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Question Paper Code: 33404

B.E. / B.Tech. DEGREE EXAMINATION, NOV 2018

Third Semester

Electronics and Communication Engineering

01UEC304 - ELECTRONIC CIRCUITS

(Regulation 2013)

Duration: Three hours

Maximum: 100 Marks

Answer ALL Questions.

PART A - (10 x 2 = 20 Marks)

1. What is Bias? What is the need for biasing?
2. Define stability factor.
3. What is a Darlington connection in the amplifiers?
4. Compare Darlington connection and bootstrapping methods.
5. Define Gain Bandwidth Product.
6. Give the expression for higher cutoff frequency of multistage amplifier.
7. What is meant by cross over distortion?
8. What is class S operation?
9. How negative feedback causes reduction in noise in amplifiers?
10. Discover the applications of class c tuned amplifiers.

PART - B (5 x 16 = 80 Marks)

11. (a) (i) Explain the fixed bias method and derive an expression for the stability factor.

(8)

- (ii) Explain the voltage divider bias method and derive an expression for the stability factor. (8)

Or

- (b) What is meant by transistor biasing? State different types of transistor biasing and derive an expression for stability factor of fixed bias circuit. (16)
12. (a) Draw the hybrid model of CE amplifier and obtain its, gain, input and output impedance. Compare the performance of this CE amplifier with CB and CC configuration. (16)

Or

- (b) Discuss in detail the methods of increasing input impedance using Darlington connection and Bootstrapping. (16)
13. (a) (i) A transistor has $f_{\alpha} = 8 \text{ MHz}$ and $\beta = 80$. When connected as an amplifier it has stray capacitance of 100 Pf at the output terminal. Calculate its upper 3 db frequency when R_L is 10 K . (6)
- (ii) Sketch the hybrid π model of a transistor and explain the function of each parameter in model. (10)

Or

- (b) Derive the expression for frequency response of multistage amplifier and discuss the significance of cut off frequencies of the amplifier. (16)
14. (a) State the different types of distortion occurs in a amplifier and explain them. (16)

Or

- (b) Explain the operation of the class B push pull amplifier with neat diagram. (16)
15. (a) Draw the block diagram of current series feedback amplifiers and derive the expressions of input and output impedance. (16)

Or

- (b) (i) Draw and explain the working of single tuned amplifiers. (8)
- (ii) Discuss Nyquist criterion for stability of feedback amplifiers. (8)