

The University of Auckland
Department of Electrical, Computer and Software Engineering
COMPSYS 705 Formal Methods for Safety Critical Software
Test, 17 October 2023

Last name	Name	ID

Question	Mark
Q1	
Q2	

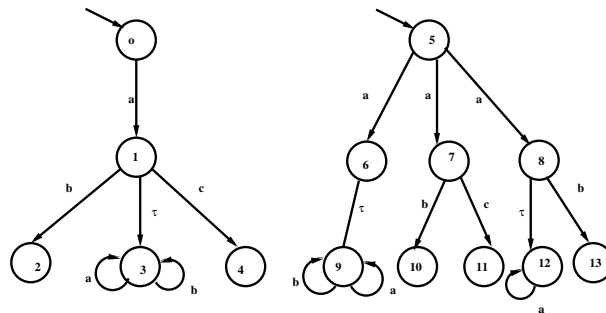


NOTE

1. Answer A
- 70 marks
- marks in
2. Questions
3. The max
4. Weightin
5. Show all
6. Write ans
7. Answers :

1. Answer the following questions related to the process algebra CCS (20 Marks):

- (a) Consider two processes P, Q shown in Figure 1. Are these processes *bisimilar*, *weakly bisimilar*, *similar* or there is no relationship between them? Justify your selection mathematically by either finding the corresponding relation or showing the absence of any such relation. (5 Marks)



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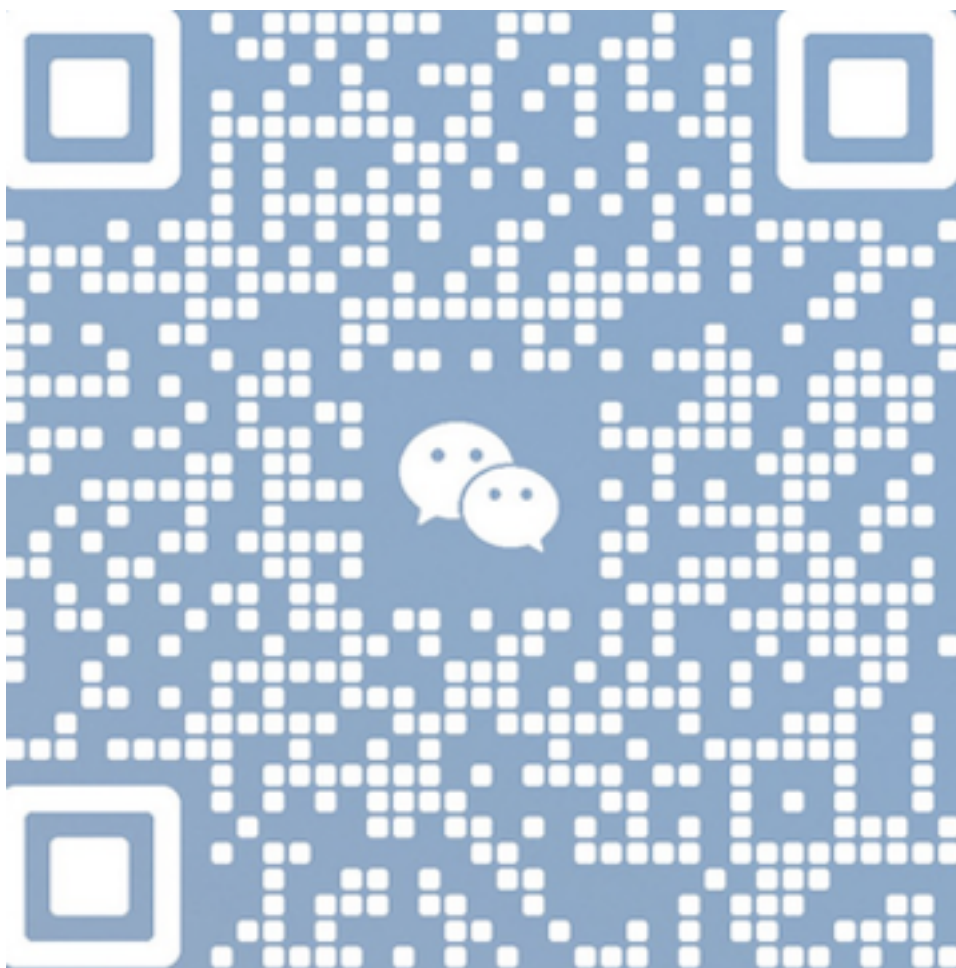
(1)

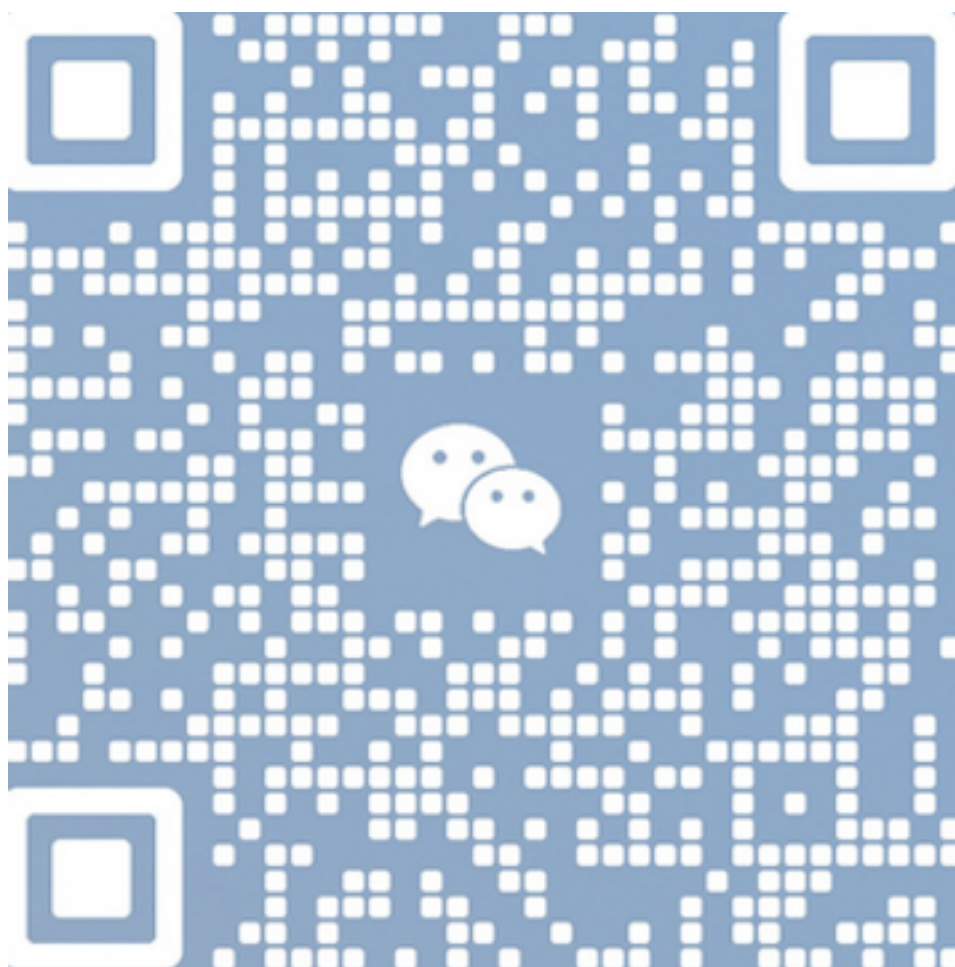
(2)

- (c) Whi
(5 M

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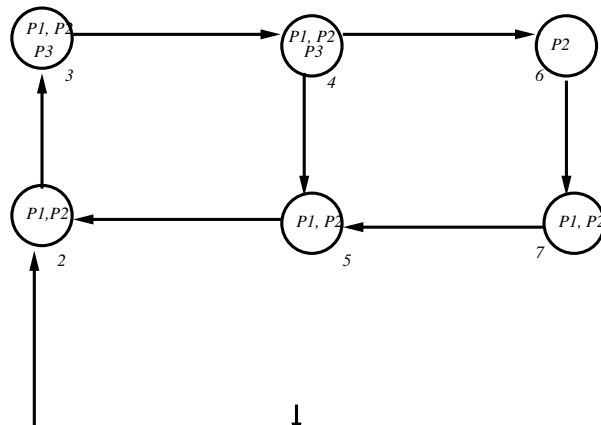
Answer box for Q1





2. Temporal logic and model checking (20 Marks)

- (a) Show all the steps of model checking the formula $AF(\neg P1 \wedge \neg P2) \vee P3$ over the model shown in Figure 2. Does, the model satisfy this property? (10 Marks)



- (b) Identify the valid and invalid states. Here, EX, ...

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