Total No. of Questions :10]

SEAT No. :

P3310

[Total No. of Pages :2

[5670] -579
B.E. (Electrical)
POWER QUALITY
(2015 Pattern) (Semester-I) (Elective-I) (403143B) (End Sem.)

Time :2½ Hours] *[Max. Marks : 70*

Instructions to the candidates:

1) ***Solve Q.1 or Q.2, Q.3 or Q.4, Q.5 or Q.6, Q.7 or Q.8, Q9 or Q.10.***
2) ***Neat Diagrams must be drawn wherver necessary.***
3) ***Figures to the right indicates full marks.***
4) ***Use of Calculator is allowed.***
5) ***Assume Suitable data if necessary***

Q1) a) Define power quality terms transients, voltage fluctuation and waveform distortion **[5]**

b) Define Voltage Sag. How voltage sag is characterized? **[5]**

OR

Q2) a) Why power quality has become important in today's context? **[5]**

b) What is the effect of voltage swell on Motors and Transformers? **[5]**

Q3) a) What are the sources of transient over voltages? what are the effects on equipment? **[5]**

b) What is Flicker? Discuss different sources of flicker. **[5]**

OR

Q4) a) Explain various grounding practices as per IEEE standard. **[5]**

b) Explain Area of vulnerability. **[5]**

P.T.O.

Q5) a) Explain effects of harmonics on Capacitor and cables. **[8]**

b) Explain following terms. **[8]**

i) Interharmonics

ii) Subharmonics

iii) Triplen harmonics

iv) Harmonic phase sequence

OR

Q6) a) Explain Effects of Harmonics on various power system equipment. **[8]**

b) Explain the following with example: **[8]**

i) Total harmonic distortion (THD)

ii) Total demand distortion(TDD)

Q7) a) Explain in detail about general procedure for harmonic distortion evaluation at the point of coupling at industrial facility. **[8]**

b) Explain series resonance problem related to harmonics. How it can be avoided? **[8]**

OR

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

b) How tuned filters are used to mitigate harmonics? **[8]**

Q9) a) List the power quality monitoring equipment? Explain any three in detail. **[10]**

b) Explain instrument setup and various guidelines to be followed in power quality monitoring. **[8]**

OR

Q10) Write short notes on the following **[18]**

a) True RMS meters

b) Transinet disturbance analysers

c) Harmonic Analysers