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Question Paper Code: 53044

B.E. / B.Tech. DEGREE EXAMINATION, NOV 2017

Third Semester

Electronics and Communication Engineering

15UEC304 - ELECTRONIC CIRCUITS

(Regulation 2015)

Duration: Three hours

Maximum: 100 Marks

Answer ALL Questions

PART A - (5 x 1 = 5 Marks)

- Which transistor bias circuit provides good Q-point stability with a single-polarity supply voltage?
 - base bias
 - collector-feedback bias
 - voltage-divider bias
 - emitter bias
- A common-gate amplifier is similar in configuration to which BJT amplifier?
 - Common – emitter
 - Common – collector
 - Common – base
 - Emitter-follower
- By what other name(s) are the cutoff frequencies in a frequency response plot called?
 - Corner frequency
 - Break frequency
 - Half-power frequency
 - All the above
- What is the maximum efficiency of a class A circuit with a direct or series-fed load connection?
 - 90%
 - 78.5%
 - 50%
 - 25%
- A tuned amplifier is used in _____ applications.
 - Radio frequency
 - Low frequency
 - Audio frequency
 - None of these

PART - B (5 x 3 = 15 Marks)

- What are the requirements for biasing circuits?

7. Why the Darlington connection is not possible for more number of stages?
8. Define the Rise time and Sag in an amplifier.
9. Why Class A amplifier must not be operated under no signal condition?
10. What are the types of feedback? Give the properties of negative feedback.

PART - C (5 x 16 = 80 Marks)

11. (a) Mention the methods of transistor biasing? Explain the fixed bias circuit with its merits and demerits and also derive the stability factor of fixed bias circuit. (16)

Or

- (b) List out the various bias compensation methods and explain them. (16)

12. (a) Draw a Common Emitter amplifier & its small signal equivalent. Derive its voltage gain, current gain, input resistance and output resistance. (16)

Or

- (b) Draw a discrete common gate JFET amplifier and derive voltage gain A_v , Input impedance and output impedance with small signal equivalent circuit. (16)

13. (a) Discuss the high frequency analysis of common source and common drain FET amplifier. (16)

Or

- (b) Discuss the frequency response of multistage amplifiers. Calculate the overall upper and lower cutoff frequencies. (16)

14. (a) Explain a transformer coupled Class A Power Amplifier with neat diagram and obtain an expression for efficiency and Figure of merit. (16)

Or

- (b) Describe the operation of complementary symmetry push pull amplifier and mention its demerits with neat circuit diagram. (16)

15. (a) Explain about Voltage series and Current series feedback and derive the expression for input impedance, output impedance and voltage gain. (16)

Or

- (b) Explain the operation of class C tuned amplifier with neat circuit diagram and waveform. Also derive the efficiency and mention the applications. (16)