

Code : R7311004

B.Tech III Year I Semester Supplementary Examinations, May/June 2010

ELECTRONIC CIRCUIT ANALYSIS

(Electronics & Instrumentation Engineering)

Time: 3 hours

Max Marks: 80

Answer any FIVE questions
All questions carry equal marks

1. (a) Draw the circuit diagram and low Frequency Equivalent circuit of common source (CS) amplifier and derive an expression for it Voltage gain.
(b) Consider a Single stage CE amplifier with $R_s = 1K\Omega$, $R_e = 50K$, $R_2 = 2K$, $R_c = 1K$, $R_1 = 1:2K$, $h_{fe}=50$, $h_{oe}=h_{re}=0$, $h_{ie}=1.1K$. Find A_i , R_o , A_v and Power gain.
2. (a) Obtain the theoretical expression for f_{1n} and f_{2n} , when n-stages of identical amplifier are cascaded.
(b) If four identical amplifiers are cascaded each having $f_L = 100Hz$, determine the overall lower 3-dB frequency f_i . Assume non interacting stages
3. (a) Draw the high frequency Equivalent Circuit of BJT.
(b) Derive an Expression for its parameters.
4. (a) In transformer coupled class A power amplifier, show that the conversion Efficiency is 50%.
(b) With the help of neat circuit diagrams explain the operation of a Complementary symmetry class B power amplifier.
5. (a) What is meant by the term tuned amplifier and briefly explain the Various methods of Classification of tuned amplifier.
(b) Explain the operation of single tuned amplifier.
6. (a) Explain the concept of staggered tuned amplifier with the help of frequency response.
(b) Explain in detail how you alter the Bandwidth of a PF amplifier which is
i. Single tuned. ii. Double tuned. iii. Stagger tuned.
7. (a) Explain the operation of a Zener diode Voltage Regulator.
(b) Explain with the help of circuit diagram, how short circuit/ overload Protection circuit will work.
8. (a) With neat circuit diagram explain the working principle of IC 723 Voltage Regulator.
(b) Design a Voltage Regulator using IC 723 for 5V output and 3A load current. $V_{in}=10V$; $V_c=0.65$.
