



(Pages : 2)

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Reg. No. :

Name :

**Third Semester B.Tech. Degree Examination, January 2016
(2013 Scheme)**

13.304 : ELECTRONIC DEVICES AND CIRCUITS (FR)

Time : 3 Hours

Max. Marks : 100

PART – A

Answer **all** questions. **Each** question carries **2** marks.

1. Describe the effect of temperature on Q point.
2. Mention the advantages of negative feedback.
3. Draw the circuit diagram of Hartley Oscillator.
4. Mention the applications of clipping and clamping circuits.
5. Explain the principle of working of an RC differentiating circuit.
6. What is meant by current limiting ?
7. Explain the classification of power amplifiers.
8. With neat circuit diagram explain the working of precision rectifier.
9. Explain the principle of laser diode.
10. What is meant by channel length modulation ? **(10x2=20 Marks)**



PART – B

Answer **one full** question from **each** Module. **Each** question carries **20** marks.

MODULE – I

11. a) With neat circuit diagram explain the working of RC coupled amplifier. Also explain its frequency response. **10**
- b) Explain the working of RC phase shift oscillator. Derive an expression for the frequency of oscillator. **10**

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12. a) Explain any 2 types of transistor biasing schemes. Derive the expression for stability factor in each scheme. 10
- b) Explain the working of wienbridge oscillator. Derive the expression for frequency of oscillation. 10

MODULE – II

13. a) Draw the circuit diagram of an RC integrator and explain its working. Derive the condition for integration. 10
- b) Explain the working of monostable multivibrator using 555. Derive the expression for pulse width. 10

OR

14. a) Explain the working of LM 317 regulator. 10
- b) Draw the block diagram of 555 IC. Explain the working of astable multivibrator using 555. 10

MODULE – III

15. a) Explain the working of class B push pull amplifier. Derive the expression for conversion efficiency. 12
- b) Draw the circuit diagram of Schmitt trigger and explain the working. 8

OR

16. a) Draw the block diagram of op-amp and describe the characteristics of op-amp. 12
- b) Explain the working of second order bandpass filter. 8

MODULE – IV

17. Explain the working of
- a) Photovoltaic cell. 5
- b) Intelligent display module. 5
- c) LCD. 5
- d) VDR. 5

OR

18. Explain the construction, operation and characteristics of depletion type MOSFET in detail, with necessary diagrams. 20