

R07
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Code: R7210406

B.Tech II Year I Semester (R07) Supplementary Examinations, May 2013

**ELECTRONIC CIRCUIT ANALYSIS**

(Electronics &amp; Communication Engineering)

Time: 3 hours

Max. Marks: 80

Answer any FIVE questions  
All questions carry equal marks

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- 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,  $R_E = 20\text{ K}$ ,  $R_C = 10\text{ K}$ ,  $V_{EE} = -20\text{ V}$ ,  $V_{CC} = 20\text{ V}$ ,  $R_L = 10\text{ K}$  and  $R_S = 0.5\text{ K}$ . Find  $A_i$ ,  $R_i$ ,  $R_o$ ,  $A_v$ .
- 2 (a) How are multistage amplifiers classified depending upon the type of coupling?  
(b) Write a note on distortions in amplifiers.  
(c) Three identical non interacting amplifier stages in cascade have an overall gain of dB down at 30 Hz compared to mid band. Calculate the lower cutoff frequency of the individual stages.
- 3 Derive all components in the hybrid -  $\pi$  model in terms of h parameters in CE configuration.
- 4 (a) Classify large signal amplifiers based on its operating point. Distinguish these amplifiers in terms of the conversion efficiency.  
(b) Draw the complementary symmetry class-B power amplifier and explain its operation.
- 5 (a) Draw and explain the significance of gain versus frequency curve of tuned amplifiers when they are used in radio amplifiers.  
(b) Draw the ideal and actual frequency response curves of a single tuned amplifier.  
(c) What is meant by the term tuned amplifier and briefly explain the various methods of classification of tuned amplifiers?
- 6 (a) Explain the principle of a wideband amplifier.  
(b) Explain how the stagger-tuned design is superior over synchronously tuned design in the design of a multistage amplifier.
- 7 (a) With the help of a neat circuit diagram, explain the operation of BJT shunt voltage regulator.  
(b) Determine the minimum and maximum values for series resistor, required for a zener diode regulator with an output voltage of 5.6 V, if the supply voltage varies from 10 V to 50 V. The maximum load current is 20 mA and minimum zener current is 3 mA.
- 8 (a) Draw the functional diagram SMPS and explain its operation.  
(b) Explain how three terminals IC 7805 is used as a current source with a neat circuit diagram.

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