

Total No. of Questions : 10]

SEAT No. :

**P3909**

**[5561]-579**

[Total No. of Pages : 2

**B.E.(Electrical)**

**POWER QUALITY**

**(2015 Course) (Semester - I) (Elective - I) (403143B)**

*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 indicates full marks.*
- 4) *Use of calculator is allowed.*
- 5) *Assume Suitable data if necessary.*

- Q1)** a) Classify Power Quality events related to voltage and current. [5]  
b) How voltage sag is characterized? What are the causes of voltage sag? [5]

OR

- Q2)** a) Explain Voltage tolerance curve for investigation of equipment sensitivity to voltage sag. [5]  
b) Define and List the short duration RMS voltage variations. [5]

OR

- Q3)** a) What is the effect of voltage sag on Motors? [5]  
b) Explain factors governing severity of voltage flicker. [5]
- Q4)** a) What are the sources of transient over voltages? What are the effects of over voltage on equipment? [5]  
b) What is voltage sag mitigation technique used at equipment level? [5]

OR

- Q5)** a) Classify harmonics based on various criteria. [8]  
b) What indices are used for harmonic measurement? Explain. [8]
- Q6)** a) What is harmonics? What are the causes of harmonics? [8]  
b) Explain effects of harmonics on Electrical equipment and cables. [8]

**P.T.O.**

**Q7) a)** What is the need for identifying the source of harmonics? What is the role of capacitor in harmonic study? [8]

b) How harmonics are mitigated ? Explain. [8]

OR

**Q8) a)** Explain series resonance problem related to harmonics. How it can be avoided? [8]

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

**Q9) a)** What are the objectives for Power quality monitoring? How it varies for old and new industrial set up? [10]

b) Explain selection of Power Quality equipment for power quality monitoring. [8]

OR

**Q10)a)** Explain the provisions for Power Quality monitoring made in IEEE Std 1159? [10]

b) What computer tools are used for effective Power quality analysis? Explain. [8]

