#### 0/19 Questions Answered

# Mid-semester Exam (2021/S2) Multi-Choice and T/F Questions

STUDENT NAME

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## **Q1** Acknowledgment

0 Points



COMP1100 Mid-Semester Exam, Semester 2 2021

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Read and check off the following instructions:  1. This examination is timed.  Note the remaining time at the top right of this screen. Set an alarm for yourself if you need one.  2. Permitted materials. This is an open book exam. You might in particular find the course Website, the Prelude documentation, and the Data.List

# **Q2** Sets and Functions

2 Points

Which of the following is  ${f False}$ ?

- O Any number of sets can be combined using +.
- $\begin{tabular}{l} \begin{tabular}{l} \begin{tab$ 
  - $oldsymbol{\mathsf{O}}$  Given functions f :: A o B and g :: B o A, f.g can be defined.
  - **O** Given a function  $h::A\to B\to C$  and  $a\in A$ , h(a) is an element of  $B\to C$ .

Save Answer

## **Q3** Haskell functions

2 Points

Four of the following implementations of this function behave the same behavior.

A.

```
myFun a b = case (a,b) of
  (True, True) -> False
  (True, False) -> True
  (False, True) -> True
  (False, False) -> False
```

B.

```
myFun a b = not a | | b
```

C.

D.

```
myFun a b = not (a && b) && (a || b)
```

E.

```
myFun True True = False
myFun a b = a || b
```

Select which one behaves differently than the others?

- O A B
  - **O** C
  - O<sub>D</sub>
  - O<sub>E</sub>

Save Answer

# **Q4** Type Signatures

2 Points

Consider the following Haskell function definition:

```
bar (a, b) = (not a, b:"foo")
```

Which of the following is a valid Haskell type signature for this function?

- O bar :: (Integer, String) -> (Integer, String)
- O bar :: (Bool, Bool) -> (Bool -> String)
- bar :: (Bool, String) -> (Bool, String)
- O bar :: (String, String) -> (String, String)
- O bar :: (Bool, Char) -> (Bool, String)

Save Answer

## **Q5** Lists

2 Points

Which of the following statements is **True** in Haskell:

- O When using recursion on lists, computations from the right of the list are preferred.
- O An empty list is always the base case.
- O The type of ["a", "b", "c"] is String.
- List is a recursive type.
  - O x:y:zs is equal to (x:y):zs.

Save Answer

## **Q6** Types

2 Points

Consider the following function type signatures.

```
foo :: String -> Int -> String
boo :: Char -> String
```

Which of the following is False in Haskell?

- foo.boo can be defined.
- O foo "boo" has type Int -> String.
- O foo takes two inputs whose types are String and Int.
- O boo 'f' can be an input to foo.
- O foo 'b' 3 has type String

Save Answer

## **Q7** Programming

2 Points

Each correct answer **gains** you 1 marks, each incorrect answer **loses** you 0.5 mark, while a question left unanswered neither loses nor gains marks. The minimum total mark for this question is 0.

Select which of the following are True or False:

#### Q7.1 Machine code

1 Point

Machine code is considered safer than high-level programming languages since it has full control of memory.



### **Q7.2** Functional programming

1 Point

Functional programming languages have more control of memory usage compared to other programming languages.



# **Q8** Haskell function

5 Points

Each correct answer **gains** you 1 marks, each incorrect answer **loses** you 0.5 mark, while a question left unanswered neither loses nor gains marks. The minimum total mark for this question is 0.

Consider the following Haskell function.

```
length' lst = case lst of
[] -> 0
_:ms -> 1 + length' ms
```

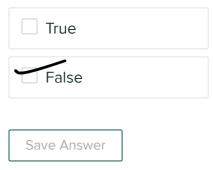
Select which of the following are True or False:

Submit Mid-semester Exam (2021/S2) Multi-Choice and T/F Questions   Gradesco  Q8.1 Type signature  1 Point
[[Char]] -> Int is a valid type signature for length'.
☐ True
False
Save Answer
<b>Q8.2</b> Type signature 1 Point
[Bool] -> Integer is a valid type signature for length'.
True
False
Save Answer
Q8.3 List 1 Point
It is possible that length' function runs indefinitely.
True
False
Save Answer

### **Q8.4** List

1 Point

It is possible that length' function outputs a negative number.



#### **Q8.5** List

1 Point

List of any type can be an input to length'.



# **Q9** Types

3 Points

Each correct answer **gains** you 1 marks, each incorrect answer **loses** you 0.5 mark, while a question left unanswered neither loses nor gains marks. The minimum total mark for this question is 0.

Consider the following Haskell code.

```
data Semester = Spring | Fall

type Year = Int

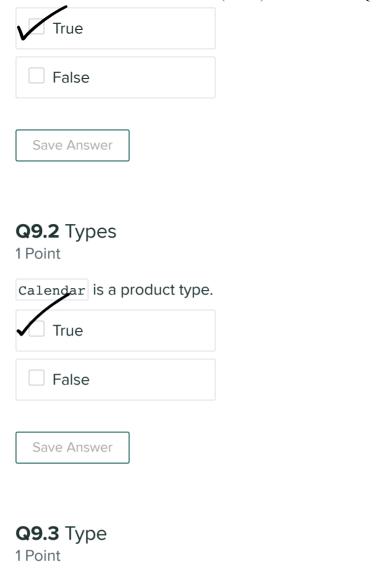
data Calendar = Y Year Semester
```

Select which of the following are True or False:

## **Q9.1** Types

1 Point

Semester is a sum type.



The maximum length of values of type [Semester] is 2.

<b>T</b> rue	
☐ False	
Save Answer	

# **Q10** Programming Questions

30 Points

There are **three** programming questions that you need to complete and submit.

You can find all programming questions on your dashboard.

Please submit by uploading **each** Haskell file to **each** question.

Please download the template Haskell files here.

