EP8044 - Elective-II : Power Quality

P. Pages : 1

Time : Three Hours

1494

GUG/S/19/2016

Max. Marks : 80

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Notes : 1. All questions carry equal marks.
2. Due credit will be given to neatness and adequate dimensions.
3. Assume suitable data wherever necessary.
4. Use of non programmable calculator is permitted.

1.	a)	What are the causes of power quality problems and its effects on the utility and customer?	**8**
	b)	What are the important aspects of grounding with respect to safety and with respect to power quality?	**8**

OR

2.	a)	What are the important element of electrical system grounding?	**8**
	b)	Discuss the CBEMA and ITI curves.	**8**

3.	a)	Classify the power quality events using the magnitude and duration of events.	**8**
	b)	Discuss the voltage variation in power system.	**8**

OR

4.	a)	What are the steps in power quality benchmarking process?	**8**
	b)	Discuss the significant features of industrial power quality monitoring.	**8**

5.	a)	What are the sources of harmonic distortion in power system?	**8**
	b)	What is the impact of harmonics on the performance of transforms?	**8**

OR

6.	a)	Discuss the working of shunt passive filters for mitigating the harmonics in the power system.	**8**
	b)	What is the tuning order and quality factor for 33 kV series tuned filter with $X_C = 544.5\,\Omega$, $X_L = 4.5\,\Omega$ and $R = 0.825\,\Omega$?	**8**

7.	a)	What are the standards and guidelines referring to the power quality?	**8**
	b)	Discuss the significant features of IEEE 519 standard.	**8**

OR

8.	a)	Discuss the IEC 61000 series of standard for power quality.	**8**
	b)	Discuss the IEEE 1159, 1995 recommended practice on monitoring electric power quality.	**8**

9.	a)	What are the power quality problems that a DSTATCOM can mitigates.	**8**
	b)	Discuss the active power line conditioners for improving the power quality of distribution system.	**8**

OR

10.	a)	Discuss the operation of UPQC with distorted and unbalanced system voltage.	**8**
	b)	Discuss the classification of active power filter based on topology and supply system.	**8**

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