S.E. (ETRX) sem IV (CBSGS) M- 2014

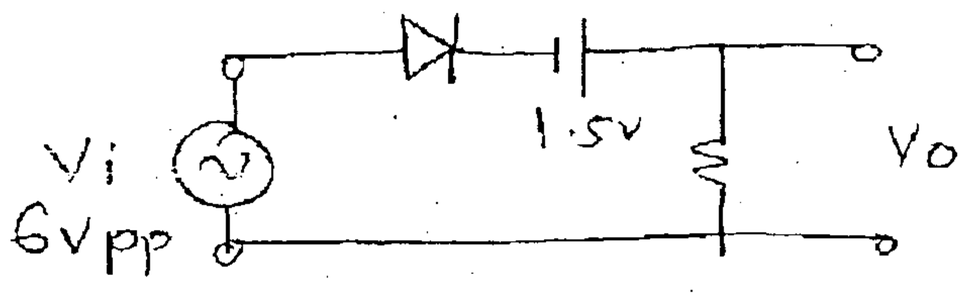
Sub:- DEC 19/5/14

QP Code :**NP-19679**

(3 hours) **[Total Marks : 80**

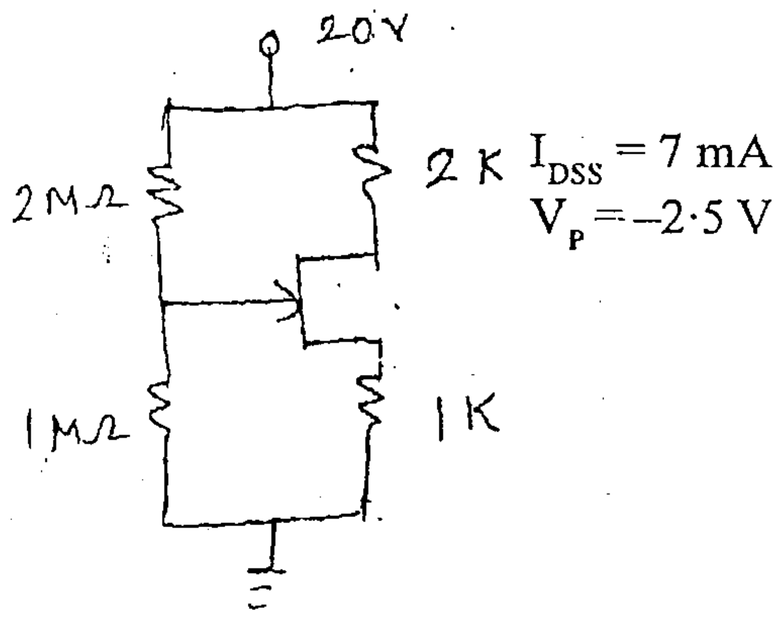
N.B.: (1) Question no. **1** is **compulsory**.
(2) Solve any **three** out of **remaining** questions.
(3) Assume **suitable** data wherever **necessary**.

1. Solve any **four** :– **20**
   (a) For the following clipper circuit sketch the i/p and o/p wave form write equation for Vo. **5**



   (b) Compare BJT, JFET and MOSFET. **5**
   (c) Which components in an amplifier (CS and CE) circuit affect low frequency response ? Explain. **5**
   (d) State and explain Barkhansen's criteria. **5**
   (e) Explain effect of swamping resistor in differential amplifier. **5**
   (f) Derive expresion of efficiency of clan A Transformer coupled amplifier. **5**

2. (a) Draw approximate hybrid π model of CE transistor amplifier and derive expressions for Av, Ai, Zi and Zo. **10**
   (b) Determine operating point and draw DC load line for the circuit shown :– **10**



3. (a) Draw two stage CS-CS amplifier circuit and derive expressions for Av, Zi and Zo. **10**
   (b) State different types of negative feedback topologies and explain current series in detail using block diagram. **10**

4. (a) Draw circuit diagram for dual i/p balanced o/p differential amplifier (using any type of devices) and derive expressions for Ad, Ac, CMRR and Ri. **10**
   (b) Draw circuit diagram of colpitt's oscillator and explain it's working. State applications, advantages and disadvantages of this circuit. **10**

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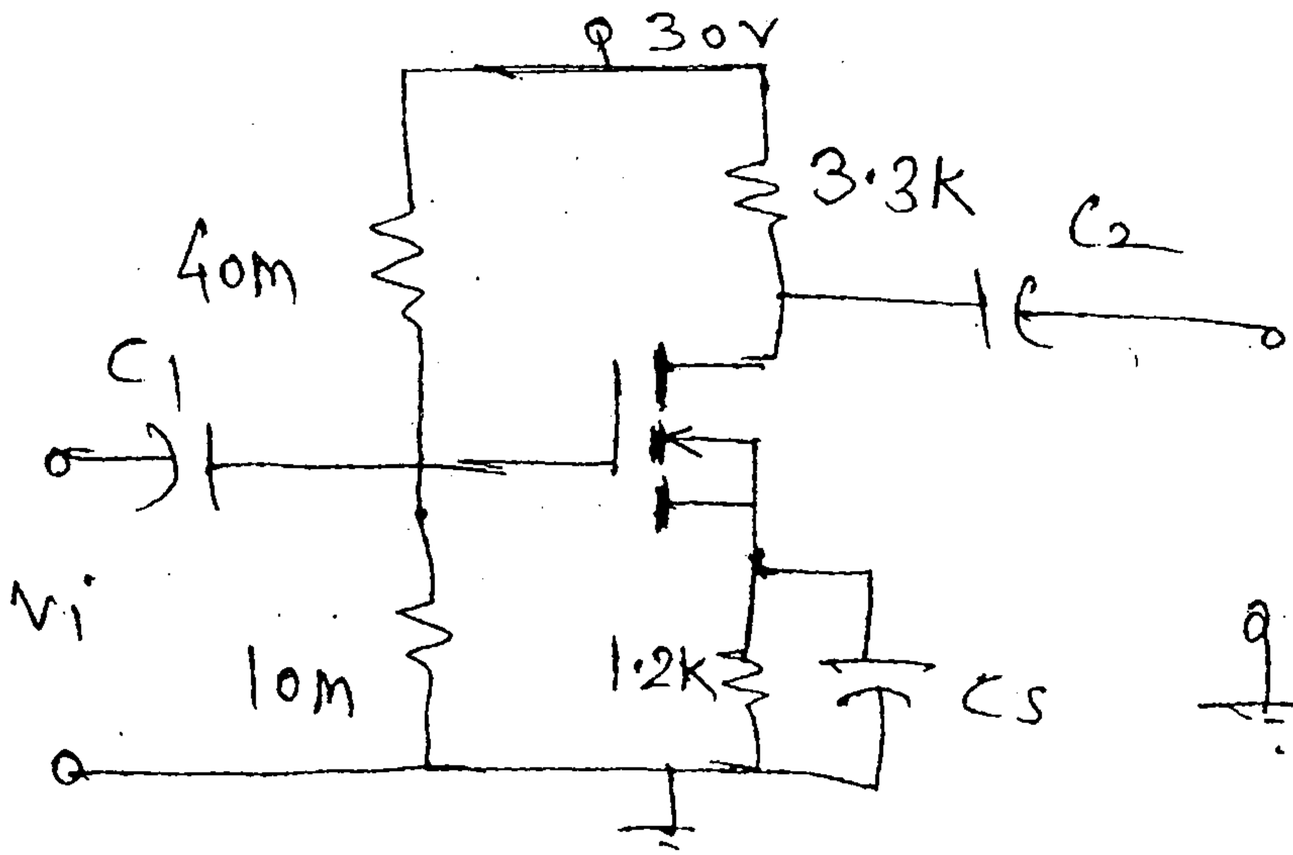
5. (a) Justify need for constant current source and explain any one in detail. **10**
   (b) Explain working of class B (push-pull) power amplifier. **10**

6. (a) For the circuit shown find Av, Ri and Ro. **10**



   (b) Draw High frequency model for CS JFET amplifier and explain. **5**
   (c) Explain importance and need for biasing in amplifier. **5**
