

THE KAVERY ENGINEERING COLLEGE*(An Autonomous Institution)***B.E/B.TECH DEGREE END SEMESTER THEORY EXAMINATIONS, NOV/DEC 2025***Third Semester**Electronics and Communication Engineering***UCT24302- Electronic Devices and Circuits***Regulations - 2024**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.	What is the function of a PN junction diode?	L1	1	2
2.	How does a Zener diode maintain a constant output voltage in regulator circuits?	L2	1	2
3.	What is meant by the operating point of a transistor?	L1	2	2
4.	How does the gain of a common-source MOSFET amplifier vary with frequency?	L2	2	2
5.	What is a cascode amplifier?	L1	3	2
6.	How does neutralization help in tuned amplifiers?	L2	3	2
7.	List two advantages of negative feedback in amplifiers.	L1	4	2
8.	How is sustained oscillation achieved in a Wien bridge oscillator?	L2	4	2
9.	Name the different classes of power amplifiers.	L1	5	2
10.	How does a buck-boost converter differ from a boost converter in output voltage polarity?	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 Write the structure and V-I characteristics of a MOSFET. Or b Describe the operation of a full-wave rectifier.	L1	1	16
12.	a How do different biasing methods for a BJT influence the stability of the operating point? Or b How does the small-signal analysis of a common-gate MOSFET amplifier describe its gain and frequency response?	L2	2	16
13.	a Apply the principles of differential amplifier operation to determine the output response for common-mode and differential-mode input signals. Or b Apply the concept of frequency response to analyze the performance of a tuned amplifier at resonance and off-resonance conditions.	L3	3	16

14.	a	Apply the concept of series and shunt feedback to design an amplifier circuit for a given gain specification.	L3	4	16
		Or			
	b	Apply Barkhausen's criterion to determine the frequency of oscillation in a Hartley oscillator circuit.	L3	4	16
15.	a	Analyze the operation of a Class B push-pull power amplifier and determine how crossover distortion affects its performance.	L4	5	16
		Or			
	b	Analyze the working principle of a boost converter and derive the expression for its output voltage in terms of duty cycle.	L4	5	16