COEP TECHNOLOGICAL UNIVERSITY (COEP Tech)

A Unitary Public University of Government of Maharashtra
(Formerly College of Engineering Pune (COEP))

MID ~~END~~ Semester Examination

Programme: FY B. Tech | **Semester: Odd**

Course Code: | **Course Name: Elements of Electronics Engineering**

Branches: Electrical, E & TC and Instrumentation and Control

Academic Year: 2024-25

Duration: 1hr 30 min | **Max Marks: 30**

Student PRN No.

6	1	2	4	0	7	1	1	1

Instructions:

1. Figures to the right indicate the full marks.
2. Mobile phones and programmable calculators are strictly prohibited.
3. Writing anything on question paper is not allowed.
4. Exchange/Sharing of stationery, calculator etc. not allowed.
5. Write your PRN Number on Question Paper.

13
30

			Marks	CO	PO
Q 1	a	How do full wave bridge rectifier circuits work? Explain with the help of suitable timing diagrams.	4	4	1
	b	Identify the type of following circuit and draw the output waveform $v_o(t)$ if $v_i(t)$= 10 $\sin(w_o t)$ and battery voltage V = 3V.	3	4	2

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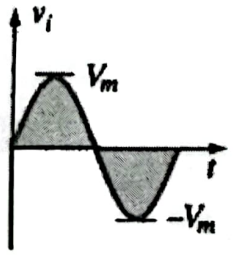

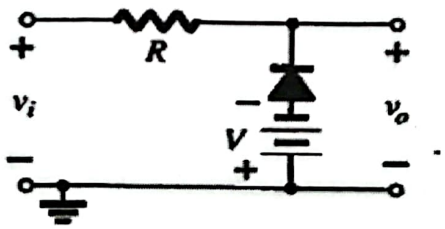

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	c	What is the name of following circuit? Draw the output waveform and show the equivalent circuits in positive and negative half cycles of the given input.	3	4	2

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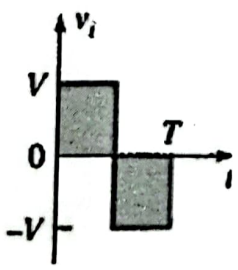
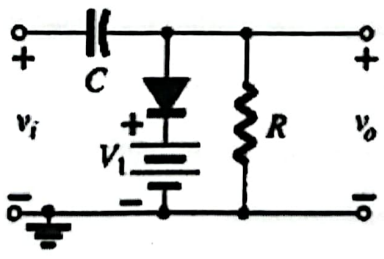
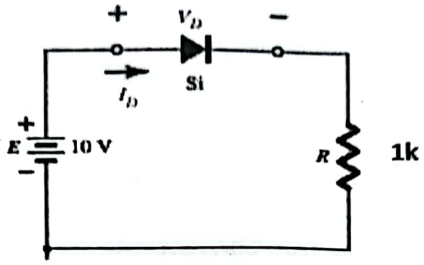




	c	Draw and explain the voltage multiplier circuit to get the output voltage four times i.e. (4Vm, peak voltage of transformer secondary output) as compared to that of input voltage.	3	4	1
Q 2	a	What are differences between avalanche and zener breakdown phenomenon? Showcase with the help of diode characteristic diagram.	3	3	1
	b	A centre tapped full wave rectifier circuit is connected to a load of 2KΩ. The ac voltage across secondary is 220-0-220V(rms). If diode resistance is neglected, find dc voltage across the load and dc load current.	3	4	2
	c	For the following circuit, draw dc load line and locate I_{dc} and V_{dc} on the line. Assume V_{BE}=0.7V	3	3	1



	d	A single phase half wave rectifier circuit supplies power to 1.5KΩ load. The sinusoidal ac supply has an rms value of 200V. The step down transformer has turns ratio N1/N2=15. Neglecting forward resistance of the diode, calculate dc voltage and current through the load	3	4	3
Q 3	a	Zener diode is used as _____	1	3	1

a. Voltage regulator

b. Current regulator

c. Audio amplifiers

d. Oscillators

	b	Which statement is valid for varactor diode?	1	3	1

a. It has variable resistance when forward biased.

b. It's capacitance varies linearly with the applied voltage.

c. It is used in tuning circuits

d. It allows the current to flow in bidirectional manner

	c	Schottky diode is made up with	1	3	1

a. P and N type of semiconductor material

b. Only N type of semiconductor

c. N type semiconductor and metal

d. P type semiconductor material and insulator

d	Which diode is suitable for fast switching in radio frequency (RF) circuits?	1	4	2

a. Schottky diode

b. PIN diode

c. Zener diode

d. Tunnel diode

e	Which of the following statement(s) is/are correct for photodiode?	1	3	1

a. Photodiode converts light energy to electricity

b. Photodiode converts Electric energy to light energy

c. Photodiode are used to detect optical energy

d. Photodiodes always provide constant current

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