

II B.Tech I Semester Regular Examinations, November 2007
ELECTRONIC CIRCUIT ANALYSIS
(Common to Electronics & Communication Engineering and Electronics & Telematics)

Time: 3 hours

Max Marks: 80

Answer any FIVE Questions
All Questions carry equal marks

1. (a) Draw the circuit diagram of CB- amplifier and its h-parameter equivalent circuit. List out the characteristics of a CB amplifier.
(b) In a single stage CB amplifier circuit, $R_E = 20K$, $R_C = 10K$, $V_{EE} = -20V$, $V_{CC} = 20V$, $R_L = 10K$ and $R_S = 0.5K$. Find A_I , R_i , R_o , A_V . (8+8)
2. (a) How are multistage amplifiers classified depending upon the type of coupling.
(b) Write a note on distortions in amplifiers.
(c) If eight identical amplifiers are cascaded each having $f_H = 200$ KHz, determine the overall upper 3dB frequency f_h^* . Assume non interacting stages. [5+6+5]
3. Derive all components in the Hybrid - π model in terms of h parameters in CE configuration. [16]
4. (a) Classify large signal amplifiers based on their operating point. Distinguish these amplifiers in terms of the conversion efficiency. [8]
(b) Draw the complimentary symmetry class-B power amplifier and explain its operation. [8]
5. (a) Draw and explain the circuit diagram of a single tuned Capacitance coupled amplifier. Also explain its operation?
(b) Draw and explain the significance of Gain versus Frequency curve of tuned amplifiers when they are used in radio amplifiers?
(c) Draw the Ideal and actual frequency response curves of a single tuned amplifier? [8+4+4]
6. (a) What is synchronous tuning ? Derive an expression for bandwidth of an n-stage synchronously tuned amplifier?
(b) Show that for an 'n' stage synchronously tuned amplifier, maximum. bandwidth is obtained when the single stage gain is 4.34dB. [8+8]
7. (a) Draw and explain a circuit which limits the current that can be drawn from the supply to a certain specific maximum.
(b) Determine the minimum and maximum values for series resistor, required for a zener diode regulator with an output voltage of 5.6V, if the supply voltage varies from 10 V to 50V. The maximum load current is 20mA and minimum zener current is 3 mA. [8+8]

8. (a) Specify suitable component values to get $V_o=7.5V$ in the circuit of (Given figure8a). Using a 7805 regulator. From data sheet. $I_Q=4.2mA$ and $V_R=5V$, choose $I_{R1}=25mA$.

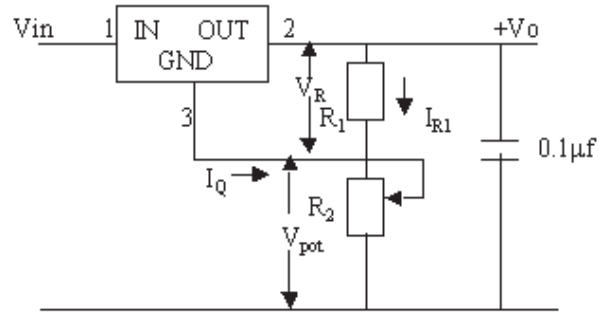


Figure 8a

- (b) Draw the functional diagram SMPS and explain its operation.
