Started on	Wednesday, 6 April 2022, 10:50 AM
State	Finished
Completed on	Wednesday, 6 April 2022, 11:00 AM
Time taken	9 mins 27 secs
Marks	1.58/4.00
Grade	**3.96** out of 10.00 (**40**%)

Question **1**

Correct

Mark 1.00 out of 1.00

True or **False**? Uniqueness of types holds for simply typed lambda calculus with sum types without explicit type annotations for tagging (left and right injections — `inl` and `inr`).

Select one:

- True
- False ✔

The correct answer is 'False'.

Question **2**

Partially correct

Mark 0.25 out of 1.00

In simply typed lambda calculus with lists, some type annotations in the syntax of lists can be removed, while still preserving the uniqueness of types. Which of the following syntactic forms can be simplified by removing type annotations?

- a. `nil[T]` ✖
- b. `isnil[T] t` ✔
- c. `head[T] t`
- d. `cons[T] t t`
- e. `tail[T] t`

Your answer is partially correct.

You have correctly selected 1.

The correct answers are: `cons[T] t t`, `isnil[T] t`, `head[T] t`, `tail[T] t`

Question 3

Incorrect

Mark 0.00 out of 1.00

Compute the following lambda term:

```
fix (λf:Nat→Nat. λn:Nat. f n)
```

Select one:

- a. `λn:Nat. (fix (λf:Nat→Nat. λn:Nat. f n)) n`
- b. This term evaluates infinitely, without reaching a value.
- c. This term is stuck and cannot be reduced. ✖
- d. `λn:Nat. f n`
- e. `λn:Nat. n`

Your answer is incorrect.

The correct answer is:

`λn:Nat. (fix (λf:Nat→Nat. λn:Nat. f n)) n`

Question 4

Partially correct

Mark 0.33 out of 1.00

Select **all** valid types for the following term of simply-typed lambda calculus with sum types:

```
λn:Nat. if iszero n then inl 0 else inr (inr false)
```

Select one or more:

- a. `Nat + Bool`
- b. `Nat → (Nat + Nat) + Bool`
- c. `Nat → Nat + Bool` ✖
- d. `Nat + (Nat + Bool)`
- e. `Nat → Nat + (Unit + Bool)` ✔
- f. `Nat → Nat + (Nat + Bool)`
- g. `Nat → Bool + Nat`
- h. `Nat → Nat + ((Nat → Nat) + Bool)`

Your answer is partially correct.

You have correctly selected 1.

The correct answers are: `Nat → Nat + (Nat + Bool)`, `Nat → Nat + (Unit + Bool)`, `Nat → Nat + ((Nat → Nat) + Bool)`

◄ Quiz 3 — Mar 31 from 9:10 to 9:20 (10 minutes)

Jump to...

Quiz 5 — Apr 7 from 9:10 to 9:20 (10 minutes) ►

Data retention summary
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