

	<b>Reg. No.:</b>	
	<b>Name :</b>	



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**Mid-Term Examinations – October 2021**

Programme	: <b>B.Tech</b>	Semester	: <b>Fall 2021-22</b>
Course	: <b>ELECTRIC CIRCUITS AND SYSTEMS</b>	Code	: <b>EEE1001</b>
Faculty	: <b>Prof. Mayank Gupta</b>	Slot/ Class No.	: <b>F11+F12+F13/0063</b>
Time	: <b>1 ½ hours</b>	Max. Marks	: <b>50</b>

**Answer all the Questions**

Q.No.	Sub. Sec.	Question Description	Marks
1		<p>Using Thevenin's theorem calculate the range of current flowing through the resistance R when its value is varied from <math>6\ \Omega</math> to <math>36\ \Omega</math>. Shown in figure 1.</p> <p style="text-align: center;">Figure: 1</p>	<b>10</b>
2	(a)	The most important property of a capacitor is its ability to block steady dc voltage while passing ac signals, explain.	<b>5</b>
	(b)	Define the following terms: Volt, Ampere, Ohm.	<b>5</b>
3		<p>Apply Norton's theorem to determine the current flowing through the resistance of <math>6\ \Omega</math> connected across the terminals. A and B. Also calculate the potential of point A. What will be the current through the <math>6\ \Omega</math> resistor across AK. Also find the value of <math>V_{TH}</math> through Thevenin's equivalent equation. Shown in figure 2.</p> <p style="text-align: center;">Figure: 2</p>	<b>10</b>
4		Draw half-wave and full-wave rectified circuit and show the input and output voltage waveforms with importance of capacitor connected in the circuit.	<b>10</b>
5		Explain a logic OR gate using diodes. Also write the truth table.	<b>10</b>

