R18 Regulation *Subject code: 2E1AH*

TKR COLLEGE OF ENGINEERING AND TECHNOLOGY

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

B.Tech I Semester Supplementary Examinations, June 2026

ELECTRONICS DEVICES AND CIRCUITS

(Common to ECE & CSE)

Maximum Marks: 70 Date: 25.06.2026 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	Draw piecewise linear characteristics of a diode and give the cut-in voltage for Si & Ge diodes?	2M	1	L1
2	Differentiate between Avalanche breakdown and zener breakdown.	2M	1	L1
3	Draw the symbol and V-I characteristics of Tunnel diode.	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 input and output wave forms of inductor filter for centre tapped full wave rectifier.	2M	3	L1
7	Define Early effect .Write the relation among α, β and γ of a transistor.	2M	4	L1
8	Define the term biasing and classify the various biasing techniques.	2M	4	L1
9	Draw the symbols of(i) N-channel JFET (ii) N-channel depletion MOSFET.	2M	5	L1
10	Compare JFET and MOSFET.	2M	5	L1

Part-B

Answer All the following questions. (5X10M=50Marks)		Marks	CO	BTL
11	Draw and explain V-I characteristics of P-N junction diode.	10M	1	L2
	OR			
12	Explain Diffusion capacitance and derive its expression.	10M	1	L2
13	With circuit and necessary waveforms explain the operation of HWR. Derive its ripple factor and Efficiency	10M	2	L2
	OR			
14	Draw and explain the circuit diagram of full wave rectifier with π section filter.	10M	2	L2
15	Explain the input and output characteristics of CE configured transistor circuit with a neat circuit diagram.	10M	3	L2
	OR			

16	Explain the input and output characteristics of CB configured transistor circuit with a neat circuit diagram.	10M	3	L2
17	Explain the self - bias technique of a Transistor and derive its stability factor.	10M	4	L2
	OR			
18	Explain the operation of JFET with the help of neat diagram.	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 Enhancement MOSFET and draw its characteristics.	10M	5	L2