

B.Tech IV Year I Semester (R15) Regular Examinations November/December 2018

**POWER QUALITY**

(Electrical &amp; Electronics Engineering)

Time: 3 hours

Max. Marks: 70

**PART – A**

(Compulsory Question)

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- 1 Answer the following: (10 X 02 = 20 Marks)
- (a) What are the causes of voltage swell?
  - (b) What is meant by interruption?
  - (c) Define "Outage".
  - (d) Why are we concerned about power quality?
  - (e) Write short notes on total harmonic distortion.
  - (f) Explain how harmonic distortion effects motor.
  - (g) Discuss briefly about power quality insurance.
  - (h) Write short notes on disturbance monitor connections.
  - (i) Define solid state breaker.
  - (j) Write short notes on UPQC.

**PART – B**

(Answer all five units, 5 X 10 = 50 Marks)

**UNIT – I**

- 2 Define power quality. Explain the basic steps involved in power quality evaluation.

**OR**

- 3 Explain in detail about the general classes of power quality problems as per IEC.

**UNIT – II**

- 4 Write a brief note on the following: Interruptions and voltage sag, block outs and low frequency power disturbances.

**OR**

- 5 (a) Explain different mitigation methods for voltage sags.  
(b) What are the causes of voltage sags? Explain with the help of suitable examples.

**UNIT – III**

- 6 Classify and discuss in detail about harmonic indices.

**OR**

- 7 Explain the following:
- (a) Voltage versus current distortion.
  - (b) Harmonics versus transients.

**UNIT – IV**

- 8 Discuss about distribution feeder monitoring scheme.

**OR**

- 9 Explain the historical perspective of power quality measuring equipments.

**UNIT – V**

- 10 Explain the following:
- (a) Solid state current limiter.
  - (b) Solid state transfer switch.

**OR**

- 11 Explain the principle of operation of dynamic voltage restorer.