Code: 9A04402 **R09**

B.Tech II Year II Semester (R09) Supplementary Examinations December/January 2015/2016

ELECTRONIC CIRCUIT ANALYSIS

(Common to EIE, E.Con.E & ECE)

Time: 3 hours Max. Marks: 70

Answer any FIVE questions
All questions carry equal marks

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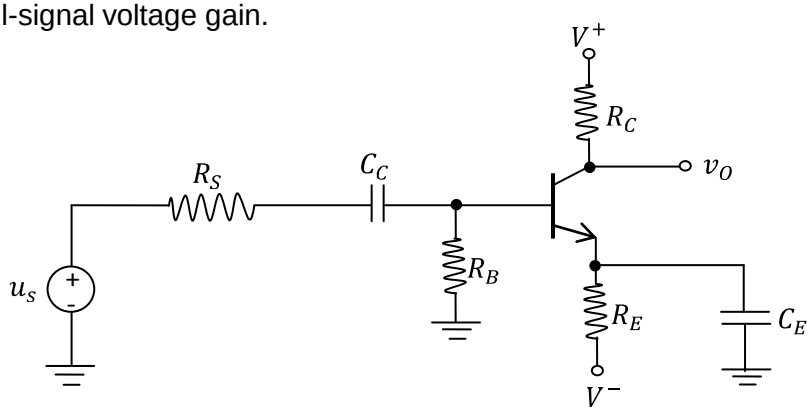
1 (a) Draw the hybrid model of CB & CC configurations. Explain.

(b) The circuit shown has parameters $V+= 5\,V$, $V-= 5\,V$, $R_E = 4\,k$, $R_C = 4\,k$, $R_B = 100\,k$ and $R_S = 0.5\,k$. The transistor parameters are $\beta = 120$, $V_{BE}(on) = 0.7\,V, and\ V_A = 80\,V$.
(i) Determine the input resistance seen by the signal source.
(ii) Find the small-signal voltage gain.



2 (a) Compare the direct and transformer coupled amplifiers.

(b) What is CE-CC amplifier? Obtain its voltage gain.

3 (a) What is the importance of gain bandwidth product? Explain.

(b) Obtain the hybrid-Π parameters in terms of h-parameters.

4 (a) What are the applications of MOSFET amplifiers? Explain.

(b) Compare CS and CG MOSFET amplifiers.

5 (a) How bandwidth increases and distortion decreases due to negative feedback? Explain.

(b) Show that the stabilization gain of negative feedback amplifier is $\left|\frac{dA_f}{A_f}\right| = \frac{\left|\frac{dA}{A}\right|}{|1+A\beta|}$.

6 (a) Where crystal oscillator is used? Explain with the equivalent circuit.

(b) Draw the circuit diagram of Colpitts oscillator. Explain its operation. Show that the frequency of oscillations is $f = \frac{1}{2\pi\sqrt{LC_{eq}}}$, $where\ C_{eq} = \frac{C_1C_2}{C_1+C_2}$.

7 (a) Explain about the class-B complementary and symmetry power amplifier and obtain it's efficiency.

(b) What are the advantages and disadvantages of class-B complementary and symmetry power amplifier? Explain.

8 (a) Explain the concept of stagger tuned with frequency response.

(b) Explain about effect of cascading single and double tuned amplifiers on bandwidth.