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Total Number of Pages: 2

B.Tech
PEEL5403

8th Semester Regular / Back Examination 2016-17
ELECTRICAL POWER QUALITY

BRANCH(S): EEE, EE

Time: 3 Hours

Max Marks: 70

Q.CODE: Z399

Answer Question No.1 which is compulsory and any five from the rest.
The figures in the right hand margin indicate marks.

- Q1 Answer the following questions:** (2 x 10)
- a) What are the various methods to improve voltage sags in utility system ?
 - b) Define the term voltage sag ride through capability ?
 - c) What is crowbar devices ? Explain its working ?
 - d) Write down two devices used for over voltage protection ?
 - e) Explain the significance of critical load ?
 - f) What are the indicators of Ferro resonance ?
 - g) Explain the method adopted in practice for locating harmonic sources ?
 - h) If for a distorted waveform $THD_3=0.3$ and $THD_5 = 0.4$, Calculate the net THD ?
 - i) Explain the effect of harmonics on apparent power and power factor with the help of relevant mathematical expressions and phasors ?
 - j) Write down two important ratings of MOV arrestors ?
- Q2 (a)** Discuss various computer tools for transient analysis of Power system ? (5)
- (b)** Explain Various steps involved in Power quality evaluation? (5)
- Q3 (a)** Explain various sources of Transient over voltage? (5)
- (b)** Define Harmonic distortion observed in power system? Also name two key sources that produce harmonic distortion and justify your answer . (5)
- Q4 (a)** How Ferroresonance is different than resonance? Explain how Ferro resonant transformer can be used to curb voltage sags? (5)
- (b)** What is the importance of the concept "Area of Vulnerability " with reference to power system ,Explain ? (5)
- Q5 a)** Explain how isolation transformers are used for overvoltage protection ? (5)
- (b)** What is Flicker? Explain about various sources of flicker ? (5)

- Q6** a) Distinguish between short duration voltage variation and long duration voltage variation? (5)
- b) What is shielding? Why it is used? (5)
- Q7** a) Explain the application of Intelligent system in power quality ? (5)
- b) Explain briefly the various devices for voltage regulations? , (5)
- Q8** **Write Short Notes (Any Two)** (5 x 2)
- a) CBEMA Curve
- b) Utility Surge arrestors
- c) Power Quality measuring instruments .