Started on	Thursday, 4 February 2021, 5:15 PM
State	Finished
Completed on	Thursday, 4 February 2021, 5:42 PM
Time taken	27 mins 12 secs
Marks	6.00/10.00
Grade	**60.00** out of 100.00

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

1: public class Rope {

2: public static void swing() {

3: System.out.print("swing ");

4: }

5: public void climb() {

6: System.out.println("climb ");

7: }

8: public static void play() {

9: swing();

10: climb();

11: }

12: public static void main(String[] args) {

13: Rope rope = new Rope();

14: rope.play();

15: Rope rope2 = null;

16: rope2.play();

17: }

18: }

Select one or more:

☐ a. If the lines with compiler errors are removed, the output is swing swing.

☐ b. There are exactly two compiler errors in the code.

c. There is exactly one compiler error in the code.

Line 10 does not compile because static methods are not allowed to call instance
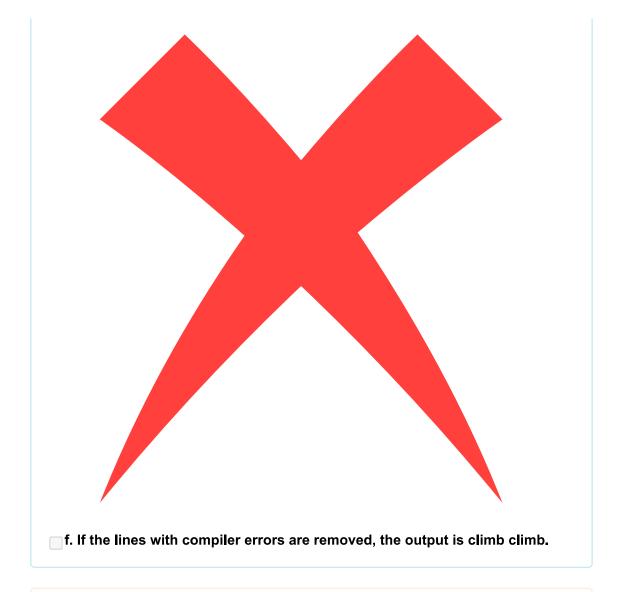methods. Even though we are calling play() as if it were an instance method and an
instance exists, Java knows play() is really a static method and treats it as such. If line
10 is removed, the code works. It does not throw a NullPointerException on line 16
because play() is a static method. Java looks at the type of the reference for rope2 and
translates the call to Rope.play().

d. The code compiles as is.

e. If the lines with compile errors are removed, the code throws a NullPointerException.

f. If the lines with compiler errors are removed, the output is climb climb.

Your answer is incorrect.
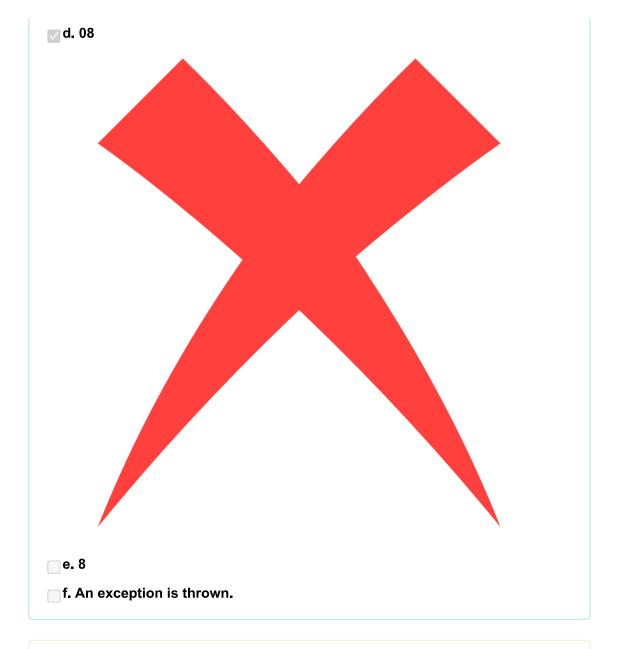
The correct answer is: There is exactly one compiler error in the code., If the lines with compiler errors are removed, the output is swing swing.

What is the output of the following code?

import rope.*;

import static rope.Rope.*;

public class RopeSwing {

private static Rope rope1 = new Rope();

private static Rope rope2 = new Rope();

{

System.out.println(rope1.length);

}

public static void main(String[] args) {

rope1.length = 2;

rope2.length = 8;

System.out.println(rope1.length);

}

}

package rope;

public class Rope {

public static int length = 0;

}

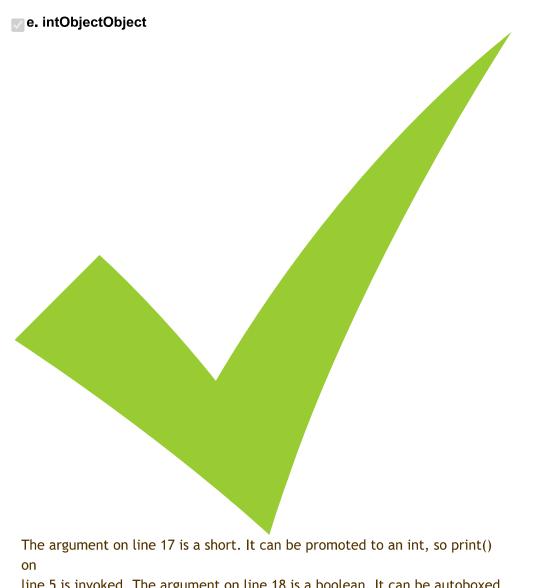Select one or more:

a. 02

b. 2

c. The code does not compile.

☑ d. 08

☐ e. 8

☐ f. An exception is thrown.

Your answer is incorrect.

The correct answer is: 8

Question 3

Correct

Mark 1.00 out of 1.00

What is the result of the following statements?

1: public class Test {

2: public void print(byte x) {

3: System.out.print("byte");

4: }

5: public void print(int x) {

6: System.out.print("int");

7: }

8: public void print(float x) {

9: System.out.print("float");

10: }

11: public void print(Object x) {

12: System.out.print("Object");

13: }

14: public static void main(String[] args) {

15: Test t = new Test();

16: short s = 123;

17: t.print(s);

18: t.print(true);

19: t.print(6.789);

20: }

21: }

Select one or more:

☐ **a. byteObjectObject**

☐ **b. intObjectfloat**

☐ **c. bytefloatObject**

☐ **d. intfloatObject**

e. intObjectObject

The argument on line 17 is a short. It can be promoted to an int, so print()
on
line 5 is invoked. The argument on line 18 is a boolean. It can be autoboxed
to a boolean,
so print() on line 11 is invoked. The argument on line 19 is a double. It can
be autoboxed to a double, so print() on line 11 is invoked. Therefore, the
output is
intObjectObject and the correct answer is option E.

f. byteObjectfloat

Your answer is correct.

The correct answer is: intObjectObject

Question 4

Correct

Mark 1.00 out of 1.00

Which code can be inserted to have the code print 2?

```
public class BirdSeed {

private int numberBags;

boolean call;

public BirdSeed() {

// LINE 1

call = false;

// LINE 2

}

public BirdSeed(int numberBags) {

this.numberBags = numberBags;

}

public static void main(String[] args) {

BirdSeed seed = new BirdSeed();

System.out.println(seed.numberBags);

} }
```

Select one or more:

☐ **a. Replace line 2 with BirdSeed(2);**

☐ **b. Replace line 1 with new BirdSeed(2);**

☑ **c. Replace line 1 with this(2);**

☐ **d. Replace line 1 with BirdSeed(2);**

☐ **e. Replace line 2 with this(2);**

☐ **f. Replace line 2 with new BirdSeed(2);**

Your answer is correct.

The correct answer is: Replace line 1 with this(2);

Question 5

Correct

Mark 1.00 out of 1.00

Consider the following code fragment:

if (fork() == 0)

{ a = a + 5; printf("%d,%dn", a, &a); }

else { a = a −5; printf("%d, %dn", a, &a); }

Let u, v be the values printed by the parent process, and x, y be the values printed by the child process. Which one of the following is TRUE?

Select one:

○ **a. u = x + 10 and v != y**

◉ **b. u + 10 = x and v = y**

fork() returns 0 in child process and process ID of child process in parent process. In Child (x), a = a + 5 In Parent (u), a = a − 5; Therefore x = u + 10. The physical addresses of 'a' in parent and child must be different. But our program accesses virtual addresses (assuming we are running on an OS that uses virtual memory). The child process gets an exact copy of parent process and virtual address of 'a' doesn't change in child process. Therefore, we get same addresses in both parent and child.

○ **c. u + 10 = x and v != y**

○ **d. u = x + 10 and v = y**

Your answer is correct.

The correct answer is: u + 10 = x and v = y

Correct

Mark 1.00 out of
1.00

For a 10Mbps Ethernet link, if the length of the packet is 32bits, the transmission delay is _____ (in microseconds)

Select one:

○ a. 0.32

○ b. 320

○ c. 32

◉ d. 3.2

Transmission rate = length / transmission rate = 32/10 = 3.2 microseconds.

The correct answer is: 3.2

Question 7

Incorrect

Mark 0.00 out of 1.00

In the transfer of file between server and client, if the transmission rates along the path is 10Mbps, 20Mbps, 30Mbps, 40Mbps. The throughput is usually _____

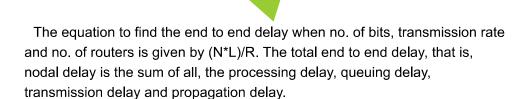Select one:

- a. 50Mbps
- b. 40Mbps
- c. 10Mbps
- d. 20Mbps

The correct answer is: 10Mbps

If there are N routers from source to destination, the total end to end delay in sending packet P(L-> number of bits in the packet R-> transmission rate) is equal to _____

Select one:

○ **a. (N*L)/R** ✓

   The equation to find the end to end delay when no. of bits, transmission rate and no. of routers is given by (N*L)/R. The total end to end delay, that is, nodal delay is the sum of all, the processing delay, queuing delay, transmission delay and propagation delay.

○ **b. (2N*L)/R**

○ **c. L/R**

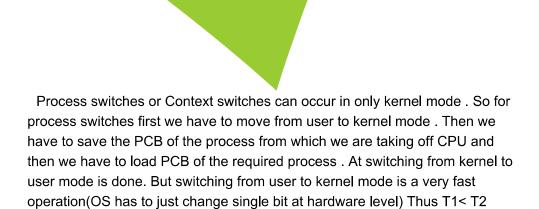○ **d. N**

The correct answer is: (N*L)/R

Question 9

Correct

Mark 1.00 out of 1.00

The time taken to switch between user and kernel modes of execution be t1 while the time taken to switch between two processes be t2. Which of the following is TRUE?

Select one:

○ **a. t1 = t2**

◉ **b. t1 < t2**

   Process switches or Context switches can occur in only kernel mode . So for process switches first we have to move from user to kernel mode . Then we have to save the PCB of the process from which we are taking off CPU and then we have to load PCB of the required process . At switching from kernel to user mode is done. But switching from user to kernel mode is a very fast operation(OS has to just change single bit at hardware level) Thus T1< T2

○ **c. t1 > t2**

○ **d. nothing can be said about the relation between t1 and t2**

The correct answer is: t1 < t2
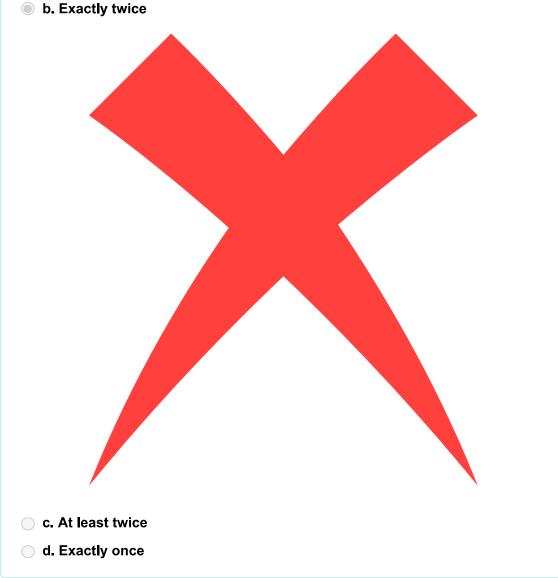
Question 10

Incorrect

Mark 0.00 out of 1.00

The following program consists of 3 concurrent processes and 3 binary semaphores.The semaphores are initialized as S0 = 1, S1 = 0, S2 = 0. How many times will process P0 print '0'?

Process P0	Process P1	Process P2

while (true) {
   wait (S0);
    print '0';
    release (S1);
    release (S2);
}
	wait (S1);
	release (S0);
		wait (S2)
		release (S0);

Select one:

○ **a. Exactly thrice**

◉ **b. Exactly twice**

○ **c. At least twice**

○ **d. Exactly once**

The correct answer is: At least twice

Version 4.2

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