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**Reg. No. :**

**Question Paper Code: 43044**

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

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. Which transistor bias circuit provides good Q-point stability with a single-polarity supply

voltage?

(a) Base bias (b) Collector-feedback bias(c) Voltage-divider bias (d) Emitter bias

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

(a) Zero, zero (b) VCC, IC(sat) (c) Zero, I(sat) (d) VCC, zero

3. The current gain for the Darlington connection is \_\_\_\_\_\_\_\_

(a) β1.(β2/2) (b) β1. β2 (c) β1/β2  (d) β1.( β2-1)

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

(a) hib (b) hfb  (c) hrb (d) hob

5. For what value of ID is gm equal to 0.5 gm0?

(a) 0 mA (b) 0.25 IDSS (c) 0.5 IDSS (d) IDSS

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. Class C amplifier is biased

(a) Above cutoff (b) Below cutoff (c) At cutoff (d) Negatively

PART - B (5 x 2 = 10 Marks)

11. List out the different types of biasing.

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) Design emitter bias for BJT with Ic = 2mA, Vcc =18V, VCE =10V and β=150 (8)

(ii) Derive the stability factor of self bias circuit of BJT. (8)

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) Compare the four types of feedback topologies with respect to basic amplifier, Rif and

Rof. Draw example circuit for each type of feedback. (16)

Or

(b) Explain the performance of large signal tuned class C amplifier and derive the

expression with application. (16)