

THE KAVERY ENGINEERING COLLEGE*(An Autonomous Institution)*

UG/PG DEGREE END SEMESTER THEORY EXAMINATIONS, APRIL/MAY 2026

*Third Semester**Electrical and Electronics Engineering*

UEET24302 / EC3301 - ELECTRON DEVICES AND CIRCUITS

*Regulations - 2024 & 2021**Duration : 3 Hrs**Maximum : 100 Marks***PART - A (ANSWER ALL QUESTIONS) (Marks 10*2=20)**

<i>Q.No</i>	<i>Questions</i>	<i>BTL</i>	<i>CO</i>	<i>Marks</i>
1.	Which is majority and minority carrier in N-type Semiconductor?	L1	1	2
2.	Infer the term the drift current.	L2	1	2
3.	Classify the types of BJT.	L2	2	2
4.	Interpret the regions in the output characteristics of JEFT.	L2	2	2
5.	Compare input impedance and voltage gain of CE and CC amplifiers.	L2	3	2
6.	Infer the transconductance with respect to a JFET.	L2	3	2
7.	Define class C power amplifier.	L1	4	2
8.	What is the use of Neutralization?	L1	4	2
9.	List the drawbacks of negative feedback.	L1	5	2
10.	Compare series and shunt feedback.	L2	5	2

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

<i>Q.No</i>	<i>Questions</i>	<i>BLT</i>	<i>CO</i>	<i>Marks</i>
11.	a With neat sketch explain the construction, operation and its characteristics of PN junction diode. Also list its Advantages, disadvantages and its applications.	L2	1	16
	Or			
	b With neat diagram, summarize the construction and operation of Zener diode and its forward and reverse characteristics.	L2	1	16
12.	a i Construct the input/output characteristics of BJT in common base configuration.	L3	2	6
	ii Build the construction and operation of N-channel JFET with neat sketches and characteristics curve.	L3	2	10
	Or			
	b Organize the construction and working of UJT with its equivalent circuit and V-I characteristics.	L3	2	16

13.	a	With neat circuit diagram, perform ac analysis for common source and common drain using equivalent circuit MOSFET amplifier.	L4	3	16
		Or			
	b	i Derive the expression for the voltage gain of CS amplifier.	L4	3	8
		ii For CS amplifier, the operating point is defined by $V_{GSQ} = -2.5V$, $V_p = -6V$ and $I_{DQ} = 2.5mA$.	L4	3	8
14.	a	With the neat circuit, explain and derive the gain and bandwidth of a single tuned amplifier with its frequency response.	L5	4	16
		Or			
	b	Evaluate the different types of neutralization technique used in tuning amplifier.	L2	4	16
15.	a	i Classify in detail the advantages of negative feedback.	L4	5	8
		ii Derive the expression for negative feedback amplifier with circuit diagram.	L4	5	8
		Or			
	b	Examine the RC phase shift oscillator with neat diagram.	L4	5	16