R09

Code: 9A04402

B.Tech II Year II Semester (R09) Supplementary Examinations May/June 2016

ELECTRONIC CIRCUITS 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) Find the expressions of voltage, current gain, input and output resistances of CE, CB and CC amplifiers and compare them.

(b) Give wide classification of amplifiers based on various factors.

2 (a) Three amplifiers are connected in cascade. If the individual lower and higher 3dB frequencies are 20 Hz and 20 KHz, find the overall lower and higher 3 dB frequencies.

(b) What are various coupling schemes in amplifiers? Draw and explain the operation of a direct couple amplifier.

3 (a) What is unity gain bandwidth of a transistor and derive an expression for it?

(b) Derive the expression for voltage gain of a CE amplifier considering the effect of emitter bypass capacitor.

4 (a) Draw the circuit diagram of a common source amplifier and derive an expression for its gain.

(b) Draw the circuit of a CS stage with diode-connected PMOS load and derive expressions for its gain, input and output resistances.

5 (a) What is a negative feedback? Quantitatively discuss about its advantages and disadvantages.

(b) Draw the circuit of a base to emitter bias resistor circuit with $R_e = 0$, and perform the linear analysis using the concept of negative feedback.

6 (a) What is a BarkHausen criterion in oscillators? State and explain the three postulates of it.

(b) Derive the expression for frequency of oscillation and condition for sustained oscillations of a RC-phase shift oscillator.

7 (a) Draw the circuit diagram of a class A push-pull power amplifier and enumerate its advantages and disadvantages.

(b) Derive the expression for conversion efficiency of a class B power amplifier.

8 (a) Discuss about amplitude and frequency stability of tuned amplifiers.

(b) What is the concept of staggering? Draw and discuss the operation of tuned amplifier.

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