Q1. Basis path testing is a black-box testing technique. (1pt)

- True
- False

Q2. White-box testing is a kind of static testing. (1pt)

- True
- False

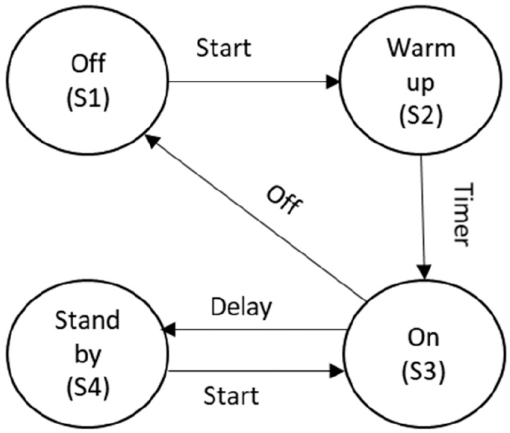
Q3. In TDD, we write code when we fail a test. (1pt)

- True
- False

Q4. Customer acceptance testing is a variation of beta testing. (1pt)

- True
- False

Q5. The given test cases in the table below test only some of the valid transitions in the state transition diagram. (1pt)



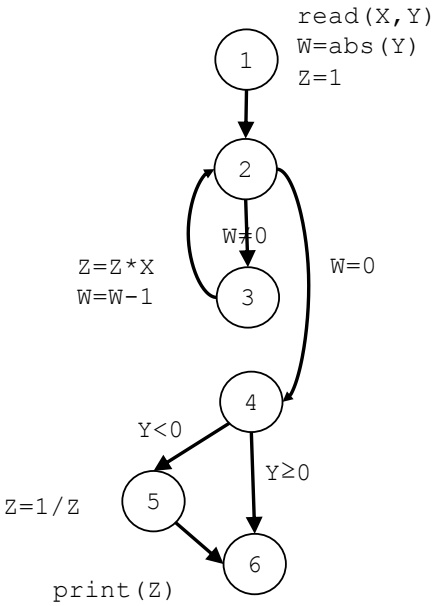
Test case	1	2	3	4	5	6
Start state	S1	S2	S3	S4	S3	S4
Input	Start	Timer	Delay	Start	Off	Off
Expected end state	S2	S3	S4	S3	S1	S1

- True
- False

Q6. Explain the difference between testing and debugging. (2pts)

Q7. List three advantages and three disadvantages of white-box testing. (3pts)

Q8. Consider the following control flow graph *CFG1*:



- How many independent paths are in CFG1? Justify your response and list all independent paths. (4pts)

- Which of the following is a predicate node in CFG1? (1pt)
  - 1
  - 3
  - 4
  - 5

Q9. Draw the control flow graph (*CFG2*) defined by the following sets: (2pts)

N = {1, 2, 3, 4, 5, 6, 7} // list of nodes.

N0 = {1} // initial node.

Nf = {7} // final node

E = {(1, 2), (1, 7), (2, 3), (2, 4), (3, 2), (4, 5), (4, 6), (5, 6), (6, 1)} // list of edges.

Candidate test paths: [1, 2, 4, 5, 6, 1, 7] and [1, 2, 3, 2, 4, 6, 1, 7].

- Do the given candidate test paths satisfy edge-pair coverage? If not, identify what is missing. (2pts)

- List all prime paths of CFG2. (6pts)

Q10. Consider a program that monitors the conditions in a plant growth chamber. The program takes two integer-input values: the temperature (T) in degrees Celsius and the light intensity (L) in lumens. The program will activate an alarm sound if one of these input value goes out of its optimal range. The temperature T ranges within the valid interval [21, 24]. The light intensity L ranges within the valid interval [7000, 7500].

- Generate the test cases for this program using Robust Boundary Values Analysis. (5pts)