



9	NOT a renewable source? A) Solar                      B) Wind                                      C) Coal                                      D) Hydro	5	1
10	The earth resistance should be: A) Very high                      B) Very low                                      C) Infinite                                      D) Zero always	5	1

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Seat No.:	Q. Paper Code: FTC-A-027			SET	P	
	<b>Fabtech Technical Campus, College of Engineering &amp; Research, Sangola</b>					
	(An Autonomous Institute)					
	<b>Electronics &amp; Telecommunication Engineering, Electrical Engineering</b>					
	Academic Year:-2025-26, Semester-I					
<b>Fundamentals Of Electrical Engineering (25UEE11001)</b>						
<b>Regular End Semester Examination 2025-26 [Dec./Jan.]</b>						
<b>Class:</b>	F. Y. B. Tech.	<b>Day &amp; Date:</b>	Wednesday, 21/01/2026			
<b>Duration:</b>	03 Hrs.	<b>Max. Marks:</b>	60 Marks			
<b>Time:</b>	1.30 PM TO 4.30 PM					
<b>Instructions:</b>						
1) All questions are compulsory. 2) Figures to the right indicate full marks. 3) Draw a neat diagram wherever necessary. 4) Make suitable assumptions if necessary and state it clearly. 5) Use of non-programmable calculator is allowed.						
Q. No.	Questions			Marks	CO	BL
<b>Q. 2</b>	<b>Attempt any two of the following</b>			<b>10</b>		
1	What is mesh analysis? Explain with steps.			5	1	1
2	State and explain Kirchhoff's Current Law (KCL) and Kirchhoff's Voltage Law (KVL) with suitable circuit diagrams.			5	1	2
3	Suppose a star network has $R_1=5\Omega$ , $R_2=6\Omega$ and $R_3=8\Omega$ obtain equivalent delta network of it.			5	1	3
<b>Q. 3</b>	<b>Attempt any two of the following</b>			<b>10</b>		
1	What is mean by power factor Explain in detail?			5	2	1
2	Define RMS value, average value and peak value with formula.			5	2	1
3	Explain the behavior of resonance in a series RLC circuit. Derive the expression for resonant frequency (fr).			5	2	2
<b>Q. 4</b>	<b>Attempt any two of the following</b>			<b>10</b>		
1	Define reluctance and explain its significance in magnetic circuits.			5	3	1
2	What is hysteresis loss? Explain with the help of a hysteresis loop.			5	3	1
3	Write a short note on the analogy between electric and magnetic circuits. Provide the equivalent terms for current, voltage, and resistance.			5	3	2
<b>Q. 5</b>	<b>Attempt any two of the following</b>			<b>10</b>		
1	Describe the working principle of a DC generator and its types.			5	4	2

2	How the efficiency of transformer is calculated? Give formula.	5	4	1
3	List and explain at least five practical applications of transformers and induction motors in daily life and industries.	5	4	1
<b>Q. 6</b>	<b>Attempt any two of the following</b>	<b>10</b>		
1	What is an electrical grid? Explain the importance of interconnected systems in ensuring reliable power supply.	5	5	1
2	What are hydropower plants? Explain their role in power generation and list two major advantages.	5	5	1
3	Define electrical safety. What are the common safety measures adopted in electrical installations?	5	5	2

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	Academic Year: -2025-26, Semester-I				
<b>Fundamentals Of Electrical Engineering (25UEE11001)</b>					
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<b>Instructions:</b>					
1) Q. No. 1 is compulsory. It should be solved in the first 30 minutes in the Page No.3 of answersheet.					
2) Don't forget to mention the question paper set (P/Q/R) on the top of the page 3.					
<b>Q. 1</b>	<b>Multiple Choice Questions (MCQs) Each question carries 1 mark</b>			<b>Marks: 10</b>	
				<b>CO</b>	<b>BL</b>
1	Hysteresis loss depends on: A) Frequency & Flux Density B) Resistivity C) Permeability D) Voltage			3	1
2	A transformer works only with: A). DC supply    B). AC supply    C). Both AC and DC    D). None			4	1
3	Single-phase induction motors are commonly used in: A). Fans    B). Large pumps    C). Elevators    D). Electric trains			4	1
4	NOT a renewable source? A) Solar    B) Wind    C) Coal    D) Hydro			5	1
5	The earth resistance should be: A) Very high    B) Very low    C) Infinite    D) Zero always			5	1
6	KVL is based on the conservation of: A) Power    B) Charge    C) Voltage    D) Energy			1	1
7	Ohm's law is valid when: A) Temperature constant    B) Power constant C) Voltage constant    D) Resistance varies			1	1

8	Impedance minimum at: A) Low frequency      B) Resonance      C) Zero frequency      D) High frequency	2	1
9	Phasor represents: A) Instant Value      B) RMS With Angle      C) DC Component      D) Average	2	1
10	The quantity analogous to current in an electric circuit is: A) Flux      B) MMF      C) Reluctance      D) Permeability	3	1

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2	State and explain Kirchhoff's Current Law (KCL) and Kirchhoff's Voltage Law (KVL) with suitable circuit diagrams.			5	1	2
3	Suppose a star network has $R_1=5\Omega$ , $R_2=6\Omega$ and $R_3=8\Omega$ obtain equivalent delta network of it.			5	1	3
<b>Q. 3</b>	<b>Attempt any two of the following</b>			<b>10</b>		
1	What is mean by power factor Explain in detail?			5	2	1
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1	Define reluctance and explain its significance in magnetic circuits.			5	3	1
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<b>Q. 5</b>	<b>Attempt any two of the following</b>			<b>10</b>		
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3	The earth resistance should be: A) Very high                      B) Very low                      C) Infinite                      D) Zero always				5	1
4	KVL is based on the conservation of A) Power                      B) Charge                      C) Voltage                      D) Energy				1	1
5	Ohm's law is valid when: A) Temperature constant                      B) Power constant C) Voltage constant                      D) Resistance varies				1	1
6	Impedance minimum at: A) Low frequency                      B) Resonance                      C) Zero frequency                      D) High frequency				2	1
7	Phasor represents: A) Instant Value                      B) RMS With Angle                      C) DC Component                      D) Average				2	1
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