

Unit 10 - Week 7

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Assignment 7

The due date for submitting this assignment has passed. As per our records you have not submitted this assignment.

Due on 2020-03-18, 23:59 IST.

Given the vectors $v_1 = [1\ 4\ 2]$ and $v_2 = [3\ 1\ 5]$

1) What is the L2 norm of $(v_1 - v_2)$? Answer upto 4 decimal places

No, the answer is incorrect. Score: 0

Accepted Answers: (Type: Range) 4.6,4.7

2 points

2) What is the L1 norm of $(v_1 - v_2)$?

No, the answer is incorrect. Score: 0

Accepted Answers: (Type: Numeric) 8

2 points

3) What is the infinity norm of $(v_1 - v_2)$?

No, the answer is incorrect. Score: 0

Accepted Answers: (Type: Numeric) 3

2 points

4) Match the following:

- I.FBA
 - II.MoMA
 - III.ROOM

 - A. Linear Programming
 - B. Quadratic Programming
 - C. Mixed Integer Linear Programming
- I-B, II-C, III-A
 I-C, II-B, III-A
 I-A, II-C, III-B
 I-A, II-B, III-C

No, the answer is incorrect. Score: 0

Accepted Answers: I-A, II-B, III-C

0.5 points

5) Match the following:

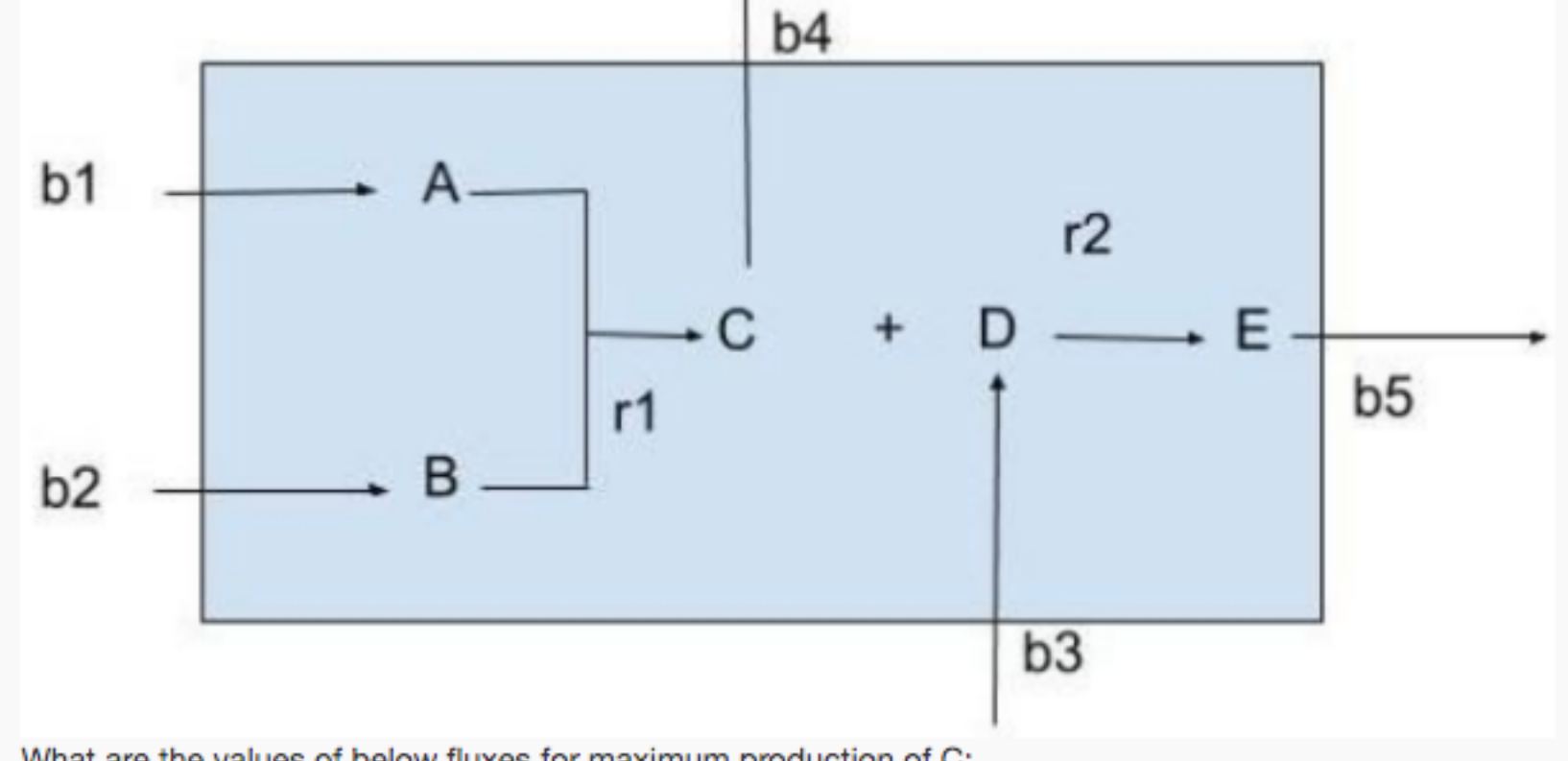
- I. FBA
 - II. MoMA
 - III. ROOM

 - A. Minimizes the number of regulatory changes following perturbation
 - B. Minimizes the change of flux distribution from the wild type following perturbation
 - C. Maximizes the growth following perturbation
- I-C, II-A, III-B
 I-C, II-B, III-A
 I-A, II-B, III-C
 I-A, II-C, III-B
 I-B, II-A, III-C
 I-B, II-C, III-A

No, the answer is incorrect. Score: 0

Accepted Answers: I-C, II-B, III-A

Consider the set of reactions given in below figure. Set up a linear programming problem for the flux balance analysis of the system to maximize the production of the metabolite C. Solve using the MATLAB command `linprog`. Assume that each reaction and exchange flux have a lower bound at 0 and upper bound at 100



What are the values of below fluxes for maximum production of C:

6) b1 = _____

No, the answer is incorrect. Score: 0

Accepted Answers: (Type: Numeric) 100

2 points

7) b2 = _____

No, the answer is incorrect. Score: 0

Accepted Answers: (Type: Numeric) 100

2 points

8) b3 = _____

No, the answer is incorrect. Score: 0

Accepted Answers: (Type: Numeric) 0

2 points

9) b4 = _____

No, the answer is incorrect. Score: 0

Accepted Answers: (Type: Numeric) 100

2 points

10) b5 = _____

No, the answer is incorrect. Score: 0

Accepted Answers: (Type: Numeric) 0

2 points

11) r1 = _____

No, the answer is incorrect. Score: 0

Accepted Answers: (Type: Numeric) 100

2 points

12) r2 = _____

No, the answer is incorrect. Score: 0

Accepted Answers: (Type: Numeric) 0

2 points

13) Which of the following is/are TRUE?

- FBA gives the transient changes in flux after a gene deletion
- After a gene deletion, MoMA gives the nearest metabolic state to the wild type metabolic state
- MoMA gives more accurate transient growth rates than ROOM
- ROOM finds steady state growth rates

No, the answer is incorrect. Score: 0

Accepted Answers: After a gene deletion, MoMA gives the nearest metabolic state to the wild type metabolic state
MoMA gives more accurate transient growth rates than ROOM
ROOM finds steady state growth rates

0.5 points

14) Which of the following commands must be executed for using Cobra Toolbox?

- initCobraToolbox
- optimizeCbModel
- initializeCobraToolbox
- ReadCbModel

No, the answer is incorrect. Score: 0

Accepted Answers: initCobraToolbox

0.5 points