Code: R7210406 **R07**

II B.Tech I Semester (R07) Supplementary May 2012 Examinations
ELECTRONIC CIRCUIT ANALYSIS
(Electronics & Communication Engineering)

Time: 3 hours **Max. Marks: 80**

Answer any FIVE questions
All questions carry equal marks

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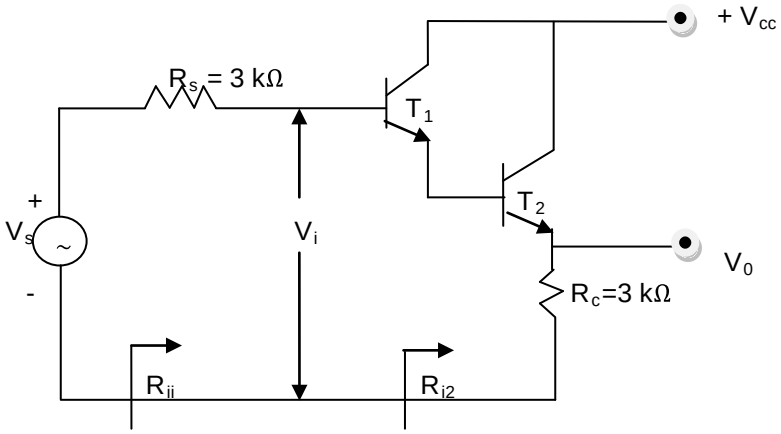
1. (a) What are h-parameters? Define them and what are the benefits of h-parameters?
   (b) For the circuit shown in below fig. calculate R_i, A_v, A_i and R_0 for hie = 1 kΩ, hfe = 50 and hre = 2 x 10^{-4}, hoe = 20 $\mu A/V$.



2. (a) Derive expressions for lower & upper half power frequency of n-stage RC coupled amplifier.
   (b) An RC coupled amplifier has a lower cut off frequency f_1= 25 Hz & an upper cut off frequency f_2 = 400 kHz. Determine the frequency range, when the gain the amplifier is 1 db down from its mid band value.

3. Derive all components in hybrid π model in terms of h-parameters in CE configuration.

4. (a) Draw the circuit diagram of a transformer coupled class A power amplifier and explain its operation.
   (b) Prove that maximum efficiency of class B amplifier is 78.5 %.

5. (a) Explain with neat diagram, working of single tuned capacitance coupled amplifier and derive equation of voltage gain.
   (b) State and advantages, disadvantages and applications of tuned amplifiers.

6. (a) Draw the circuit diagram of a stagger tuned amplifier and explain its operation.
   (b) A complementary symmetry push pull amplifier is operated using V_{cc}=± 10 V and deliver power to a load R_L = 5 kΩ. Calculate (i) output power. (ii) input power (ii) efficiency.

7. (a) Design a voltage regulator using Zener diode to meet the following specifications. Unregulated input voltage = 20-30 V, load current = 0-10 mA, regulated output voltage = 10 V, I_{zmin} = 2 mA and I_{zmax} =50 mA.
   (b) Draw the circuit diagram of series regulator & explain its working.

8. (a) Explain the working of step down switching regulator, mention its advantages & disadvantages.
   (b) Explain, how three terminals IC 7805 is used as current source with neat circuit diagram.

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