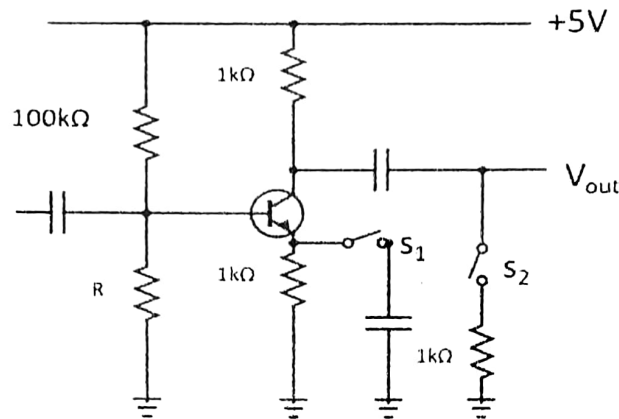


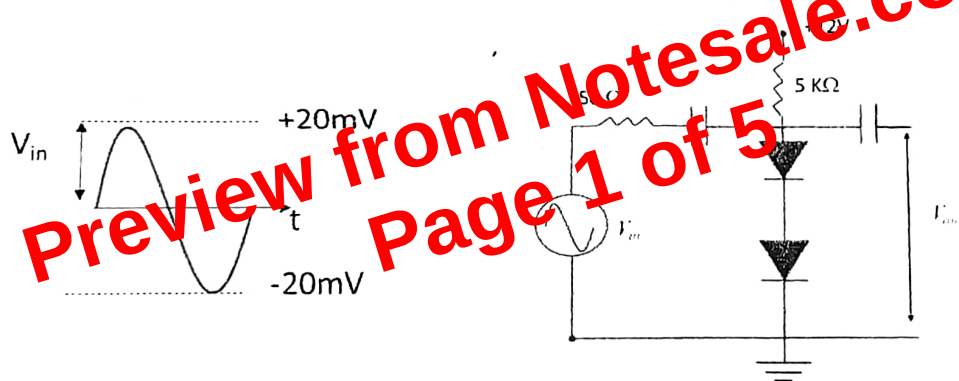
1. (a) Draw the d.c load line for the circuit given below. Mark the Q-point on the load line at collector current 1 mA. Calculate the voltage at the collector (V_C) and base (V_B) of the transistor. Complete the voltage divider biasing by calculating resistance R using β of the transistor = 100.
 (b) Calculate the input and output impedance and a.c voltage gain of the circuit when switch S_1 and S_2 both are open.
 (c) If the switch S_1 is closed, calculate the input impedance and voltage gain.
 (d) Keeping the switch S_1 closed, what would be the total circuit a.c voltage gain when the switch S_2 is also closed?

[10]



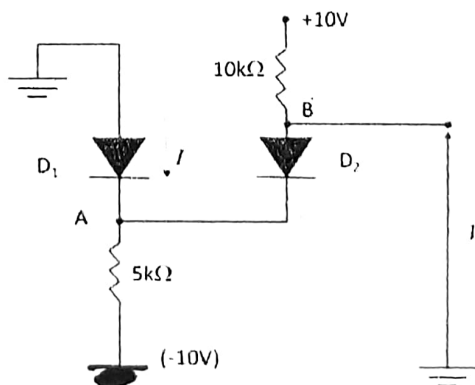
2. (a) Calculate and draw the output voltage for the circuit given below. Assume the voltage drop across the diode is 0.7 V and the a.c resistance of the diode $r_e = 25 \text{ mV}/I_d \text{ (mA)}$.

[2]



- (b) For the circuit shown in Figure below, find current I and voltage V , assuming the voltage drop across the diode is 0.7 V.

[3]



3. (a) Prove that the maximum stage efficiency for class B push-pull emitter follower $\sim 78\%$.
 (b) Class B Push-Pull amplifier has an efficiency of 60% and each transistor has a rating of 2.5W. Find the d.c. input power and a.c. output power.

[3 + 2]