

[Dashboard](#) / [My courses](#) / [COMP2100 Sem1 2021](#) / [Quizzes](#) / [Quiz 3](#)**Started on** Saturday, 8 May 2021, 11:53 AM**State** Finished**Completed on** Saturday, 8 May 2021, 12:12 PM**Time taken** 19 mins 25 secs**Grade** 14.00 out of 20.00 (70%)Question **1**

Correct

Mark 1.00 out of 1.00

Considering the grammar below and assuming that there is a parser for it, which instruction is NOT acceptable for this grammar?

<command> := select <fields> from <table_name> where id = <id_value>

<fields> := <field>, <fields> | <field>

<table_name> := <string_value>

<id_value> := <int_value>

<field> := <string_value>

Select one:

Select one:

- ☐ a. select title from book where id = 1
- ☐ b. select name, age from person where id = 2
- ☐ c. select address from Person where id = 10
- ☒ d. select age; name from person where id = 3



Your answer is correct.

The correct answer is: select age; name from person where id = 3

Mark 1.00 out of 1.00

Considering the grammar below and assuming that there is a parser for it, which instruction is NOT acceptable for this grammar?

<command> ::= with id = <id_value> find <fields> from <table_name>

<fields> ::= <field>, <fields> | <field>

<table_name> ::= <string_value>

<id_value> ::= <int_value>

<field> ::= <string_value>

Select one:

Select one:

- ☒ a. with id = 'bible' find pages from book
- ☐ b. with id = 2 find name, age from person
- ☐ c. with id = 1 find street from address
- ☐ d. with id = -10 find title, author from book



Your answer is correct.

The correct answer is: with id = 'bible' find pages from book

Question 3

Incorrect

Mark 0.00 out of 1.00

Which one of the following statements is INCORRECT?

Select one:

- ☐ a. Computing the minimum edit distance is equivalent to finding the longest common subsequence.
- ☐ b. Computing the minimum edit distance is equivalent to finding the shortest path in a 2D grid.
- ☐ c. Computing the shortest path by dynamic programming is equivalent to exploring alternate paths iteratively from neighbours.
- ☒ d. The Fibonacci number sequence is growing exponentially fast. ✗ Computing the minimum edit distance is equivalent to finding the longest common subsequence, only when the replace cost is twice of the delete and insert costs.

Your answer is incorrect.

The correct answer is:

Computing the minimum edit distance is equivalent to finding the longest common subsequence.

Mark 0.00 out of 1.00

Which one of the following statements is INCORRECT?

Select one:

- ☐ a. The running time for shortest paths computation using dynamic programming is $O(|V|^2)$.
- ☒ b. The running time for min edit distance computation using dynamic programming is $O(|x| \cdot |y|)$. ✗ The running time for Tetris optimal strategy computation using dynamic programming is exponential in n and the running time for shortest paths computation using dynamic programming is $O(n \cdot h^w)$.
- ☐ c. The running time for Tetris optimal strategy computation using dynamic programming is $O(n \cdot h^w)$.
- ☐ d. The running time for Fibonacci number computation using dynamic programming is $O(n)$.

Your answer is incorrect.

The correct answers are:

The running time for shortest paths computation using dynamic programming is $O(|V|^2)$.

The running time for Tetris optimal strategy computation using dynamic programming is $O(n \cdot h^w)$.

Mark 0.00 out of 1.00

Considering the following abstract class `Tokenizer`, which alternative is INCORRECT:

```
public abstract class Tokenizer {
    public abstract void next();
    public abstract Token current();
    public abstract boolean hasNext();
}
```

Select one:

Select one:

- ☐ a. An implementation of the method `next()` will be responsible for extracting the next token from a text and returning the token to the code that invoked it.
- ☐ b. To perform a tokenization process, you first need to create a subclass of `Tokenizer` and then implement the abstract methods. The `Tokenizer` abstract class has no implementation.
- ☐ c. The class `Token` is usually composed of a pair of type and value which is the basic definition of a token.
- ☒ d. An implementation of the method `current()` has to return an instance of the class `Token` which will be the last token detected by the method `next()`. ✗ An implementation of the method `next()` will be responsible for extracting the next token from a text and returning the token to the code that invoked it.

Your answer is incorrect.

The correct answer is: An implementation of the method `next()` will be responsible for extracting the next token from a text and returning the token to the code that invoked it.

Question 6

Correct

Mark 1.00 out of 1.00

Which one of the following is acceptable by a language specified by the grammar: $S := () ; S :=)S(; S := SS$

Select one:

Select one:

- ☐ a. `))((`
- ☒ b. `)()()`
- ☐ c. `()()()`
- ☐ d. `)(())`



Your answer is correct.

The correct answer is: `)()()`

Mark 1.00 out of 1.00

Which one of the following is NOT acceptable by a language specified by the grammar: $S := ()$; $S := (S)$; $S := SS$

Select one:

Select one:

- ☒ a. (S)
- ☐ b. ((())())
- ☐ c. (())
- ☐ d. (((())))



Your answer is correct.

The correct answer is: (S)

Question 8

Correct

Mark 1.00 out of 1.00

Which one the following statements is INCORRECT about tokenization:

Select one:

Select one:

- ☐ a. Tokenization is the process of converting a sequence of characters into a sequence of tokens. For instance, considering the sentence "I live in New York.", each token is a punctuation mark or a vocabulary word.
- ☒ b. A good tokenization process should be case-insensitive since it is usual to find texts with lower and upper case words. ✓
- ☐ c. The tokenization process ends after identifying all tokens of a text. This means that tokenizers do not evaluate the meaning of a set of tokens together.
- ☐ d. A token is a string with an assigned meaning. It is structured as a pair consisting of a type and value.

Your answer is correct.

The correct answer is: A good tokenization process should be case-insensitive since it is usual to find texts with lower and upper case words.

Mark 1.00 out of 1.00

Your program has one very slow procedure that consumes 80% of the total time. Next, you improve it by a factor of 5. What is the performance gain in the overall latency?

Select one:

Select one:

- ☐ a. 3.777778
- ☒ b. 2.777778
- ☐ c. 0.44444445
- ☐ d. 1.777779



Your answer is correct.

The correct answer is: 2.777778

Question **10**

Correct

Mark 1.00 out of 1.00

Which one of the following is NOT acceptable by a language specified by the grammar: $S := \text{)} \text{ ; } S := (S \text{ ; } S := SS$

Select one:

- ☐ a. $()((())())$
- ☐ b. $))()($
- ☐ c. $))()()())$
- ☒ d. $)))(()$



Your answer is correct.

The correct answer is:

$)))(()$

Mark 0.00 out of 1.00

Which one of the following statements is INCORRECT?

Select one:

- ☐ a. Any system can be evaluated based on performance modeling and analysis.
- ☐ b. Modeling based on assumptions can simplify performance analysis.
- ☐ c. Simulation of performance evaluation is the most commonly employed approach because of the balance between realism and efficiency.
- ☒ d. Real-world deployment of performance evaluation is the most realistic option. ✗ Modeling and analysis only apply to simple systems

Your answer is incorrect.

The correct answer is:

Any system can be evaluated based on performance modeling and analysis.

Question **12**

Correct

Mark 1.00 out of 1.00

Which one the following statements is INCORRECT about persistent data:

Select one:

Select one:

- ☐ a. Saving data in files or database consist of ways to have permanent data.
- ☐ b. Database management systems are generally used for the storage of large volumes of data. MySQL, Oracle, and MariaDB are examples of relational databases.
- ☐ c. To serialize a Java class, the class needs to implement the Serializable interface.
- ☒ d. XML syntax is verbose and redundant. Besides, it is platform-independent and programming language-dependent. ✓

Your answer is correct.

The correct answer is: XML syntax is verbose and redundant. Besides, it is platform-independent and programming language-dependent.

Mark 1.00 out of 1.00

Which one the following statements is INCORRECT about tokenization and parsing:

Select one:

Select one:

- ☒ a. All parser implementations must have an abstract class Exp that all other classes inherit from it. ✓
- ☐ b. The parsing process involves the definition of a grammar. Grammars provide a precise way of specifying language.
- ☐ c. The recursive descent algorithm consists of a method of parsing. It begins parsing from a start variable and recursively parses the input tokens.
- ☐ d. The tokenization process happens before the parsing process. The parsing process is responsible for verifying if the tokens follow the grammar rules.

Your answer is correct.

The correct answer is: All parser implementations must have an abstract class Exp that all other classes inherit from it.

Question **14**

Incorrect

Mark 0.00 out of 1.00

Which one of the following statements is INCORRECT?

Select one:

- ☐ a. JSON is more convenient in Java programming than XML.
- ☐ b. XML has higher portability than serialization.
- ☐ c. XML supports schema and robust format checking.
- ☒ d. JSON has higher programming agility than bespoke data files. ✗ XML has naive support in Java.

Your answer is incorrect.

The correct answer is:

JSON is more convenient in Java programming than XML.

Mark 1.00 out of 1.00

Which one of the following data formats can not be used across multiple programming languages?

Select one:

Select one:

- ☐ a. JSON
- ☐ b. CSV file
- ☐ c. XML
- ☒ d. Object serialization



Your answer is correct.

The correct answer is: Object serialization

Question **16**

Correct

Mark 1.00 out of 1.00

Your program has one very slow procedure that consumes 80% of the total time. If you want to improve the performance gain in the overall latency to be 2 times, how much do you need to improve the slow procedure?

Select one:

- ☐ a. By a factor of 3
- ☐ b. By a factor of 0.66
- ☐ c. Impossible to achieve.
- ☒ d. By a factor of 2.66



Your answer is correct.

The correct answer is:

By a factor of 2.66

Mark 1.00 out of 1.00

Which one the following statements is INCORRECT about persistent data:

Select one:

Select one:

- ☐ a. JSON was designed to send data between a web client and server. Moreover, it is useful for data storage.
- ☐ b. Data compression is useful to store large files. There are some well-known formats such as zip, rar, and tar to compress data and persist it.
- ☐ c. Java HashMaps and ArrayLists are serializable by default. These classes are commonly used for serializing a data collection.
- ☒ d. Using JSON, it is not easy to distinguish boolean, number, and string types. ✓

Your answer is correct.

The correct answer is: Using JSON, it is not easy to distinguish boolean, number, and string types.

Question **18**

Incorrect

Mark 0.00 out of 1.00

If we divide a program into sequential part (35%) and parallel part (65%). Then what is the maximum performance gain in the parallelization?

Select one:

- ☐ a. infinity
- ☒ b. 1.538
- ☐ c. 2.857
- ☐ d. 2

✗ Apply $S = \frac{1}{1-P}$

Your answer is incorrect.

The correct answer is:

2.857

Mark 1.00 out of 1.00

Which one of the following statements is CORRECT?

Select one:

- ☐ a. Serialization is more humanly readable than bespoke data files.
- ☒ b. Serialization can pose a security loophole.
- ☐ c. Serialization is recommended over bespoke data files.
- ☐ d. Serialization can be loaded and saved with the same objects in Java and C++.



Your answer is correct.

The correct answer is:

Serialization can pose a security loophole.

Question **20**

Correct

Mark 1.00 out of 1.00

Which one of the java methods is normally invoked immediately before benchmarking a trial?

Select one:

- ☐ a. System.exit(0);
- ☐ b. System.currentTimeMillis();
- ☐ c. System.nanoTime();
- ☒ d. System.gc();



Your answer is correct.

The correct answer is:

System.gc();

[◀ Quiz 2](#)

Jump to...

[Quiz 3 \(Practice Only\) ▶](#)