[5461] - 225
B.E. (Electrical)
POWER QUALITY
(2012 Course) (Semester - I) (Elective - I) (403143B) (End Sem.)

Time : 2½ Hours]   *[Max. Marks : 70*

Instructions to the candidates:

1) *Solve Q1 or Q2, Q3 or Q4, Q5 or Q6, Q7 or Q8, Q9 or Q10.*
2) *Neat diagrams must be drawn wherever necessary.*
3) *Figures to the right indicate full marks.*
4) *Use of calculator is allowed.*
5) *Assume suitable data if necessary.*

Q1) a)   Define power quality? Explain the reasons for increased concern in power quality. **[5]**

b)   What are the various causes of over voltages? **[5]**

OR

Q2) a)   Define and explain **[5]**

i)   Short duration voltage fluctuations

ii)   Long duration voltage fluctuations.

b)   What are the problems associated with grounding affecting power quality? **[5]**

Q3) a)   Write various sources of transient over voltages and explain any one in detail. **[5]**

b)   What are the causes of Voltage Flicker? **[5]**

OR

Q4) a)   Explain in detail one method followed for mitigating voltage sag. **[5]**

b)   Define long duration rms voltage variations. **[5]**

P.T.O.

Q5) a) Explain the causes of harmonics in power system. **[8]**

b) Explain the harmonic effects on Transformers and motors briefly. **[8]**

OR

Q6) a) Define power and power factor in power system under non sinusoidal conditions. **[8]**

b) Define THD and TDD with reference to harmonic measurements. **[8]**

Q7) a) Explain the concept of point of common coupling and its use in harmonic study. **[8]**

b) Explain in brief devices for controlling harmonic distortion. **[8]**

OR

Q8) a) Explain various principles of controlling harmonic distortion. **[8]**

b) Discuss shunt passive filters used for harmonic reduction. **[8]**

Q9) a) Explain various equipment required for power quality monitoring. **[10]**

b) What are the objectives of the power quality monitoring? **[8]**

OR

Q10) a) What are the desirable characteristics of power quality measurement equipments? (Explain with example). **[10]**

b) Write note on test location in PQ monitoring. **[8]**

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