



Alliance with FPT 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:**

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