

GUJARAT TECHNOLOGICAL UNIVERSITY**BE - SEMESTER-VIII (NEW) EXAMINATION – SUMMER 2024****Subject Code:2180911****Date:18-05-2024****Subject Name:Power Quality and Management****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
Q.1	(a) List the sources of harmonics in power system	03
	(b) Define the power quality as per IEEE standards and list out all the power quality issues.	04
	(c) Discuss significance of power factor correction with power quality point of view.	07
Q.2	(a) Define flicker. List reasons responsible for flicker.	03
	(b) Explain the Voltage Sag and Swell with suitable example.	04
	(c) What is an ITC graph? Draw and discuss the ITIC graph in detail.	07
	OR	
	(c) Explain the single reference ground methods.	07
Q.3	(a) Differentiate Grounding & Bonding	03
	(b) List out the various instruments used for power quality measurement.	04
	(c) List and explain various harmonic mitigation techniques	07
	OR	
Q.3	(a) What are the different sources of transient overvoltage?	03
	(b) What do you mean by order of harmonics? When even order harmonics will be present in the system? Explain its effect on induction motor.	04
	(c) Define Transient. Discuss switching of loads & interruption of fault currents as cause of transients	07
Q.4	(a) Define (i) radiated emission (ii) Attenuation (iii) common mode noise	03
	(b) Describe the fall of potential methods for measurement of earth's resistance.	04
	(c) Explain application of synchronous condensers for power factor improvement	07
	OR	
Q.4	(a) What is Electromagnetic Interference (EMI)? Describe main sources of EMI.	03
	(b) Describe effect of EMI on power quality.	04
	(c) List the methods of power factor improvement techniques and explain the static VAR compensator.	07
Q.5	(a) Write short note on importance and application of True RMS meter	03
	(b) Discuss the Capacitor switching transient	04
	(c) Explain number of test locations & test durations for power quality.	07
	OR	
Q.5	(a) Describe phenomena of islanding.	03
	(b) List and explain advantages and disadvantages of distributed generation.	04
