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**Question Paper Code: 33404**

B.E. / B.Tech. DEGREE EXAMINATION, MAY 2022

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. Define Miller's Theorem.
4. Draw the Circuit diagram of Darlington type amplifier.
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. What do you mean by tuned amplifiers?
10. Define Sensitivity.

PART - B (5 x 16 = 80 Marks)

11. (a) (i) Discuss self bias circuit using BJT. Explain how it stabilizes the Q-point by deriving the stability factor. (8)

(ii) Explain Thermistor compensation technique. (8)

Or

(b) (i) Briefly describe about any two bias compensation techniques of BJT. (6)

(ii) With neat circuit diagram and needed expressions, explain the working principle of self-bias of transistor. (10)

12. (a) Explain the D.C analysis of emitter coupled differential amplifier with a diagram having resistive load. (16)

Or

(b) (i) Discuss the working of a basic emitter coupled differential amplifier circuit. (8)

(ii) Write short notes on Multistage Amplifiers. (8)

13. (a) (i) Sketch the high frequency hybrid  $\pi$  model for a transistor in CE configuration and explain the significance of each component. (10)

(ii) Derive the lower cut-off frequency of Multistage amplifiers. (6)

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 circuit of Class-C tuned amplifier and derive the efficiency and also mention its applications and advantages. (16)

Or

(b) (i) Draw and explain the working of single tuned amplifiers. (8)

(ii) Discuss Nyquist criterion for stability of feedback amplifiers. (8)