

Quiz 11: Petri Nets

Due Nov 28, 2016 at 11:59pm **Points** 100 **Questions** 3

Available Nov 21, 2016 at 8am - Nov 28, 2016 at 11:59pm 8 days

Time Limit 60 Minutes

This quiz was locked Nov 28, 2016 at 11:59pm.

Attempt History

	Attempt	Time	Score
LATEST	Attempt 1	34 minutes	95 out of 100

Score for this quiz: **95** out of 100

Submitted Nov 28, 2016 at 11:31pm

This attempt took 34 minutes.

Question 1

25 / 30 pts

What are the four graphical elements of a classical Petri net?

Your Answer:

Graphical elements: places, tokens, edges and transitions.

Places: They are represented by circles. Communication medium, buffer, geographical location and a possible state or state condition

Tokens: they are represented by small solid state circles. physical object, information object, collection of objects, indicator of a state, indicator of a condition

Edges: Edges are represented by directed arrows.

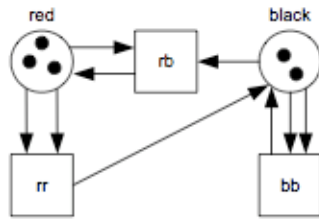
Transitions: They are represented using rectangles. An event, transformation of an object and transport of an object

Arc

Question 2

40 / 40 pts

For the Petri net below, give the definitions of P, T, I, O and s in the formal definition of a PN. Hint: There are 2 places, 3 transitions, and therefore six mappings in I and O.



Your Answer:

$P = \{\text{red, black}\}$

$T = \{\text{rr, rb, bb}\}$

$I = I(\text{red, rr})=2, I(\text{red, rb})=1, I(\text{red, bb})=0, I(\text{black, rr})=0, I(\text{black, bb})=2, I(\text{black, rb})=1$

$O = O(\text{red, rr})=0, O(\text{red, rb})=1, O(\text{red, bb})=0, O(\text{black, rr})=1, O(\text{black, bb})=1, O(\text{black, rb})=0$

$S = \{3, 2\}$

Question 3

30 / 30 pts

For the use of Petri nets to model workflow, give two possible interpretations for each of the following PN concepts when doing this modeling:

1. Place
2. Transition
3. Token

Your Answer:

Possible interpretations are as below.

1. Place:

- A type of a communication medium, like a communication network or middleman
- A buffer is as a post-bin or a queue example.

2. Transition

- A transformation of an object like updating a database
- A transport of an object like sending a file or transporting goods

3. Token

- A physical object for example, a drug or a person
- An indicator of a condition: it indicates whether a condition is fulfilled or not

Quiz Score: **95** out of 100