Total No. of Questions : 10] **SEAT No. :**

P2291 **[Total No. of Pages : 2**

[5254]-625

B.E. (Electrical)

POWER QUALITY

(Elective – I) (Semester – I) (2012 Pattern)

Time : 2:30 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 indicates full marks.***
4) ***Use of calculator is allowed.***
5) ***Assume suitable data if necessary.***

Q1) a) Why power quality has become important in today's context? **[5]**

b) Write note on how power quality is affected due to grounding problems. **[5]**

OR

Q2) a) Define power quality terms transients, voltage fluctuation and waveform distortion. **[5]**

b) State voltage sag mitigation techniques and explain any one in details. **[5]**

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

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

OR

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

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

P.T.O.

Q5) a) Discuss in details various sources of harmonics. **[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 equipments. **[8]**

b) Explain Harmonic indices in detail. **[8]**

Q7) a) What is point of common coupling and its use in harmonic study? **[8]**

b) Explain Harmonic distortion study procedure in details. **[8]**

OR

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

b) Explain passive filter design procedure for harmonics reduction. **[8]**

Q9) a) State equipment used for power quality monitoring and explain any three equipment in detail. **[10]**

b) Write note on choosing PQ monitoring duration. **[8]**

OR

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

a) True RMS meters

b) Transient disturbance analyser

c) Harmonic analyser