

B.Tech II Year I Semester (R13) Supplementary Examinations November/December 2016
ELECTRONIC DEVICES & CIRCUITS
 (Common to EEE, ECE & EIE)

Time: 3 hours

Max. Marks: 70

PART – A
 (Compulsory Question)

- 1 Answer the following: (10 X 02 = 20 Marks)
- Compare Avalanche with Zener effect.
 - Draw the outputs of half wave and full wave rectifiers.
 - Among CB, CC and CE configurations, which one is more popular and why?
 - Mention the advantages of FET compared with BJT.
 - List two important parameters which affect the stability of the Q-point.
 - Discuss the importance of selecting an operating point in a transistor.
 - Draw the equivalent circuit or h-model for a two port device.
 - Write about two types of MOSFETs.
 - Give the expression of intrinsic stand-off ratio of UJT? Specify typical range of it.
 - List various applications of an SCR.

PART – B
 (Answer all five units, 5 X 10 = 50 Marks)

UNIT – I

- 2 With a neat diagram, explain the working of a PN junction diode in forward bias and reverse bias. Also show the effect of temperature on its V-I characteristics

OR

- 3 With a circuit diagram, explain the working of full wave bridge rectifier and derive the expression for average output current and rectification efficiency

UNIT – II

- 4 (a) Explain how the transconductance of a JFET varies with drain current and gate voltage characteristics
 (b) A JFET has the following parameters $I_{DSS} = 10 \text{ mA}$, Pinch off voltage = -4 V , $V_{GS} = -1.0 \text{ Volts}$. Find the values of drain current.

OR

- 5 (a) Compare BJT with FET.
 (b) Explain the use of MOSFET as a switch.

UNIT – III

- 6 What is a load line and how is it used in the calculation of current and voltage gains for a single stage amplifier?

OR

- 7 (a) Write the conditions for thermal stability in CE configuration.
 (b) Write the importance of biasing and draw a CE amplifier using a fixed-bias circuit.

UNIT – IV

- 8 Draw the hybrid model of transistor in CE and CB configurations. Explain how h-parameters can be determined from the transistor characteristics.

OR

- 9 Draw the high frequency equivalent model of FET with a neat sketch, explain the construction and characteristics of depletion MOSFET.

UNIT – V

- 10 Draw the symbol of a Silicon Controlled rectifier and explain its V-I characteristics

OR

- 11 Write a short note on:
- Light Emitting Diode. www.ManaResults.co.in
 - Photo Diode.
 - Liquid Crystal Display.
