B. Tech.
(SEM. VIII) EXAMINATION. 2006-07

POWER QUALITY

Time : 3 Hours] [Total Marks : 100

Note : Attempt all questions.

1. Attempt any four parts of the following : 5x4=20

(a) What is the switching surge in context of induction of network elements by power electric switches?

(b) Differentiate the contribution of harmonics generated by power electronic devices fast control and electrical noise.

(c) What are the predominant harmonics experienced with IGBT operation?

(d) In case a thyristor is used to used to control a waveform, what care is to be taken to counter the adverse effect of the device?

(e) Give a schematic diagram of frequency deviation monitoring and explain.

(f) Explain the term phase angle imbalances and the reason responsible for this.

V-2040] 1 [Contd...
2 Attempt any **four** parts of the following :  **5×4=20**

(a) Show the component diagram for the minimization of duration of outage of distribution system.

(b) Give the various types of harmonic filtering devices and suggest the most applicable one.

(c) When a power network frequency is coming lower, what kind of device is to be installed and where?

(d) Give the control diagram for the maintenance of UPS for constant power.

(e) Draw the schematic diagram for the voltage regulations for distribution system.

(f) Differentiate between power conditioner and UPS. Draw the ckt diagram of power conditioner.

3 Attempt any **two** parts of the following :  **10+10**

(a) What are the international power quality standards? How to achieve minimum THD distortion?

(b) To satisfy the customer, mention the equipments required in terms of minimum harmonic distortion and minimum interruption as well.

(c) Give the block diagram of SVS unit responsible for the phase voltage.

V-2040] 2 [Contd...
4 Attempt any two parts of the following: \(10 + 10 = 20\)

(a) What are the equipments needed to minimize the voltage disturbance? Identify the location of these.

(b) How to generate the standard test waveforms to compare the harmonic context? Explain with circuit diagram.

(c) Explain the measures to minimize voltage disturbances.

5 Attempt any two parts of the following: \(10 + 10 = 20\)
Write short notes on any two:

(a) Issues of Power Quality and remedies.

(b) Disturbance at customer site.

(c) Monitoring of variables in power network.