

Seat No.: \_\_\_\_\_

Enrolment No. \_\_\_\_\_

**GUJARAT TECHNOLOGICAL UNIVERSITY**  
**DIPLOMA ENGINEERING – SEMESTER-6 EXAMINATION –WINTER- 2019**

**Subject Code:3360904**

**Date: 18-11-2019**

**Subject Name: Substation Engineering And Power Quality**

**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. Use of programmable & Communication aids are strictly prohibited.
5. Use of only simple calculator is permitted in Mathematics.
6. English version is authentic.

- Q.1** Answer any seven out of ten. . **14**
1. Give the name of instrument used in GIS.
  2. Give The TWO Name of factor affecting on Power quality.
  3. What is voltage Sag?
  4. Why a necessary of temperature rise test on transformer?
  5. What is Earthing?
  6. Give the Definition : Harmonics
  7. What is mitigation Voltage?
  8. Which effect of Harmonics on Transformer?
  9. What is use of Flicker meter?
  10. Write down uses of lightning arrester?
- Q.2** (a) Draw the Line Diagram of GIS and write down name of instruments. 03
- OR
- (a) Explain in short : Earthing Grid. 03
- (b) Explain any One type of TRANSIENTS. 03
- OR
- (b) Give the Name of Power quality Measurement. Explain any Three equipment. 03
- (c) Which effect of Harmonics on Conductor? Explain it. 04
- OR
- (c) What is the effect of Harmonics on Relay? Explain it. 04
- OR
- (d) Write the advantages and disadvantages of gas insulated substation. 04
- OR
- (d) Explain with fig SF<sub>6</sub> insulated switch gear for GIS. 04
- Q.3** (a) Explain following terms : (1) voltage spike (2) voltage swell 03
- (3) Long Interruption
- OR
- (a) Explain Protection of Cable. 03

	(b)	Explain Integrated Earthling.	03
		OR	
	(b)	Explain Touch and Step Potential.	03
	(c)	What is Power frequency variation? Explain it .	04
		OR	
	(c)	Give the types of loss measurement method and explain any ONE method.	04
	(d)	Explain voltage and current harmonics	04
		OR	
Q.4	(d)	Explain odd and Even harmonics in short.	04
	(a)	Explain Power line Disturbance Analyzer.	03
		OR	
	(a)	Explain Flicker meters.	03
	(b)	Explain briefly the devices used to mitigation voltage sag.	04
		OR	
	(b)	Write down short note: Equipment grounding.	04
	(c)	Explain Causes of generate problem in Electrical Power Quality.	07
Q.5	(a)	Explain the Commissioning and Maintenance of GIS in Short.	04
	(b)	Why a necessary of power quality standard? Explain it.	04
	(c)	Effect of harmonics on power electronics equipment? Explains.	03
	(d)	Explain the methods of measuring earthing Resistance.	03

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