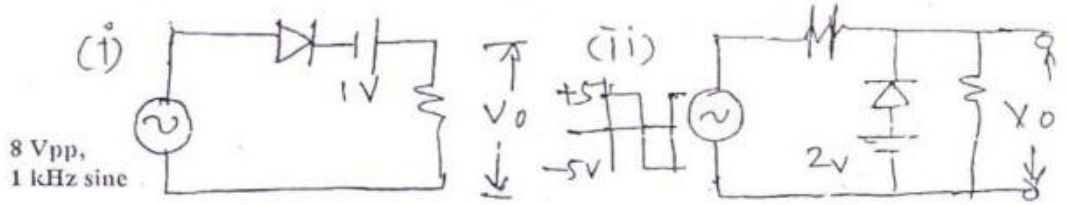
Q.P. Code : **5313**

(3 Hours) [Total Marks : 80

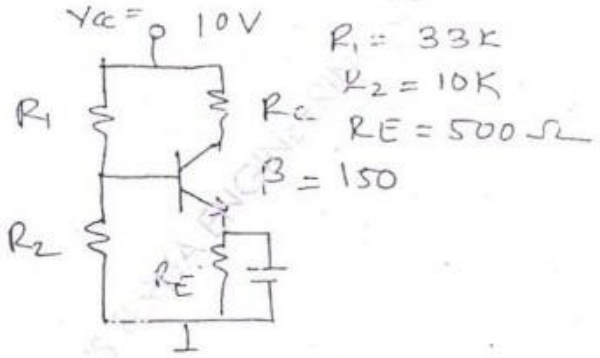
N.B. : (1) Question **No.1** is **compulsory**
(2) **Solve** any **three** questions from **remaining** questions.
(3) **Assume** suitable **data** if it is **required**.

1. Solve any **Four** questions :
   (a) Draw output waveform for following circuits. 5



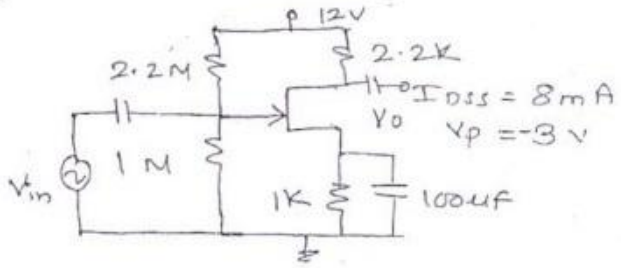
   (b) Explain Wilson current source. 5
   (c) What are different biasing methods used for FET, explain self bias technique. 5
   (d) State and Explain Barkhausen criteria. 5
   (e) Derive expression for efficiency for Class A transformer coupled amplifier. 5

2. (a) Find Icq, Vceq, Ri and R0 for following circuit with RC = 1.2 kΩ. 10



   (b) Explain any one method for biasing for E-MOSFET. 10

3. (a) Find Av, Ri and R0 for following circuit. 10



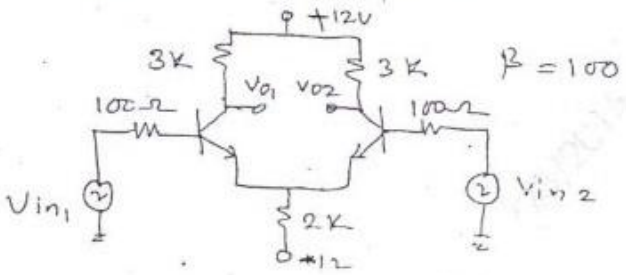
TURN OVER

(b) Explain need for cascading of amplifiers. Explain CS-CE combination in detail. 10

4. (a) What is use of negative feedback in amplifier? Draw block diagram for current shunt feedback and find Af, Rif and R0f. 10

(b) Explain High frequency response of CS-CS amplifier and hence derive equation of output frequency. 10

5. (a) For the following diff-amp find Ad, Ac and CMRR. 10



(b) Explain working of Class B push-pull power amplifier. What is cross over distortion? 10

6. Write short notes on (any **four**) 20

(a) High frequency oscillator,
(b) Cascode amplifier,
(c) High frequency model for BJT
(d) Heat sinks
(e) Constant current source used in diff-amp.
