



(Pages : 2)

H – 4540

Reg. No. :

Name :

Third Semester B.Tech. Degree Examination, February 2020

08.305 ELECTRONIC CIRCUITS – I (T)

(2008 Scheme)

Time : 3 Hours

Max. Marks : 100

PART – A

Answer **all** questions.

1. What is the advantage of connecting an RC filter at the output of a diode rectifier circuit? Explain.
2. What are the general characteristics of a diode clipper circuit?
3. Define rise time. Give the relation between bandwidth and rise time.
4. What are the benefits of h-parameters?
5. Draw the small signal equivalent of CB configuration.
6. What is a load line? Explain.
7. Calculate the output resistance of a source follower circuit. Given that $R_s = 0.75 \text{ k}\Omega$, $r_o = 12.5 \text{ k}\Omega$ and $g_m = 11.3 \text{ mA/V}$.
8. Define unity gain bandwidth
9. State and explain Miller's theorem.
10. State the advantages of class A amplifiers.

(10 × 4 = 40 Marks)

P.T.O.



PART – B

Answer any **two** questions from each module. Each question carries **10** Marks.

Module I

11. Explain the response of high pass RC circuits to sine and square wave inputs.
12. Derive the ripple factor for the following filters (a) C (b) LC.
13. With a neat circuit diagram explain the working of transistor series feedback voltage regulator. How short circuit protection is incorporated in it?

Module II

14. Derive the expression for stability factor of a BJT voltage divider bias circuit. Compare this configuration with biasing using two power supplies.
15. How the BJT works a switch? Explain.
16. Draw the circuit diagram of a Common Emitter amplifier with voltage divider bias. With the help of small-signal equivalent circuit, obtain the expression for its voltage gain, current gain, input and output impedance.

Module III

17. Evaluate the expression for maximum conversion efficiency for a simple series fed Class A power amplifier. What are the drawbacks of transformer coupled power amplifiers?
18. Explain the high frequency response of common emitter amplifier and derive the necessary equations to calculate the upper 3-dB frequency.
19. Analyse a common source MOSFET amplifier under high frequency.

(6 × 10 = 60 Marks)

