



R20 Regulation
TKR COLLEGE OF ENGINEERING AND TECHNOLOGY
 (Autonomous, Accredited by NAAC with 'A+' Grade)

Subject code: 3P3CC

B.Tech III Semester Supplementary Examinations, February 2024
BASIC ELECTRONICS
(MECH)

Maximum Marks: 70

Date: 21.02.2024 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)

		CO	Bloom Tx
1	Define the terms Conductivity and mobility in a semiconductor.	CO1	
2	What is a PN Junction? How is it formed.?	CO1	
3	What are the breakdown mechanisms in a semiconductor diodes? Explain	CO2	
4	List the applications of LED.	CO2	
5	Define the following terms i) Ripple Factor ii) Peak inverse voltage	CO3	
6	What are the advantages of Full wave Bridge Rectifier?	CO3	
7	Explain about the early effect.	CO4	
8	What is the condition for Thermal stability?	CO4	
9	Draw the OR gate and verify its truth table.	CO5	
10	Which gates are called Universal gates? Why?	CO5	

Part-B

Answer All the following questions.

(5X10M=50Marks)

11	(a) Explain about Diffusion and Transition Capacitance . (b) Explain V-I characteristics of PN Junction Diode with neat diagrams	5M 5M	CO1	
	OR			
12	Describe the action of PN Junction diode under forward bias and reverse bias.	10M	CO1	
13	Explain the Principle and Working of Photo diode	10M	CO2	
	OR			
14	Draw the operational circuit diagram of SCR and Explain it.	10M	CO2	
15	Draw the Half Wave Rectifier circuit diagram and explain its operation.	10M	CO3	
	OR			
16	Draw the Bridge Rectifier circuit diagram and explain its operation	10M	CO3	

17	Explain the input characteristics of CB transistor with neat sketches.	10M	CO4	
	OR			
18	(a)What is thermal runaway? Explain. (b)Draw the Voltage Divider Bias circuit diagram and explain.	5M 5M	CO4	
19	(a)Realize the Half adder using NAND gate (b)What are the basic gates in digital systems and verify its truth tables	5M 5M	CO5	
	OR			
20	(a)How to convert Decimal to Binary , explain with one example. (b)Distinguish between Half adder and Full adder	5M 5M	CO5	