WEEKLY TEST EXAM – WEEK 1st

5th SEMESTER ELECTRONICS AND COMMUNICATION

ANALOG ELECTRONICS

FULL MARKS-20 **TIME-20 MINUTES**

- ***Attempt all questions, each question carries 2 marks.***
- ***There is no negative marking.***

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1. Early effect or Base width modulation occurs in which of the following semiconductor devices?

a) BJT b) MOSFET c) PN diode d) Zener diode

2. In BJT current is mainly due to .

a) Diffusion of carriers b) Drift of the carriers c) Both (a) and (b) d) None of these

3. A region of –ve differential resistance is observed in the current voltage characteristics of silicon P-N junction if

a) Both the P-region and N-region are heavily doped.

b) N-region is heavily doped compared to P-region.

c) P-region is heavily doped compared to N-region.

d) Intrinsic silicon is inserted between P- and N- region.

4. If for a silicon N-P-N transistor, the base – to – emitter voltage is 0.7V and the collector – to – base voltage is 0.2V, then the transistor is operating in the

a) Active region b) Saturation region c) Reverse active region d) cut-off region

5. Consider the following statements S1 and S2

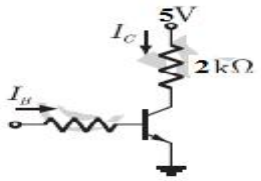
S1 : The β of a bipolar transistor reduces if the base width is increased.
S2 : The β of a bipolar transistor increases if the doping concentration in the base is increased
Which of the following is correct?

a) S1 is false and S2 is true. b) Both S1 and S2 are true.
c) Both S1 and S2 are false. d) S1 is true and S2 is false.

6. A silicon PN junction at a temperature of 20^0 C has a reverse saturation current of 10 pico amperes(pA). The reverse saturation current at 40^0 C for the same bias is approximately

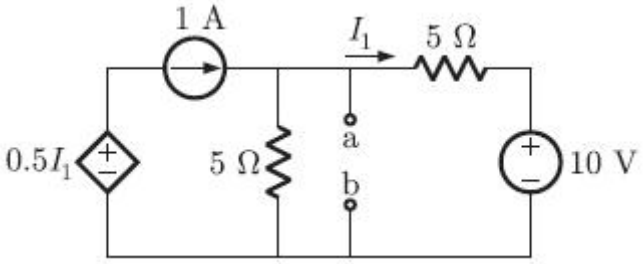
a) 30pA b) 40pA c) 50pA d)60pA

7. Assuming V_{CEsat}= 0.1 V and β = 100, the minimum base current (I_B) required to drive the transistor in the figure to saturation is



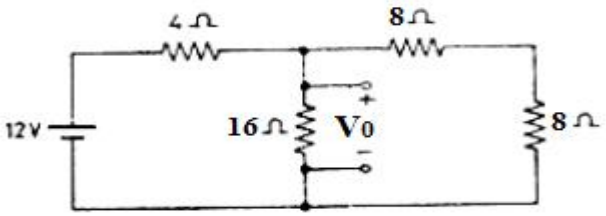
a) 24 µA b) 24.5 µA c) 49 µA d) 2.45mA

8. For the circuit shown in the figure, Thevenin's voltage at terminals a - b is



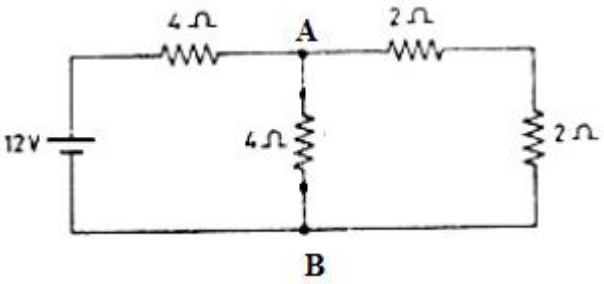
a) 5V b) 7.5V c) 4V d) 3V

9. The Voltage V_0 in the figure is



a) 4V b) 16V c) 12V d) 8V

10. In the given network find thevenin resistance across terminal A-B



a) 4Ω b) 4/3 Ω c) 2Ω d) 8Ω