

Quiz 3 Results for Christopher Foley

▲ Correct answers are hidden.

Score for this attempt: 0 out of 50 *

Submitted Mar 31 at 10:26am

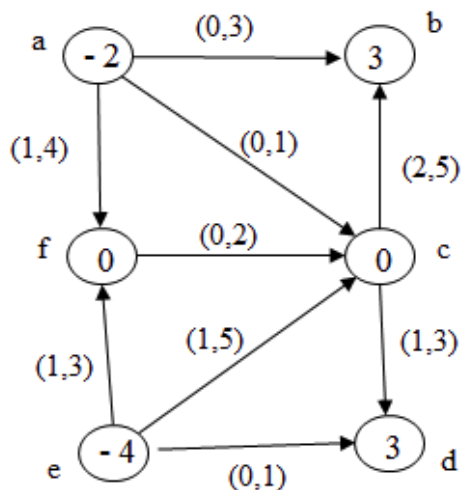
This attempt took 120 minutes.

Unanswered

Question 1

Not yet graded / 10 pts

Consider the graph $G(V, E)$ below, with the following constraints for demands, capacity, and lower bounds.



Find a feasible circulation. For full credit, show your work with **all the steps**, similar to the example done in class.

Unanswered

Question 2

Not yet graded / 10 pts

We discussed in class the **Weighted Interval Scheduling** problem using Dynamic Programming (see PPT presentation on Dynamic Programming). Let us assume that the n requests have start times $s[1..n]$ and finish times $f[1..n]$. Assume that $f[1] \leq f[2] \leq f[3] \leq \dots \leq f[n]$.

Use pseudocode to write an algorithm which computes the values $p(i)$ for each request i . The output of your algorithm is an array $p[1..n]$ containing $p(i)$ value for each request i . What is the R T of your algorithm, as a function of n ?

Unanswered

Question 3

Not yet graded / 10 pts

Let us consider a system of coins with n denominations $\{c_1, c_2, \dots, c_n\}$ such that $c_i \geq 2c_{i-1}$ for $i = 2, 3, \dots, n$. Does the **greedy algorithm** optimally solve the **change-making problem** for this system of coins? Either prove that greedy always yields an optimal solution or give an example for which greedy does not compute the optimal solution.

Unanswered

Question 4

Not yet graded / 10 pts

What is an optimal alignment for the sequences $X=ACGTCA$ and $Y=CTGCCA$?

Assume that $\delta = 3$ and consider the following matching/mismatching costs:

	A	C	G	T
A	0	3	2	3
C		0	2	1
G			0	3
T				0

- (7 pts) Fill out the table A.
- (1 pt) What is the cost of an optimal alignment?
- (2 pts) Write the optimal alignment of X and Y .

Unanswered

Question 5

Not yet graded / 10 pts

Lucky Puck Company has two warehouses for hockey helmets in Vancouver and Edmonton. There is an order of 250 hockey helmets from Winnipeg and an order of 350 hockey helmets from Saskatoon. Lucky Puck Company has 400 helmets in the warehouse in Vancouver and 350 helmets in the warehouse in Edmonton. It costs \$5 to ship a helmet from Vancouver to Winnipeg, but it costs \$8 to ship it to Saskatoon. It costs \$6 to ship a helmet from Edmonton to Winnipeg, but it costs \$2 to ship it from Edmonton to Saskatoon. How many helmets should the company ship from each warehouse to Winnipeg and Saskatoon to fill the order with the minimum cost?

- (1 pt) Clearly define your variables.
- (7 pts) Write the Linear Programming (LP).
- (2 pts) Convert the LP to its slack form. Write the slack form obtained.

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