[This question paper contains 4 printed pages.]

6004 *Your Roll No.* .....

B.Sc. (H) Electronics / III Sem. **B**

Paper – ELHP-306

Electronics Practical – VI

(Admissions of 2010 and onwards)

Time : 1 Hr. *Maximum Marks : 25*

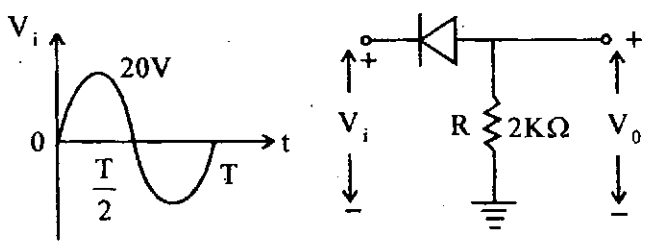
(Write your Roll No. on the top immediately on receipt of this question paper.)

Attempt any **ten** *questions from Section–***A** *and any five from Section–***B.** *Use of Scientific non-programming calculators is allowed.*

SECTION A

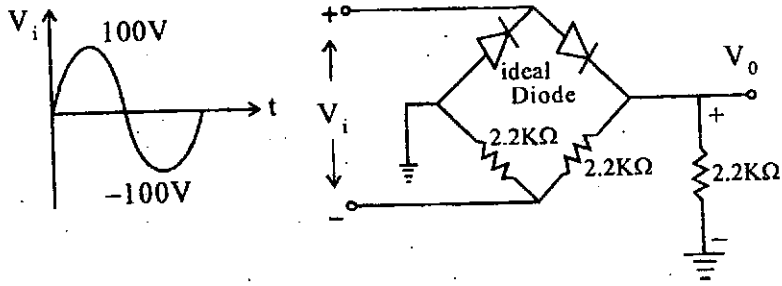
Attempt any **ten** *questions.* (10×2)

1. Sketch the output of the following circuit

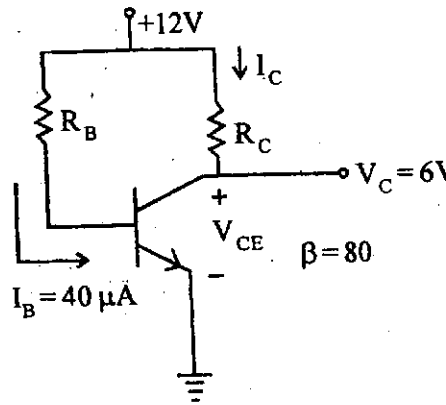


2. Determine the output waveform.

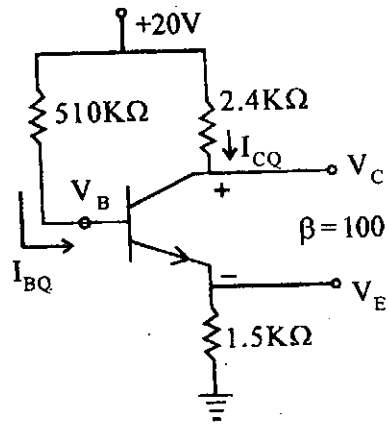
P.T.O.



3. Determine I_C, R_C, R_B & V_{CE} for the following circuit.



4. For the emitter stabilized bias circuit



determine I_{CQ} & V_{CEQ}. Also draw the dc loadline.

5. An amplifier rated at 40W output is connected to a 10Ω speaker. Calculate the input power required for full power output if the power gain is 25 dB.

6. Find the magnitude of gain corresponding to a voltage gain of 100 dB.

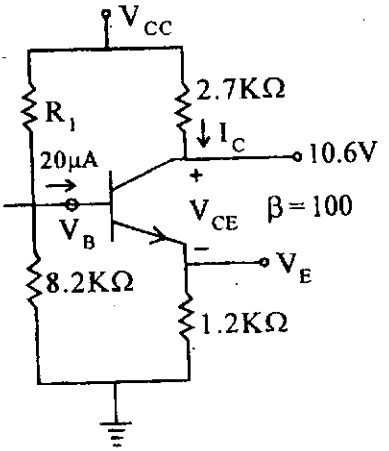
7. Write the function of blocking and bypass capacitors in a CE amplifier configuration.

8. State Barkhausen criteria for oscillations.

9. Determine the frequency for the Colpitt's Oscillator having $L = 50$ mH, $C_1 = 0.1$ μF and $C_2 = 0.01$ μF.

10. A certain JFET has a $g_m = 4$ mS. With an external ac drain resistance of 1.5 KΩ, what is the ideal voltage gain ?

11. For the voltage divider bias circuit as shown



Determine V_{CE}, I_C, V_{CC} and R_1.

P.T.O.

12. A three stage cascaded amplifier arrangement has the following voltage gain : $Av_1 = 10$, $Av_2 = 15$ and $Av_3 = 20$. What is the overall voltage gain in dB.

13. In a Class-C amplifier, having $V_{CC} = 24V$ and R_C is 100Ω. If average power dissipation is 4 mW, determine the efficiency of the amplifier.

SECTION B

(Attempt any **Five***)* (5×1)

1. The rms ripple voltage is 20 mV for a 15V dc output. What will be the % value of ripple factor.

2. A bridge rectifier provided with a shunt capacitor is connected to a 10 KΩ load. If the ripple factor is to be restricted to 0.01, what should be the approximate value of the capacitor.

3. What is the relationship between α and β in a BJT ?

4. In which region(s) the transistor should be operated to be used as a switch.

5. Name the circuit that provides the best stabilization of operating point.

6. What should be the closed 100 p voltage gain of an amplifier in phase shift oscillator.

7. In which type of power amplifier, cross over distortion is observed.