Reg. No. : | | | | | | | | | | |

Question Paper Code: 43404

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

Third Semester

Electronics and Communication Engineering

14UEC304- ELECTRONIC CIRCUITS

(Regulation 2014)

Duration: Three hours Maximum: 100 Marks

Answer ALL Questions

PART A - (10 x 1 = 10 Marks)

1. What happens to I_{co} for every 10^oC rise in temperature?

   (a) doubles (b) remains same (c) reduces (d) triples

2. At saturation the value of VCE is nearly _____, and IC = _____

   (a) Zero, zero (b) V_{CC}, $I_{C(sat)}$ (c) Zero, $I_{(sat)}$ (d) V_{CC}, zero

3. The current gain for the Darlington connection is _____

   (a) $\beta_1.(\beta 2/2)$ (b) $\beta_1.\ \beta_2$ (c) β_1/β_2 (d) $\beta_1.(\ \beta_2-1)$

4. Which of the h-parameters corresponds to re in a common-base configuration?

   (a) h_{ib} (b) h_{fb} (c) h_{rb} (d) h_{ob}

5. For what value of ID is g_m equal to 0.5 g_{m0}?

   (a) 0 mA (b) 0.25 I_{DSS} (c) 0.5 I_{DSS} (d) I_{DSS}

6. There is a _____^{o} phase inversion between gate and source in a source follower.

   (a) 0 (b) 90 (c) 180 (d) None of the above

7. Maximum efficiency produced by Class B amplifier is

   (a) 50% (b) 60% (c) 79% (d) 84%

8. Class D amplifiers differ from all other classes of amplifiers because

(a) The output transistors are operated as switches
(b) Of their very low input capacitance
(c) Of their high-frequency response capabilities
(d) All of the above

9. The gain of an amplifier with feedback is known as _____gain

(a) Resonant (b) Open loop (c) Closed loop (d) None of the above

10. What happened to noise with negative feedback?

(a) increases (b) decreases
(c) no change (d) increases then decreases

PART - B (5 x 2 = 10 Marks)

11. What is thermal run away?

12. Define Miller's theorem.

13. State various capacitances in the hybrid model?

14. What is push-pull amplifier?

15. What is feedback and what are feedback amplifiers?

PART - C (5 x 16 = 80 Marks)

16. (a) (i) What is mean by self-bias? Write the advantage of self-biasing circuits. (6)

(ii) How will you provide the bias compensation for the variations in current and discuss in detail. (10)

Or

(b) Explain the working principle of biasing of MOFET and its applications. (16)

17. (a) Using hybrid π model for CE amplifier. Derive an expression for its short circuit current gain. (16)

Or

(b) Briefly explain the operation of a Darlington emitter follower and also derive an expression for its performance measures? (16)

18. (a) Derive and explain the expression of High frequency analysis of BJT amplifiers to obtain upper cutoff frequency. (16)

Or

(b) Derive gain, input and output impedance of common source JFET amplifier with neat diagram and equivalent circuit. (16)

19. (a) With a circuit diagram, explain the performance of Class B amplifier and derive the expression of efficiency of Class B amplifier. (16)

Or

(b) Compare and briefly explain the function of Class C, Class D, Class S with relevant neat diagrams (16)

20. (a) Enumerate the effects of negative feedback on the various characteristics of the amplifier. (16)

Or

(b) Explain class-C tuned amplifier and derive its efficiency. (16)
