# University of Asia Pacific
## CSE 403: Artificial Intelligence and Expert Systems (Section: A)
### Third Class Test (CT#3)

Spring 2021                           Time: 30 minutes          Date: 27/10/2021 (Wednesday)
                                      Full Marks: 20

Name: _____          Reg. # _____

**Please answer to the questions below:**                                          **Marks**

1. Please explain the assumptions which make Markov Model possible.                    **5**

2. The probability of not cloudy on Tuesday is 0.7. The Probability Transition           **15**
   Matrix is given below:

| Tuesday | Next Day | Probability |
|---------|----------|-------------|
| cloudy | cloudy | A = (last two digits of Reg. No.) / 100 |
| cloudy | not cloudy | B = 1 – A |
| not cloudy | cloudy | C = 1 – D |
| not cloudy | not cloudy | D = SQRT(last two digits of Reg. No.) / 10 |

What is the probability of not cloudy on Wednesday? Please draw the Markov
Chain and calculate properly using the formula.

For example, if the last two digits of someone's Reg. No. is 39, then

| | |
|---|---|
| A = 39 / 100 = 0.39 | B = 1 – 0.39 = 0.61 |
| D = SQRT(39) / 10 = 0.62 | C = 1 – 0.62 = 0.38 |

If the last digit of someone's Reg. No. is 0, then replace the 0 with 3 and
calculate accordingly.