

[05 - 2113]

II/IV B.E. DEGREE EXAMINATION.

First Semester

Electronics and Communication Engineering

ELECTRONIC DEVICES AND CIRCUITS

(Common with EEE, E and IE and Dual Programme in
ECE and EEE)

(Effective from the admitted batch of 2006-2007)

Time : Three hours

Maximum : 70 marks

Question No. 1 is compulsory.

Answer any FOUR questions from the remaining.

All questions carry equal marks.

1. (a) Explain the importance of Hall effect.
- (b) Discuss the effect of temperature on P-N Junction diode.
- (c) What is meant by PIV? Explain.
- (d) List out the different methods of transistor biasing.
- (e) Explain with a diagram, how a transistor will be operated in saturation region?

- (f) Give the comparison between JFET and RJT.
- (g) Give the comparison between CE and CB transistor configuration.
2. (a) What is meant by P-type semi conductor? Explain with the help of diagram how holes contribute to electric current.
- (b) Discuss in detail about continuity equation.
3. (a) The reverse bias saturation current for a P-N junction diode is $1 \mu\text{A}$ at 300 K. Determine its ac resistance at 150 mV forward bias.
- (b) Write about schottky barrier diode in detail.
4. (a) With a neat diagram, explain the operation of full-wave rectifier and derive an expression for the d.c output current. (10)
- (b) Define Transformer Utilization - Factor. (4)
5. (a) With a neat diagram, explain the mechanism of current flow in a PNP transistor.
- (b) Name the three possible transistor connections. Explain the operation of transistor as an amplifier.
6. (a) Explain with a neat diagram, the operation of depletion mode MOSFET.
- (b) Discuss about static characteristic curves of FET.

7. (a) Write about self bias configuration in FET.
- (b) Write short notes on :
- (i) Thermal run away
 - (ii) Thermal stability.
8. (a) Explain the operation of common base amplifier with neat diagram.
- (b) Write about the effect of emitter bypass capacitor on low frequency response.