

338.001, VL Logic, Martina Seidl / Wolfgang Schreiner / Wolfgang Windsteiger, 2022W

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Started on	Monday, 28 November 2022, 7:17 PM
State	Finished
Completed on	Monday, 28 November 2022, 7:32 PM
Time taken	14 mins 57 secs
Grade	0.4 out of 5.0 (7%)

Question 1

Partially correct

Mark 0.2 out of 3.0

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Consider the following problem specification:

Input: $a \in \mathbb{Z}^+, b \in \mathbb{Z}^*$ **where** $\exists i \in \mathbb{N}: i < \text{length}(a) \wedge \exists j \in \mathbb{N}: j < \text{length}(b) \wedge a(i) = b(j)$ **Output:** $c \in \mathbb{Z}^*$ **where****let** $n = \text{length}(a)$ **in** $\text{length}(c) = n + \text{length}(b) \wedge$ $(\forall i \in \mathbb{N}: i < n \rightarrow c(i) = a(i)) \wedge$ $(\forall i \in \mathbb{N}: n \leq i \wedge i < \text{length}(c) \rightarrow c(i) = b(i-n))$ Please note that $\mathbb{N} = \{0, 1, 2, \dots\}$ and that $a(0)$ is the first element of a .

Answer the following questions:

1. Do the inputs $a=[2,3,5], b=[4,6,8]$ satisfy the input condition?☒ yes ☐ no

Mark 0.0 out of 4.0

The correct answer is: no

Select every output c that satisfies the output condition (select "none", if the input condition is not satisfied):☐ none ☐ $c=[]$ ☐ $c=[2,3,5]$ ☐ $c=[4,6,8]$ ☒ $c=[2,4,3,6,5,8]$

The correct answer is:

☐ none2. Do the inputs $a=[2,3,5], b=[4,5,6,8]$ satisfy the input condition?☒ yes ☐ no

Mark 1.0 out of 1.0

The correct answer is: yes

Select every output c that satisfies the output condition (select "none", if the input condition is not satisfied):☐ none ☒ $c=[]$ ☐ $c=[2,3,4,5,5,6,8]$ ☐ $c=[2,3,5,4,5,6,8]$ ☐ $c=[4,5,6,8,2,3,5]$

Mark -3.0 out of 3.0

The correct answer is:

☐ $c=[2,3,5,4,5,6,8]$ 3. Do the inputs $a=[0], b=[0,0]$ satisfy the input condition?☐ yes ☒ no

Mark 0.0 out of 1.0

The correct answer is: yes

Select every output c that satisfies the output condition (select "none", if the input condition is not satisfied):☐ none ☒ $c=[]$ ☐ $c=[0]$ ☐ $c=[0,0]$ ☐ $c=[0,0,0]$

Mark -3.0 out of 3.0

The correct answer is:

☐ $c=[0,0,0]$

Question 2

Complete

Mark 0.1 out of 2.0

Flag question

Specify the following problem (you may use any text representation for logical/mathematical symbols):

Given a finite integer sequence a and an integer n , compute the sequences b and c that result from splitting a before position n (however, if n is greater than the length of a , b shall be a and c shall be the empty sequence).For example, for legal inputs $a=[1,2,1,3,1]$ and $n=3$, outputs $b=[1,2,1]$ and $c=[3,1]$ are legal; however, for $a=[1,2,1,3,1]$ and $n=10$, outputs $b=[1,2,1,3,1]$ and $c=[]$ are legal.

Input

$p \geq 0 \wedge p < \text{length}(a) \wedge n > 0 \wedge n < \text{length}(a) - p \wedge \text{forall } i : \text{index. } a[i] = x$

Output

$\text{forall } i : \text{index. } i > =$

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