

Reg. No. :

--	--	--	--	--	--	--	--	--	--	--	--

Question Paper Code : 80482

B.E./B.Tech. DEGREE EXAMINATIONS, NOVEMBER/DECEMBER 2021.

Eighth Semester

Electrical and Electronics Engineering

EE 2028/EE 801 – POWER QUALITY

(Regulations 2008)

Time : Three hours

Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. Differentiate between voltage sag and voltage swell.
2. Define CBEMA.
3. What are the causes of voltage sags?
4. What is voltage interruption threshold?
5. What are the causes for voltage transients?
6. How do surge arrestor works?
7. What is the differences between harmonics and transients?
8. Define point of common coupling.
9. What are the benefits of power quality monitoring?
10. List some of the major power quality monitoring equipment.

PART B — (5 × 16 = 80 marks)

11. (a) (i) Discuss the major reasons for the growing concern about the quality of electric power by both electric utilities and end users. (8)
- (ii) List of the principle phenomena causing electromagnetic disturbance classified by International Electrotechnical Commission. (8)

Or

- (b) (i) Discuss about the Computer Business Equipment Manufactures Associations (CBEMA) curve. Explain the events described in the curve. (10)
- (ii) Differentiate between power quality, voltage quality and current quality. (6)
12. (a) Describe the methodology of estimating voltage sag performance.
- Or
- (b) Briefly explain any two voltage sag mitigation techniques with necessary circuit diagram and Waveforms.
13. (a) Discuss the sources of overvoltage due to following phenomena.
- (i) Capacitor switching. (8)
- (ii) Lightning. (8)
- Or
- (b) Discuss the fundamental principles of overvoltage protection of load equipment.
14. (a) Discuss the construction and working principle of active filters for harmonic mitigation.
- Or
- (b) (i) A waveform contains 50hz fundamental, plus 3rd, 7th, 9th, 11th harmonics with their magnitudes being reciprocal of their harmonic numbers. Find THD. (4)
- (ii) Describe the causes and effects of harmonic distortion in power system. (12)
15. (a) Write short note on the followings :
- (i) Harmonic analyzer (8)
- (ii) Flicker meter. (8)
- Or
- (b) Analyze the role of expert systems in power quality monitoring.
-