

Enrolment No./Seat No _____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE- SEMESTER-VIII (NEW) EXAMINATION – WINTER 2024

Subject Code:2180911

Date:22-11-2024

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) Give the definition of Sag, Swell and THD	03
	(b) State various points consider in susceptibility criteria.	04
	(c) Discuss the various power frequency disturbances related to power quality.	07
Q.2	(a) Draw the fundamental 3 rd and 5 th harmonic signal, individually and with addition.	03
	(b) Explain positive, negative and zero phase sequence harmonics with phasor diagram.	04
	(c) Explain the lumped parameter and distributed parameter model of power system.	07
	OR	
	(c) Discuss the types and causes of transients.	07
Q.3	(a) Define displacement factor and true power factor.	03
	(b) Explain in brief static VAR compensator.	04
	(c) Explain signal reference ground methods.	07
	OR	
Q.3	(a) State the advantages of power factor correction.	03
	(b) List the elements of main service switch board ground system.	04
	(c) Discuss the electrochemical reactions due to ground grids.	07
Q.4	(a) Define Noise, Decibel and Radiated emission	03
	(b) Discuss the benefit of DG from various perspective.	04
	(c) Explain electric and magnetic field related to electromagnetism.	07
	OR	
Q.4	(a) State frequency classification with range and application.	03
	(b) Discuss in brief various DG technologies.	04
	(c) Discuss the EMI mitigation techniques.	07
Q.5	(a) State application of Harmonic Analyzer in brief.	03

- (b) State major utility interface issues of DG. **04**
- (c) Explain number of test locations for power quality measurement with necessary diagram. **07**

OR

- Q.5**
- (a) Write short note on True RMS meter. **03**
 - (b) State operating conflicts of distribution system due to DG interface. **04**
 - (c) Discuss the instrument setup guidelines for power quality measurement. **07**
