

Total No. of Questions : 10]

SEAT No. :

P3084

[Total No. of Pages : 2

[5670]-185

B.E. (Electrical)

POWER QUALITY

(2012 Pattern) (Elective - I) (Semester - I)

Time : 2½ Hours]

[Max. Marks : 70

Instructions to the candidates:

- 1) *Answer 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 wherever necessary.*
- 3) *Figures to the right indicate full marks.*
- 4) *Use of calculator is allowed.*
- 5) *Assume suitable data if necessary.*

Q1) a) Explain various definitions of PQ with reference to stack holders. [5]

b) What are the various causes of voltage sag? Write in brief. [5]

OR

Q2) a) Define and explain following terms as per IEEE standard 1159. [10]

- i) Short duration voltage variation
- ii) Voltage flicker
- iii) Voltage Sag
- iv) Voltage Swell
- v) Voltage Interruption

Q3) a) Discuss the sources of transient over voltages. [5]

b) Describe Area of vulnerability concept related with voltage sag. [5]

OR

Q4) a) Describe any two voltage sag mitigation methods. [5]

b) What is ITIC curve? [5]

P.T.O.

- Q5)** a) Discuss in detail 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 equipment. [8]
b) Explain Harmonic indices in detail. [8]

- Q7)** a) What is point of common coupling? Explain its use in harmonic study. [8]
b) Write note on devices for controlling harmonic distortion. [8]

OR

- Q8)** a) Explain various principles of controlling harmonic distortion. [8]
b) Explain passive filter design procedure for harmonics reduction. [8]

- Q9)** a) List the equipment used for power quality monitoring and explain any four equipment 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) Transient disturbance analysers
c) Harmonic Analysers

