanation: Subtract the first address from the last address in base 256.

The result = 0.0.3.255

Therefore, number of addresses =  $(3 \times 256 + 255) + 1 = 1024$ .

The correct answer is: 1024

## Question 8

Correct

Mark 1.00 out of  
1.00

An address in a block is given as 180.8.17.9. Find the number of addresses in the block, the first address, and the last address. Address of the block is –

Select one:

- ☐ a.  $2^{24}$
- ☐ b.  $2^8$
- ☐ c.  $2^{14}$
- ☒ d.  $2^{16}$



Since 180 is between 128 and 191, it is class B address  $n=16$ .  
 $N = 2(32-n) = 2^{16} = 65,536$ .

The correct answer is:  $2^{16}$

## Question 9

Correct

Mark 1.00 out of  
1.00

What is the correct process for the TCP three-way handshake connection establishment and connection termination?

Select one:

- ☐ a. **Connection Establishment: ACK, ACK-SYN, SYN Connection Termination: FIN, ACK-FIN, ACK**
  - ☒ b. **Connection Establishment: SYN, SYN-ACK, ACK Connection Termination: FIN, ACK-FIN, ACK**
  - ☐ c. **Connection Establishment: FIN, ACK-FIN, ACK Connection Termination: SYN, SYN-ACK, ACK**
  - ☐ d. **Connection Establishment: SYN, SYN-ACK, ACK Connection Termination: ACK, ACK-SYN, SYN**
- 

The correct answer is: Connection Establishment: SYN, SYN-ACK, ACK  
Connection Termination: FIN, ACK-FIN, ACK

## Question 10

Incorrect

Mark 0.00 out of  
1.00

'm' processes share 'n' resources of the same type. The maximum need of each process doesn't exceed 'n' and the sum of all their maximum needs is always less than  $m+n$ . In this setup, deadlock \_\_\_\_\_

Select one:

☒ a. may occur



☐ b. none of the mentioned

☐ c. has to occur

☐ d. can never occur

The correct answer is: can never occur