



M 25935

Reg. No. :

Name :

**Third Semester B.Tech. (Reg./Sup./Imp.– Including Part Time) Degree
Examination, November 2014
(2007 Admn. Onwards)
PT2K6/2K6 EC/AEI 306 : ELECTRONIC CIRCUITS – I**

Time: 3 Hours

Max. Marks : 100

PART – A

I. Answer all questions :

- 1) What is the need of biasing in amplifiers ? Explain.
- 2) Explain thermal run away in transistors.
- 3) Briefly explain the operation of depletion type MOSFET.
- 4) Explain the working of MOS capacitor.
- 5) Explain the effect of negative feedback on amplifier performance.
- 6) What is an oscillator ? What is the criteria for sustained oscillation.
- 7) What is cross over distortion in Class B amplifier ? Explain.
- 8) Explain the working of a cascade amplifier. **(8×5=40)**

PART – B

- II. a) i) Draw the 're' model of a CE amplifier and derive the different parameters. **10**
ii) What is DC load line ? Explain its significance. **5**

OR

- b) i) Explain how a voltage divider amplifier stabilizes the Q Pt. against temperature and β variation. **9**
ii) What is base spreading resistance ? **6**

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- III. a) i) Draw the small signal AC equivalent model of Fixed bias FET and derive the different parameters. 10
- ii) Draw the transfer characteristic of Enhancement type MOSFET and explain the curve. 5

OR

- b) i) Draw the circuit of a voltage divider Enhancement MOSFET amplifier and explain the working. 9
- ii) Explain how enhancement type MOSFET is different from depletion type MOSFET. 6
- IV. a) i) Draw the block diagram of a current series feedback amplifier and derive the input impedance, out impedance, gain etc. 10
- ii) Explain the type of feedback used in oscillators. 5

OR

- b) Draw the circuit of a Hartley oscillator and explain the working. Also derive the formula for resonant frequency of oscillation of Hartley oscillator. 15
- V. a) What is a power amplifier ? Explain the working principle of power amplifier. Also derive the formula for the efficiency of class 'A' power amplifier. 15

OR

- b) i) With a circuit diagram explain the operation of class 'D' power amplifier. 8
- ii) Describe about the broad banding techniques. 7
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