

S.E. (ETRX) sem IV (CBSGS) M - 2013

Syb: - DEC

19/5/14

QP Code :NP-19679

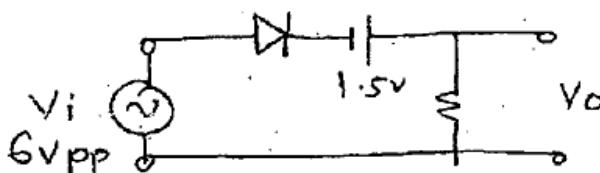
(3 hours)

[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 :-

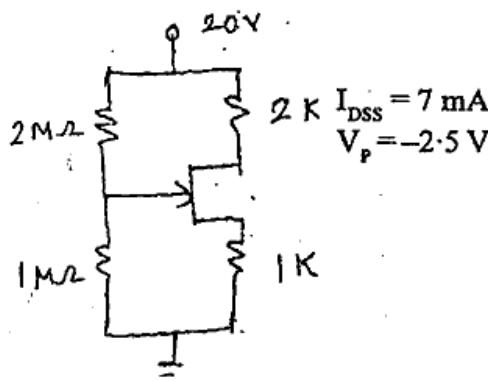
- (a) For the following clipper circuit sketch the i/p and o/p wave form write equation for V_o . 5



- (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 expression of efficiency of class A Transformer coupled amplifier. 5

2. (a) Draw approximate hybrid π model of CE transistor amplifier and derive expressions for A_v , A_i , Z_i and Z_o . 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 A_v , Z_i and Z_o . 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 A_d , A_c , CMRR and R_i . 10

(b) Draw circuit diagram of colpitt's oscillator and explain it's working. State applications, advantages and disadvantages of this circuit. 10

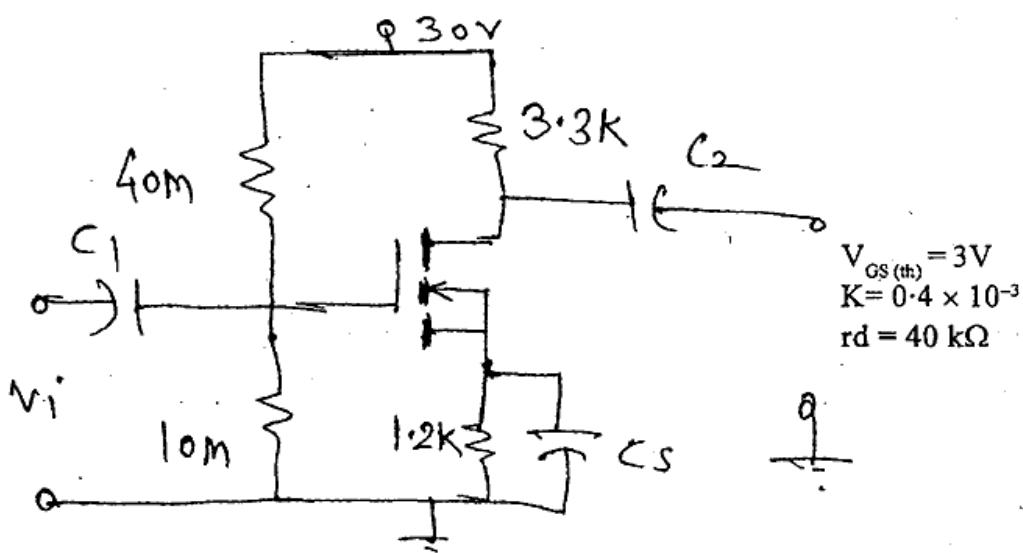
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2

QP Code :NP-19679

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 A_v , R_i and R_o . 10



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