Name- Roll No.-

WEEKLY TEST EXAM – WEEK 2nd 23-07-18

5th SEMESTER ELECTRONICS AND COMMUNICATION

ANALOG ELECTRONICS

FULL MARKS-20 **TIME-30 MINUTES**

1. A Silicon diode is biased at 1mA current and working at 327^o C temperature, value of small signal diode resistance ----------. (Given, V_T = 25mV at 27^o C.)

2. Consider the following statements S1 and S2
S1: The **α** of a bipolar transistor increases if the base width is increased.
S2: The **α** 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.

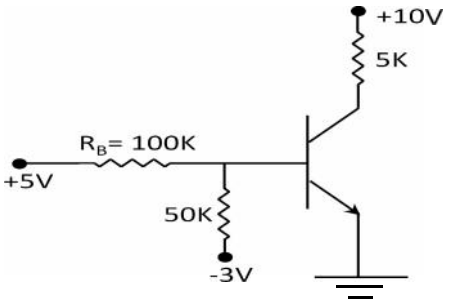
3. The magnitude of gain of fixed biased CE amplifier is 25, if a sinusoidal signal of 20 mV peak amplitude is applied to this amplifier. What will be the magnitude of output signal?

a) - 0.5V b) 12.5mV
c) 20mV d) 0.5V

4. What is the region of operation for the transistor shown? [β = 100, $V_{BE,active}$= 0.7V, $V_{BE,saturation}$ = 0.8V, $V_{CE,saturation}$ = 0.2V]

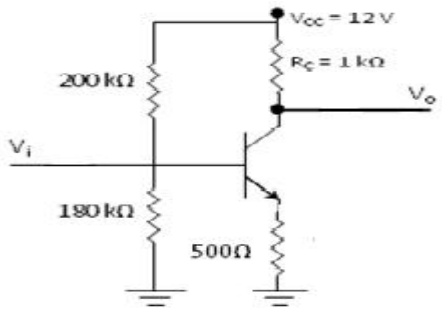
(a) Active (b) Saturation

(c) Reverse Active (d) cut-off

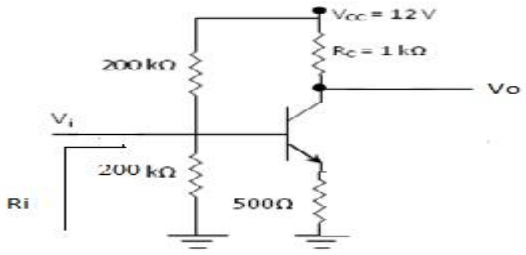


5. Consider CE amplifier given below: β = 75

The mid-band voltage gain $\left|\frac{V_0}{V_i}\right|$ is: ------



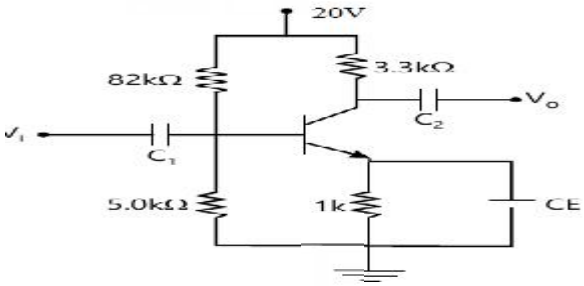
6. The input impedance, R_i for the CE amplifier shown in the figure below is: Use V_T = 26 mV, β = 80, $r_o \rightarrow \infty$



(a) 0.69 kΩ (b) 29 kΩ

(c) 41 kΩ (d) 100 kΩ

7. Determine the transconductance (g_m), output resistance(r_0) and r_π for the circuit given below,



Where, early voltage (V_A) = 100V and β =100

8. Draw the small signal model for circuit given below: