



R18 Regulation

Subject code:2E1AH

TKR COLLEGE OF ENGINEERING AND TECHNOLOGY

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

B.Tech I Semester Supplementary Examinations, January 2026

ELECTRONICS DEVICES AND CIRCUITS

(Common to ECE & CSE)

Maximum Marks: 70

Date:21.01.2026

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)		Marks	CO	BTL
1	Define the following terms of PN diode (a) static resistance (b) dynamic resistance.	2M	1	L1
2	Define the Diffusion capacitance of PN junction diode.	2M	1	L1
3	Draw the symbol of SCR and draw its characteristics.	2M	2	L1
4	Mention the applications of varactor diode.	2M	2	L1
5	Define the Efficiency and TUF of a rectifier.	2M	3	L1
6	Draw the circuit diagram of Bridge Rectifier and its waveforms.	2M	3	L1
7	Define Early effect.	2M	4	L1
8	How transistor works as an amplifier?	2M	4	L1
9	Write the differences between BJT and FET.	2M	5	L1
10	Differentiate JFET and MOSFET?	2M	5	L1

Part-B

Answer All the following questions. (5X10M=50Marks)		Marks	CO	BTL
11	Derive the Diode current equation of a PN junction diode.	10M	1	L2
OR				
12	Explain the current components in a PN junction diode.	10M	1	L2
13	Discuss how Zener diode acts as a regulator using its V-I characteristics.	10M	2	L2
OR				
14	Explain the operation of Tunnel diode with its energy band structure and also Explain its V-I Characteristics.	10M	2	L2
15	Draw the circuit and explain the operation of a Bridge Rectifier. Derive its RMS current and Ripple factor.	10M	3	L2
OR				
16	Draw and explain the circuit diagram and operation of full wave rectifier with π section filter.	10M	3	L2

17	Explain the input and output characteristics of CB configured transistor circuit with a neat circuit diagram with graph.	10M	4	L2
OR				
18	Explain the factors that affect the operating point of a transistor.	10M	4	L2
19	Explain Drain & transfer characteristics of JFET and give the advantages of JFET.	10M	5	L2
OR				
20	Explain the construction and operation of a Depletion MOSFET and draw its characteristics.	10M	5	L2