

**GUJARAT TECHNOLOGICAL UNIVERSITY****BE - SEMESTER-VII (NEW) EXAMINATION – WINTER 2021****Subject Code:3172423****Date:17/12/2021****Subject Name:Power Quality****Time:10:30 AM TO 01:00 PM****Total Marks: 70****Instructions:**

1. Attempt all questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.
4. Simple and non-programmable scientific calculators are allowed.

		MARKS	
<b>Q.1</b>	(a) Define term “Power quality”.	<b>03</b>	
	(b) What are the power quality issues?	<b>04</b>	
	(c) Explain linear and non-linear load with appropriate example.	<b>07</b>	
<b>Q.2</b>	(a) What is Electrical transient? Explain.	<b>03</b>	
	(b) Define and explain “Voltage swell” in brief.	<b>04</b>	
	(c) Discuss about Transient model with suitable example.	<b>07</b>	
<b>OR</b>			
<b>Q.3</b>	(c) Explain individual and total harmonics distortion with appropriate example.	<b>07</b>	
	(a) Explain term: “Distributed Generation”	<b>03</b>	
	(b) Define and explain “odd and even Harmonics”.	<b>04</b>	
<b>Q.3</b>	(c) Write a short note on Harmonics Analyzer.	<b>07</b>	
	<b>OR</b>		
	(a) Define following:	<b>03</b>	
	(1) Active Power.		
	(2) Reactive Power.		
<b>Q.3</b>	(b) Explain “Bonding” in brief.	<b>04</b>	
	(c) Explain voltage sag with illustration. Also state its adverse effect on induction motor operation.	<b>07</b>	
	<b>Q.4</b>		
<b>Q.4</b>	(a) Define term “Grounding”.	<b>03</b>	
	(b) Explain EMI mitigation using filters for conducted emission in brief.	<b>04</b>	
	(c) Discuss effect of Harmonics on transformer.	<b>07</b>	
<b>OR</b>			
<b>Q.4</b>	(a) Define term “Power Factor”	<b>03</b>	
	(b) Explain concept of power factor improvement.	<b>04</b>	
	(c) Write a short note on Synchronous condenser.	<b>07</b>	
<b>Q.5</b>	(a) Explain term: “ Equipment grounding conductor”	<b>03</b>	
	(b) What is voltage interruption? Explain.	<b>04</b>	
	(c) Explain ground resistance test with illustration.	<b>07</b>	
<b>OR</b>			
<b>Q.5</b>	(a) Explain about the power generation through photovoltaic system.	<b>03</b>	
	(b) Explain Radiated Emission and Conducted Emission.	<b>04</b>	
	(c) Write a brief note on Interface to utility system with reference to Distributed Generation.	<b>07</b>	

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