

D 90025

(Pages : 2)

Name

Reg. No.

**THIRD SEMESTER B.TECH. (ENGINEERING) [14 SCHEME] DEGREE
EXAMINATION, NOVEMBER 2015**

EC 14 305—ELECTRONIC CIRCUITS—I



Time : Three Hours

Maximum : 100 Marks

Part A

Answer any eight questions.

1. With circuit schematic explain the operation of a Half Wave Rectifier.
2. Write a brief note on the various types of capacitors.
3. What is an emitter follower ? Explain its significance.
4. Explain load and line regulation.
5. Explain the working of Buck switching and Boost switching regulators.
6. What is stability factor ? Calculate the stability factor for a fixed bias circuit.
7. Draw and explain the small signal equivalent model of a BJT transistor.
8. Explain Bias compensation.
9. Compare MOSFET and BJT.
10. How to find the cut-off frequency using open and short circuit time constants ? Explain.

(8 × 5 = 40 marks)

Part B

11. (a) Derive the expressions for rectification efficiency, ripple factor, transformer utilization factor, form factor and peak factor of a Full Wave Rectifier.

Or

- (b) A half wave rectifier is supplied from 230 V, 50 Hz supply with a step down ratio of 3 :1 to resistive load $10\text{ K}\Omega$. The diode forward resistance is $75\ \Omega$, while transformer secondary resistance is $10\ \Omega$. Calculate the (i) Maximum value of current ; (ii) Average value of current ; (iii) RMS value of current ; (iv) Rectification efficiency and ; (v) Ripple factor.

12. (a) Explain the low frequency small signal model of a diode.

Or

- (b) Explain the high frequency small signal model of a diode.

Turn over

13. (a) Explain the CE amplifier and compare it with CB and CC amplifiers.

Or

(b) Explain the RC coupled amplifier and derive its frequency response.

14. (a) Explain the small signal equivalent circuit of MOSFET.

Or

(b) Derive the frequency response of a Common Source amplifier.

(4 × 15 = 60 marks)