

Unit 4 - Week 1

Course outline

How does an NPTEL online course work?

Prerequisite Assignment

MATLAB

Week 1

- 01 - Introduction
- 02 - Introduction to Modelling
- 03 - Introduction to Modelling
- 04 - Fundamentals of Mathematical Modelling
- 05 - Fundamentals of Mathematical Modelling
- 06 - Fundamentals of Mathematical Modelling
- 07 - Some Example Models
- 08 - Representation of Biological Networks
- 09 - Lab: MATLAB Basics
- 10 - Lab: MATLAB Basics
- 11 - Lab: MATLAB Basics
- 12 - Lab: MATLAB Basics
- Quiz : Practice Assignment 1
- Quiz : Assignment 1**
- Week 1 Feedback Form : Computational Systems Biology

Week 2

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week 4

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Week 12

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Assignment 1

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

Due on 2020-02-12, 23:59 IST.

Multiple Choice Questions: Only One Correct Answer

- 1) The number of iterations in the following loop is 1 point
- ```
p=3;
for i = (3:4)
 p = p+2;
end
```
- 0  
 1  
 2  
 ERROR

No, the answer is incorrect. Score: 0

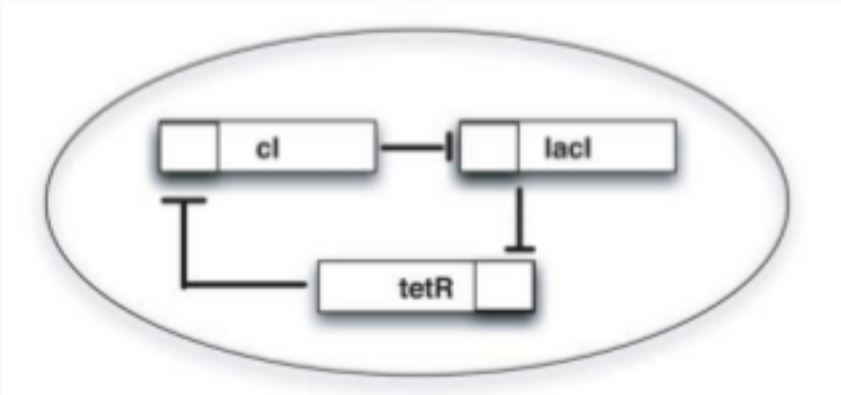
Accepted Answers: 2

- 2) If the enzyme-catalysed reaction  $E + S \rightleftharpoons ES \rightleftharpoons E + P$  is proceeding at or near the maximum rate of reaction  $V_{max}$ , what can be deduced about the relative concentrations of S and ES? 1 point
- S is abundant, [ES] is at its highest point  
 S is very low, [ES] is very low  
 S is very low, [ES] is at its highest point  
 S is very low, [ES] is at its highest point

No, the answer is incorrect. Score: 0

Accepted Answers: S is abundant, [ES] is at its highest point

- 3) What is the name of the following circuit? 1 point



- Oscillator  
 Repressilator  
 Toggle Switch  
 Amplifier

No, the answer is incorrect. Score: 0

Accepted Answers: Repressilator

- 4) A is a matrix as given below 1 point

$$A = \begin{bmatrix} 0 & 1 & 1 & 0 \\ 1 & 0 & 1 & 0 \\ 1 & 1 & 0 & 1 \\ 0 & 0 & 1 & 0 \end{bmatrix}$$

```
k = 1;
ind = 4;
X = A;
for i = 1: k-1
 X = X*A
end
Y = find(X(ind,:)>0)
```

What is the output of the above code?

- Y = [1 2]  
 Y = [1 2 4]  
 Y = [2 3]  
 Y = [3]

No, the answer is incorrect. Score: 0

Accepted Answers: Y = [3]

- 5) What will be the output of the code in question 4 above if ind=1? 1 point

- Y = [1 2]  
 Y = [1 2 4]  
 Y = [2 3]  
 Y = [3]

No, the answer is incorrect. Score: 0

Accepted Answers: Y = [2 3]

- 6) What is the rank of the matrix: 1 point

$$A = \begin{bmatrix} 1 & 0 & 0 \\ 0 & 1 & 0 \\ 0 & 0 & 1 \\ 0 & 0 & 2 \end{bmatrix}$$

- 1  
 3  
 2  
 0

No, the answer is incorrect. Score: 0

Accepted Answers: 3

## Multiple Select Questions:

- 7) If A and B are matrices of dimensions 3 x 2, which of the following can be multiplied? 1 point

- A \* B  
 A \* A'  
 A \* B'  
 B' \* B

No, the answer is incorrect. Score: 0

Accepted Answers: A \* A', A \* B', B' \* B

## Enter numeric value for the below questions:

- 8) Write the output for the following code: 1 point
- ```
b = [3 8 9 4 7 5];
sum = 0;
for k = 1:4
    sum = sum + b(k);
end
disp(sum);
```
-

No, the answer is incorrect. Score: 0

Accepted Answers: (Type: Numeric) 24

- 9) Write the output for the following code: 1 point
- ```
b = [2 5 7 4 9 8 3];
c = [2 3 5 7];
sum = 0;
for k = 1:4
 sum = sum+b(c(k));
end
disp(sum);
```
- 

No, the answer is incorrect. Score: 0

Accepted Answers: (Type: Numeric) 24

- 10) Write the output of the following code: 1 point
- ```
a = [2 3 5];
b = 2*a.^2+3*a+4;
c = b(1) +b(2) +b(3);
disp(c);
```
-

No, the answer is incorrect. Score: 0

Accepted Answers: (Type: Numeric) 118

1 point