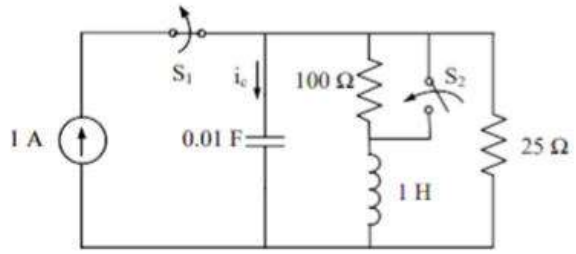
GATE 2024 ECE Daily Practice Questions

Question 1: The switch S1 was closed and S2 was open for a long time. At t = 0, switch S1 is opened and S2 is closed, simultaneously. The value of ic (0+), in amperes, is



(a) 1
(b) -1
(c) 0.2
(d) 0.8

Question 2: The synchronous sequential circuit shown below works at a clock frequency of 1 GHz. The throughput, in Mbits/s, and the latency, in ns, respectively, are
(a) 1000, 3
(b) 2000, 3
(c) 333.33, 1
(d) 333.33, 3

Question 3: For an intrinsic semiconductor at temperature T = 0 K, which of the

following statement is true?
(a) All energy states in the valence band are filled with electrons and all energy states in the conduction band are empty of electrons.
(b) All energy states in the valence band are empty of electrons and all energy states in the conduction band are filled with electrons.
(c) All energy states in the valence and conduction band are filled with electrons.
(d) All energy states in the valence and conduction band are filled with holes

Question 4: Consider the following inequalities.
(i) $2x - 1 > 7$
(ii) $2x - 9 < 1$

Which one of the following expressions below satisfies the above two inequalities?
(a) $x \leq -4$
(b) $-4 < x \leq 4$
(c) $x \geq 5$
(d) $4 < x < 5$

Question 5: Select the CORRECT statement(s) regarding semiconductor devices
(a) Electrons and holes are of equal density in an intrinsic semiconductor at equilibrium.
(b) Total current is spatially constant in a two terminal electronic device in dark under steady state condition.
(c) Collector region is generally more heavily doped than Base region in a BJT.
(d) Mobility of electrons always increases with temperature in Silicon beyond 300 K.