

GUJARAT TECHNOLOGICAL UNIVERSITY**BE – SEMESTER- VIII EXAMINATION-SUMMER 2023****Subject Code: 2180911****Date: 15/06/2023****Subject Name: Power Quality and Management****Time: 02:30 PM TO 05:00 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
Q.1	(a) Define: (1) Bonding (2) Flicker and (3) Form factor	03
	(b) Discuss power quality standards in brief.	04
	(c) Discuss responsibilities of suppliers and user in brief.	07
Q.2	(a) With suitable example explain nonlinear load.	03
	(b) Discuss power quality standards for harmonic control in electrical power system.	04
	(c) Discuss power system transient model.	07
	OR	
	(c) Explain transients caused due to interruption of fault circuits.	07
Q.3	(a) Discuss difference between transient and harmonics.	03
	(b) Define individual and total harmonic distortion.	04
	(c) With phasor diagram discuss positive, negative and zero sequence harmonics. Explain their effect on induction motor.	07
	OR	
Q.3	(a) Discuss effect of current flow through human body due to electric shock.	03
	(b) What is derating of equipment? Discuss 'k' factor rating of transformer.	04
	(c) What is grounding? Discuss its importance with example.	07
Q.4	(a) Define displacement and true power factor.	03
	(b) Draw and explain frequency response of series tuned filter.	04
	(c) Discuss earth ground grid system.	07
	OR	
Q.4	(a) Mention essential elements of grounded system.	03
	(b) Discuss power triangle and relationship among active, reactive, and apparent power	04
	(c) Discuss power quality measurement devices in brief. Explain importance of number of test locations selected while measuring the power quality.	07
Q.5	(a) Explain need of power factor correction.	03
	(b) Discuss static VAR compensators in brief.	04
	(c) Explain effect of distributed generation on power quality.	07
	OR	
Q.5	(a) What do you understand by distributed generation?	03
	(b) Explain voltage rise issue due to capacitance.	04
	(c) Explain any one technique used to minimize electromagnetic interference.	07
