Question 1:

1. The state diagram is representing the behavior of a motor. The motor starts in the off state, and from there is then cranked into the running state. From the running state it goes to the idle state. Once in the idle state, it can either go back to the running state or can be turned off.
2. The state diagram is describing an automatic door. I’ll start from the locked state. In the locked state, if the sensor detects movement, the door goes to the unlocked state and begins opening. After 15 seconds, the door is still in the unlocked state, but it begins closing. If sensor movement is detected while in the closing state, it goes back to the opening state. If movement is not detected after 15 seconds in the closing state, the door leaves the unlocked state and goes to the locked state. Then the cycle starts over.

Question 2:

**State**: Running

**Description**: The cassette player is operational, active and is currently running

**Event sequence that produce’s the state**: s== “play”

* from the initial state, the motor is stopped. Then from the stop state if s == “play” you go to the running state
* from the paused state, if s== “play”

**Events accepted in the state:**

Event Response NextState

StopMotor s == “stop” stopped

pause s == “pause” paused

Diagram

Description automatically generatedQuestion 3:

Question 4

Diagram

Description automatically generated

Question 5A:

Diagram

Description automatically generated

5b.

Use case: Place an order

pre: user has account

trigger: System places the order

guarantee: Credit card information is sent to bank for approval

main:

Customer creates an account by choosing username/password. His or her information is linked to the account. From there the system checks if all required information is there. Credit card information is sent to the bank. If the card is approved the order is finalized

Alternatives:

not enough information is provided, system goes back to customer and asks for more information

bank denies the card

5C:

Diagram

Description automatically generated

5D.

Diagram

Description automatically generated