Solutions PDF Generated from: solutions-openai-generated/quizzes/quiz-week-07-solutions-set-02.json

Question A

What is the difference between Mealy and Moore state machines?

```
Mealy and Moore state machines are two types of finite state machines (FSMs). The main difference
    between the two is in how inputs are handled. In a Mealy state machine, the output of the state
     is a function of both the current state and the input to the state; in a Moore state machine,
    the output of the state is a function only of the current state. In addition, Mealy state
    machines are generally easier to construct than Moore state machines, as fewer states are
    needed.
```

Question B

What is the next state logic?

```
The next state logic is a type of digital logic used to transition a circuit between different
    states. It uses Boolean logic to define changes in the system, with each defined state having
    its own set of conditions and logic associated with it. This type of logic is used in a wide
    range of applications, including computer hardware, industrial and process control systems, and
     embedded systems.
```

Question C

What is the output logic?

```
Output logic is a set of rules, processes, or algorithms used to define the output of a task,
    process, or system. Output logic is related to input logic and can be thought of as the
    instructions on how to turn an input into an output. It is a crucial part of developing
    computer algorithms, as it defines how to process information and send the results to users.
```

Question D

What is difference between binary and one-hot state encoding in state machines?

```
Binary state encoding is a method of representing the states of a state machine where each state is
     represented by a single binary variable. The variable is either true (1) or false (0). The
    binary variable changes its value whenever the state of the state machine changes.
```

```
One-hot state encoding is a method of representing the states of a state machine where each state
    is represented by a set of boolean variables. Each variable corresponds to a single state and
    is True when that state is active, and False when it is not. This encoding is most useful when
    each state has an equivalent number of transitions and is logically distinct from other states.
     The state is determined by the combination of variables which are set to True.
```

Question E

How would use of K-Maps help in design of state machines?

K-Maps (also known as Karnaugh Maps) are graphical methods used to simplify Boolean algebra
    expressions and are effective in identifying minimal expressions. This makes them incredibly
    useful when designing and debugging state machines. K-Maps can be used to identify which input
    patterns trigger which state transitions and can help determine the correct timing and duration
     of state transitions. They can also be used to assess the validity of existing state machine
    designs.

Execution Time

0:00:16.585064

OpenAI Parameters

Model: text-davinci-003, Max. Tokens: 1024, Temperature: 1, N: 1