Register No : _____

THE KAVERY ENGINEERING COLLEGE

(An Autonomous Institution)

B.E/B.TECH DEGREE END SEMESTER THEORY EXAMINATIONS, NOV/DEC 2025

Third Semester

Electrical and Electronics Engineering

EC3301 / UEET24302 – Electron Devices and Circuits

Regulations – 2021 & 2024

Duration : 3 Hrs *Maximum : 100 Marks*

*PART – A (ANSWER ALL QUESTIONS) (Marks 10*2=20)*

Q.No	*Questions*	*BTL*	*CO*	*Marks*
1.	Differentiate Zener breakdown and avalanche breakdown.	L1	1	2
2.	Mention the advantages of LED.	L1	1	2
3.	List out the types of BJT.	L1	2	2
4.	Expand of IGBT.	L2	2	2
5.	Compare JFET with BJT.	L2	3	2
6.	Recall the emitter follower.	L1	3	2
7.	Sketch the circuit diagram of BIOMOS cascade amplifier.	L1	4	2
8.	Write the role of Darlington pair.	L1	4	2
9.	Define negative feedback.	L1	5	2
10.	What are the conditions for oscillation?	L1	5	2

*PART – B (ANSWER ALL QUESTIONS) (Marks 5*16 = 80)*

Q.No		*Questions*	*BLT*	*CO*	*Marks*
11.	a	Explain the operation of PN junction under forward and reverse bias with its characteristics.	L2	1	16
		Or			
	b	What is meant by full wave rectifier? Draw the circuit of Full wave rectifier and brief the operation with neat diagram.	L2	1	16
12.	a	Build the construction operation and V-I characteristics of MOSFET.	L3	2	16
		Or			
	b	With neat diagram construct the operation and V-I characteristics of UJT and thyristors.	L3	2	16
13.	a	Draw the equivalent circuit of a CE amplifier using hybrid model and derive the expression for input and output impedance voltage and current gain.	L3	3	16
		Or			
	b	Identify the circuit diagram and relevant characteristics of MOSFET common source amplifier and hence derive the expression for voltage gain.	L3	3	16

14.	a	Draw the circuit diagram of BJT differential amplifier and explain the operation and derive the expression for voltage gain input and output impedance.	L5	4	16
		Or			
	b	Determine the construction and operation of series fed class A power amplifier. Derive the expression for its maximum efficiency.	L5	4	16
15.	a	With neat diagram simplify voltage shunt feedback amplifier. Derive the expression for trans resistance gain, input and output resistance and the voltage gain.	L4	5	16
		Or			
	b	Draw the circuit diagram of wien-bridge oscillators and briefly survey its working principle.	L4	5	16