

Dept
IV-ETRX
20/Dec/18

SE (ETRX) IV (CBS) 19/11/18

QP Code : 22763

[3 Hours]

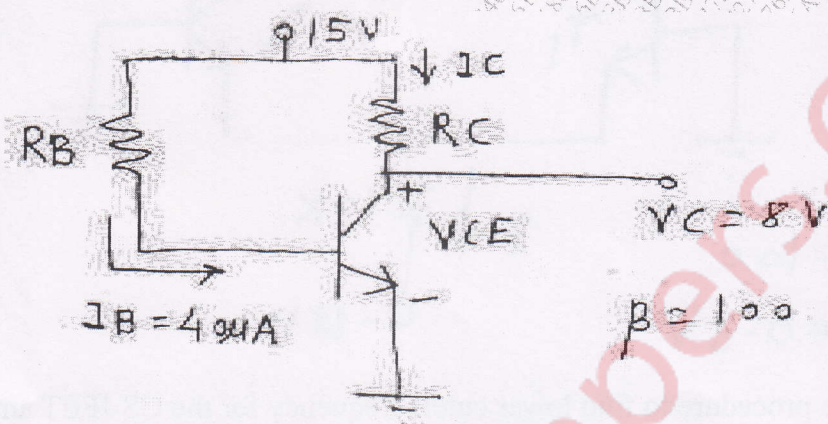
[Total Marks : 80]

- N.B :**
1. Question No. 1 is compulsory and solve any three questions from remaining questions.
 2. Assume suitable data if it is required.

1. Solve all.

(a) For the given circuit find I_C , R_C , R_B and V_{CE}

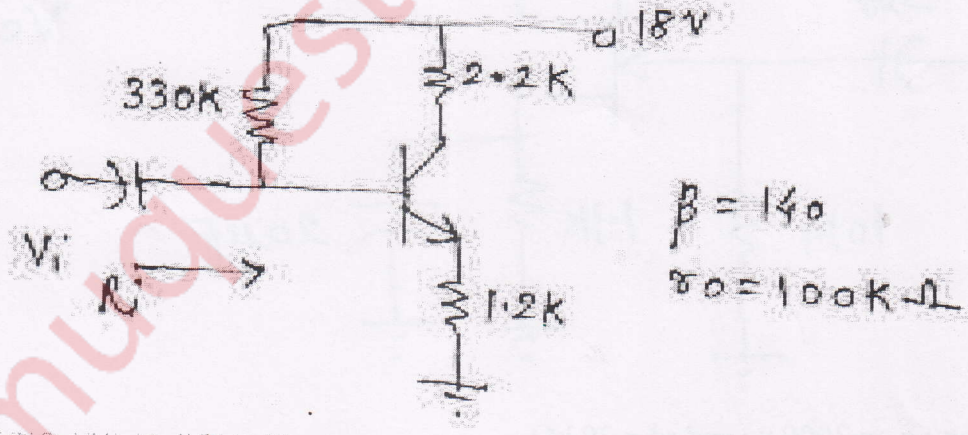
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- (b) Draw small signal model of E-MOSFET.
- (c) Draw circuit diagram of Darlington Pair and hence derive equation of its input resistance.
- (d) State the characteristics of negative feedback amplifier.
- (e) Justify, differential amplifier rejects common mode signal and hence give different types of differential amplifier.

2. (a) Determine A_V , A_I , R_i and R_o for the given circuit.

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(b) Derive equation of I_{DQ} and V_{DSQ} for voltage divider biased JFET circuit.

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3. (a) Derive equation of upper cut off frequency for CS D MOSFET amplifier.

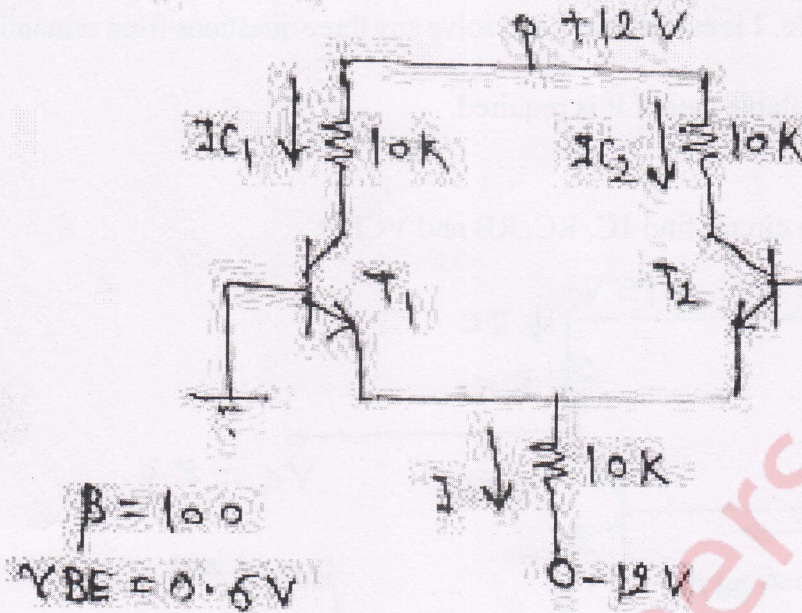
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(b) Draw circuit diagram of colpitt oscillator and explain its working.

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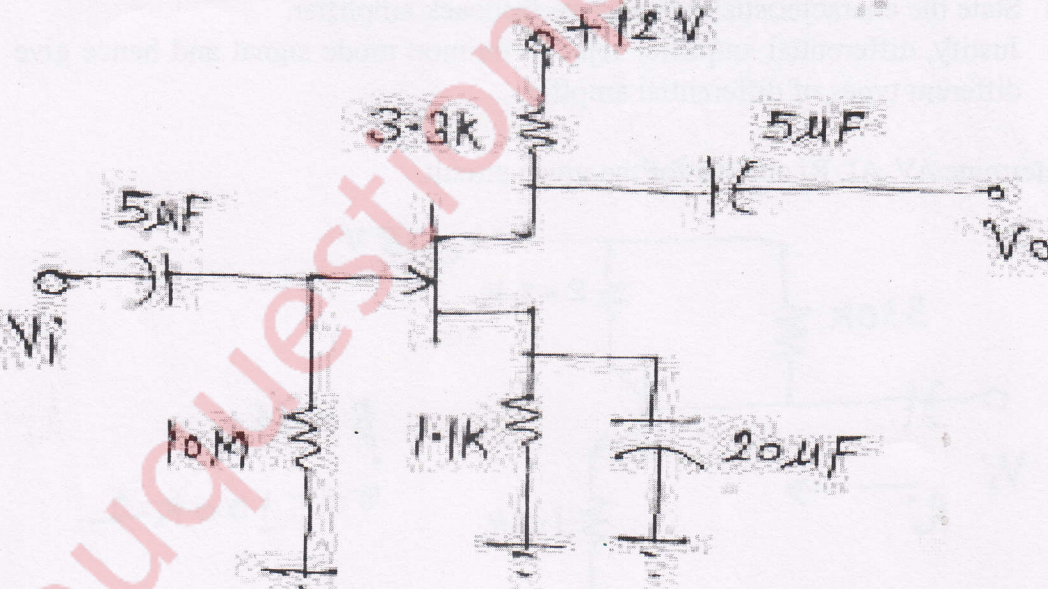
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4. (a) For the circuit shown find I_{C1} , I_{C2} , I , V_{CE} and V_C .



- (b) Explain the procedure to find lower cutoff frequency for the CS JFET amplifier. 10

5. (a) Explain series fed class A power amplifier and derive its power efficiency. 10
(b) Determine Z_i , Z_o and A_v for the given circuit. 10



Given : $g_m = 3000 \mu s$ and $r_d = 20 k\Omega$.

6. Write short notes on :

- (a) Voltage series negative feedback amplifier
(b) Wilson current source
(c) Cross over distortion in class B power amplifier
(d) Clipping circuit.

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