



Reg. No. :

Name :

**Third Semester B.Tech. Degree Examination, November 2013
(2008 Scheme)**

08.305 : SOLID STATE DEVICES AND CIRCUITS (E)

Time : 3 Hours

Max. Marks : 100



PART - A

Answer **all** questions. **Each** question carries **4** marks.

1. Define stability factor for Quiescent point and derive the expression for it.
2. Explain thermal run away in a transistor.
3. What are the differences between BJT and JFET ?
4. Why a MOSFET should be handled carefully ? What are the precautions needed ?
5. What are the distortions occurring in a power amplifier ?
6. Draw the frequency response curve for a RC coupled amplifier. Give reasons for the shape.
7. Differentiate between the small signal and large signal analysis of amplifiers.
8. Explain the transfer characteristics of an OpAmp.
9. Define offset and drift in an OpAmp.
10. What is the role of emitter bypass capacitor in amplifier circuits ?



PART – B

Answer **any two** full questions from **each** Module. **Each** question carries **10** marks.

MODULE – I

11. Explain Fixed biasing and Potential divider biasing circuits with neat circuit diagrams and compare the stability of Q points in each case.
12. How various h parameters can be determined from the transistor characteristics ? Explain.
13. With the help of a neat diagram, describe how conduction will occur through a JFET during Pinch off.
14. Transistor can be used as a current controlled current source and JFET as a voltage controlled current source. How ?

MODULE – II

15. Find the maximum theoretical efficiency of series fed and Transformer coupled class A power amplifiers and compare the results giving reasons.
16. Explain the working of Hartley and Crystal oscillators. Mention their applications.
17. Explain the possible feedback schemes for an amplifier. What are the effects of feedback on amplifier parameters ?
18. Explain the high frequency model of a BJT.

MODULE – III

19. Draw the functional block diagram of an OpAmp and explain role of each stage.
 20. Explain how OpAmp can be used as a differentiator and summing amplifier.
 21. How square wave can be generated using OpAmp ?
 22. Derive expressions for gain of inverting and noninverting OpAmp amplifier.
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