



R18 Regulation
TKR COLLEGE OF ENGINEERING AND TECHNOLOGY

(Autonomous, Accredited by NAAC with 'A' Grade)

Subject code:2E2AG

B.Tech II Semester Supplementary Examinations, September 2023

ELECTRONIC DEVICES AND CIRCUITS

(Common to EEE & IT)

Maximum Marks: 70

Date:22.09.2023 Duration: 3 hours

- Note:
1. This question paper contains two parts A and B.
 2. Part A is compulsory which carries 20 marks. Answer all questions in Part A.
 3. Part B consists of 5 Units. Answer any one full question from each unit.
 4. Each question carries 10 marks and may have a, b, c, d as sub questions.

Part-A

All the following questions carry equal marks

(10x2M=20 Marks)

- 1 Define Diffusion capacitance.
- 2 Differentiate between ideal and practical diode.
- 3 Define Avalanche breakdown.
- 4 Draw V-I characteristics of SCR.
- 5 Define PIV, Peak factor and Ripple factor of a rectifier.
- 6 Draw the circuit of Bridge rectifier with inductor filter.
- 7 Write about Thermal runaway.
- 8 What is the need of Transistor Biasing?
- 9 Draw the structure of P Channel depletion MOSFET.
- 10 Compare depletion and enhancement MOSFET.

Part-B

Answer All the following questions.

(5X10M=50Marks)

- 11 Draw and explain forward and reverse bias characteristics of P-N junction diode. [10]
OR
- 12 A) Explain Diode Resistance and derive Dynamic resistance. [5]
B) Explain the dependency of temperature on PN junction diode. [5]
- 13 Explain the operation of a SCR and draw its characteristics. [10]
OR
- 14 Explain the operation of Varactor diode and draw its characteristics. List the applications of varactor diode. [10]
- 15 With circuit and necessary waveforms explain the operation of full wave Rectifier. Derive its ripple factor, PIV and Efficiency. [10]
OR
- 16 Explain the working of PI Section filter with a neat circuit diagram and with relevant wave forms. [10]
- 17 Explain input and output characteristics of CE configured transistor circuit with diagram. [10]
OR
- 18 A) Explain the operation of NPN Transistor. [5]
B) The emitter current in transistor is 4 mA. If the leakage current I_{cbo} is 6 milli amps and α is 0.98, find the collector and base currents. [5]
- 19 Explain the advantages of JFET. Explain Drain & transfer characteristics of JFET. [10]
OR
- 20 Explain the construction and operation of a Depletion MOSFET and draw its characteristics. [10]

