

Alliance with  Education**Analog, Digital Design and Computer Architecture - Exam Paper****Duration: 60 minutes | Marks: 100****Question:**

A system is required to store the ON/OFF state of a device.

The device is allowed to change its state only when an ENABLE signal is active.

**Requirements:**

- Use one D Flip-Flop.
- Include an ENABLE signal to control data writing.
- When ENABLE = 0, the current state must be maintained.
- When ENABLE = 1, the state must follow the input D.

**Tasks:**

1. Draw the block diagram of the circuit.
2. Construct the state table of the system.
3. Explain the role of the clock signal in the circuit.

**Marking Schema:**

Question	Mark
Question 1	30
Question 2	30
Question 3	40
<b>Total</b>	<b>100</b>