

Day-29 MCQs

Question 1

Correct

Mark 1.00 out of 1.00

A 1000 byte packet is sent over a 50 kilo-bits-per-second (Kbps) point-to-point link whose propagation delay is 10 msec. The packet will reach the destination after _____ msec.
(Assume 1K = 1000)

Select one or more:

☒ a. 170



50x1000 = 50000 bits per second can be transferred through the link.

1 bit can be sent in = (1/50000) sec

1000 byte or 8000 bits can be sent in 8000 / 50000 sec = 0.16 sec = 160 msec

Hence the packet will reach the destination after = 160 msec + 10 msec = 170 msec

☐ b. 180

☐ c. 150

☐ d. 160

Your answer is correct.

The correct answer is: 170

Question 2

Correct

Mark 1.00 out of 1.00

If a 2000 byte data message is sent using TFTP, the corresponding Ethernet packet will be of _____ bytes.

Select one or more:

☐ a. 2025

☐ b. 2075

☐ c. 2035

☒ d. 2050



(H-Eth + H-IP + H-UDP + H-TFTP + T-Eth) field bytes are added to get 50 bytes.

Hence the total size of the Ethernet packet will be 2000+50 = 2050 bytes.

☐ e. 2060

Your answer is correct.

The correct answer is: 2050

Question 3

Correct

Mark 1.00 out of 1.00

If the IP header is 192 bits long, what will be the value of the 'HLEN' field?

Select one or more:

☐ a. 32

☒ b. 6



The HLEN field contains the size of the IP header in multiples of 32 bits or 4 bytes.

Here, size of the IP header = 192 bits = 6 x 32 bits.

Hence, HLEN will contain 0110, which is the binary equivalent of the number 6.

☐ c. 4

☐ d. 192

Your answer is correct.

The correct answer is: 6

Question 4

Correct

Mark 1.00 out of 1.00

An IP packet arrives at a router with the first eight bits as 01001000.

How many bytes are there in the OPTIONS field?

Select one or more:

- ☐ a. 4
- ☐ b. none of these
- ☐ c. 16
- ☒ d. 12



The first four bits (0100) is the IP version, and the next four bits (1000) is the header length.

The header length of 8 indicates $8 \times 4 = 32$ bytes of header.

The basic IP header is 20 bytes long.

Hence, the size of the OPTIONS field will be $32 - 20 = 12$ bytes

- ☐ e. 8

Your answer is correct.

The correct answer is: 12

Question 5

Correct

Mark 1.00 out of 1.00

An IP packet arrives at the final destination with the M flag set as 1.

What can you say about the packet?

Select one or more:

- ☒ a. The packet has been fragmented, and this is not the last fragment.



When the Mode (M) flag in a packet is 1,

this indicates that the original packet has definitely been fragmented.

Also, this is not the last fragment, there are more fragments after this.

- ☒ b. The packet has been fragmented.
- ☐ c. The packet has not been fragmented.
- ☐ d. The packet data was truncated on its way.

Your answer is correct.

The correct answer is: The packet has been fragmented., The packet has been fragmented, and this is not the last fragment.

Question 6

Correct

Mark 1.00 out of 1.00

At a particular time of computation the value of a counting semaphore is 7.

Then 20 P operations and 15 V operations were completed on this semaphore.

The resulting value of the semaphore is?

Select one or more:

- ☐ a. 7
- ☒ b. 2



P represents Wait and V represents Signal. P operation will decrease the value by 1 every time and V operation will increase the value by 1 every time

- ☐ c. 12
- ☐ d. 42

Your answer is correct.

The correct answer is: 2

Question 7

Correct

Mark 1.00 out of 1.00

Which of the following features will characterize an OS as multiprogrammed OS ?

- (a) More than one program may be loaded into main memory at the same time.
- (b) If a program waits for certain event another program is immediately scheduled.
- (c) If the execution of a program terminates, another program is immediately scheduled.

Select one or more:

- ☒ a. If the execution of a program terminates, another program is immediately scheduled. ✓
- ☒ b. If a program waits for certain event another program is immediately scheduled. ✓
- ☒ c. More than one program may be loaded into main memory at the same time. ✓

Your answer is correct.

The correct answer is: More than one program may be loaded into main memory at the same time., If a program waits for certain event another program is immediately scheduled., If the execution of a program terminates, another program is immediately scheduled.

Question 8

Correct

Mark 1.00 out of 1.00

At a particular time, the value of a counting semaphore is 10. It will become 7 after

Select one or more:

- ☐ a. 5 V operations and 2 P operations
 - ☐ b. 3 V operations
 - ☒ c. 3 P operations ✓
- P means wait ie $S := S - 1$;
V means signal i.e $S = S + 1$;
- ☐ d. None of these

Your answer is correct.

The correct answer is: 3 P operations

Question 9

Correct

Mark 1.00 out of 1.00

Semaphores are mostly used to implement _____

Select one or more:

- ☒ a. IPC mechanisms ✓
- ☐ b. System calls
- ☐ c. System protection
- ☐ d. None of the mentioned

Your answer is correct.

The correct answer is: IPC mechanisms

Question 10

Correct

Mark 1.00 out of 1.00

What is output by the following code? (Choose all that apply)

```
1: public class Fish {  
2: public static void main(String[] args) {  
3: int numFish = 4;  
4: String fishType = "tuna";  
5: String anotherFish = numFish + 1;  
6: System.out.println(anotherFish + " " + fishType);  
7: System.out.println(numFish + " " + 1);  
8: } }
```

Select one or more:

- ☐ a. 51tuna
- ☐ b. 41
- ☐ c. 5 tuna
- ☒ d. The code does not compile.



Line 5 does not compile. This question is checking to see if you are paying attention to the types. numFish is an int and 1 is an int. Therefore, we use numeric addition and get 5. The problem is that we can't store an int in a String variable. Supposing line 5 said String anotherFish = numFish + 1 + ""; In that case, the answer would be options A and D. The variable defined on line 5 would be the string "5", and both output statements would use concatenation.

- ☐ e. 5
- ☐ f. 4 1
- ☐ g. 5tuna

Your answer is correct.

The correct answer is: The code does not compile.

Question 11

Correct

Mark 1.00 out of 1.00

What is the result of the following code?

```
7: StringBuilder sb = new StringBuilder();  
8: sb.append("aaa").insert(1, "bb").insert(4, "ccc");  
9: System.out.println(sb);
```

Select one or more:

- ☐ a. The code does not compile.
- ☐ b. bbaacca
- ☒ c. abbacca



This example uses method chaining. After the call to append(), sb contains "aaa". That result is passed to the first insert() call, which inserts at index 1. At this point sb contains abbbaa. That result is passed to the final insert(), which inserts at index 4, resulting in abbacca.

- ☐ d. An exception is thrown.
- ☐ e. abbaaccc
- ☐ f. bbaaaccc

Your answer is correct.

The correct answer is: abbacca

Question 12

Correct

Mark 1.00 out of 1.00

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

```
String numbers = "012345678";  
System.out.println(numbers.substring(1, 3));  
System.out.println(numbers.substring(7, 7));  
System.out.println(numbers.substring(7));
```

Select one or more:

☐ a. An Exception is thrown☒ b. 12☒ c. A Blank Line

substring() has two forms. The first takes the index to start with and the index to stop immediately before. The second takes just the index to start with and goes to the end of the String. Remember that indexes are zero based. The first call starts at index 1 and ends with index 2 since it needs to stop before index 3. The second call starts at index 7 and ends in the same place, resulting in an empty String. This prints out a blank line. The final call starts at index 7 and goes to the end of the String.

☒ d. 78☐ e. 123☐ f. The code doesnot compile☐ g. 7

Your answer is correct.

The correct answer is: 12, 78, A Blank Line

Question 13

Correct

Mark 1.00 out of 1.00

What is the result of the following code? (Choose all that apply)

```
13: String a = "";  
14: a += 2;  
15: a += 'c';  
16: a += false;  
17: if ( a == "2cfalse") System.out.println("==");  
18: if ( a.equals("2cfalse")) System.out.println("equals");
```

Select one or more:

☐ a. Compile error on line 15.☐ b. Compile error on line 16.☐ c. An exception is thrown.☐ d. Compile error on line 14.☐ e. Compile error on another line☐ f. ==☒ g. equals

a += 2 expands to a = a + 2. A String concatenated with any other type gives a String. Lines 14, 15, and 16 all append to a, giving a result of "2cfalse". The if statement on line 18 returns false because the values of the two String objects are the same using object equality. The if statement on line 17 returns false because the two String objects are not the same in memory. One comes directly from the string pool and the other comes from building using String operations.

Your answer is correct.

The correct answer is: equals

Question 14

Correct

Mark 1.00 out of 1.00

What is the result of the following code?

```
4: int total = 0;
5: StringBuilder letters = new StringBuilder("abcdefg");
6: total += letters.substring(1, 2).length();
7: total += letters.substring(6, 6).length();
8: total += letters.substring(6, 5).length();
9: System.out.println(total);
```

Select one or more:

- ☐ a. 1
- ☐ b. 7
- ☐ c. 3
- ☒ d. An exception is thrown.



Line 6 adds 1 to total because substring() includes the starting index but not the ending index. Line 7 adds 0 to total. Line 8 is a problem: Java does not allow the indexes to be specified in reverse order and the code throws a StringIndexOutOfBoundsException.

- ☐ e. The code does not compile.
- ☐ f. 2

Your answer is correct.

The correct answer is: An exception is thrown.

Question 15

Correct

Mark 1.00 out of 1.00

Which of the following can replace line 4 to print "avaJ"? (Choose all that apply)

```
3: StringBuilder puzzle = new StringBuilder("Java");
4: // INSERT CODE HERE
5: System.out.println(puzzle);
```

Select one or more:

- ☒ a. puzzle.append("vaJ\$").delete(0, 3).deleteCharAt(puzzle.length() - 1);
- ☐ b. puzzle.append("vaJ\$").substring(0, 4);
- ☐ c. None of the above.
- ☐ d. puzzle.append("vaJ\$").delete(0, 3).deleteCharAt(puzzle.length());
- ☒ e. puzzle.reverse();



The reverse() method is the easiest way of reversing the characters in a StringBuilder; therefore, option A is correct. Option B is a nice distraction—it does in fact return "avaJ". However, substring() returns a String, which is not stored anywhere. Option C uses method chaining. First it creates the value "JavavaJ\$". Then it removes the first three characters, resulting in "avaJ\$". Finally, it removes the last character, resulting in "avaJ". Option D throws an exception because you cannot delete the character after the last index. Remember that deleteCharAt() uses indexes that are zero based and length() counts starting with 1.

Your answer is correct.

The correct answer is: puzzle.reverse();, puzzle.append("vaJ\$").delete(0, 3).deleteCharAt(puzzle.length() - 1);