

1. In the abstract circuit diagram shown (in slides), what are the implications of having the state element level triggered versus edge triggered?
 - (a) Having it level triggered is a better option as it would result in a faster circuit
 - (b) Having it edge triggered will result in a faster implementation
 - (c) A level triggered implementation would be unsafe as state changes would be uncontrolled
 - (d) An edge triggered implementation would be unsafe as state changes would be uncontrolled

Answer: (c)

2. What is the meaning of setup time of a synchronous sequential circuit?
 - (a) The time it takes to design the circuit
 - (b) The time it takes to fabricate the circuit
 - (c) The first half of the clock cycle
 - (d) The time before the active edge for which the inputs must be held constant, for the circuit to behave predictably
 - (e) The time before the inactive edge for which the inputs must be held constant, for the circuit to behave predictably

Answer: (d)

3. What is the meaning of hold time, in a synchronous sequential circuit?
 - (a) The minimum time for which the active edge must last
 - (b) The maximum time for which the active edge can last
 - (c) The maximum time for which the inactive edge can last
 - (d) The minimum time for which the inputs must be held constant, after the active edge

Answer: (d)

4. What is the relation between clock time c , delay of combinatorial element d , setup time of sequential element s , and hold time of sequential element h ?

- (a) c must be at most $d + s + h$ for the circuit to work
- (b) c must be at least $d + s + h$ for the circuit to work
- (c) c must be at most $2(d + s + h)$ for the circuit to work
- (d) c must be at least $2(d + s + h)$ for the circuit to work

Answer: (b)

5. What is the best practice to learn MIPS hardware implementation effectively?
- (a) Look at circuit diagrams once briefly
 - (b) Look at circuit diagrams once, but for 5 minutes or more
 - (c) Look at circuit diagrams thrice: once in the slides, once in text, once in your friend's book
 - (d) Draw the circuit diagram once while learning
 - (e) Draw the circuit diagram again while revising

Answer: (e)