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**Question Paper Code : 30981**

B.E./B.Tech. DEGREE EXAMINATIONS, APRIL/MAY 2019.

Eighth Semester

Electrical and Electronics Engineering

EE 2028 — POWER QUALITY

(Regulation 2008)

Time : Three hours

Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. Define Power Quality as per IEEE.
2. What are the main objectives of power quality standards?
3. What is static transfer switch?
4. What is the importance of voltage sag estimation?
5. What is transient overvoltage?
6. Define, Ferro resonance.
7. Mention the harmonic effects on devices and loads.
8. What are the objectives of IEEE and IEC standards?
9. State the objectives of power quality monitoring.
10. What are the functions of static electricity meter?

PART B — (5 × 16 = 80 marks)

11. (a) (i) What are the major power quality issues? Explain in detail. (8)  
(ii) Explain the reasons for increased concern in power quality. (8)

Or

- (b) (i) Discuss in detail about the Computer Business Equipment Manufacturers Associations (CBEMA) curve. (8)
- (ii) Explain briefly about international standards of power quality. (8)

12. (a) What are the different voltage sag mitigation techniques? Explain in details. (16)

Or

- (b) (i) Explain the solid state transfer switch with the transfer operation. (8)
- (ii) Discuss the sources of sags and interruption. (8)

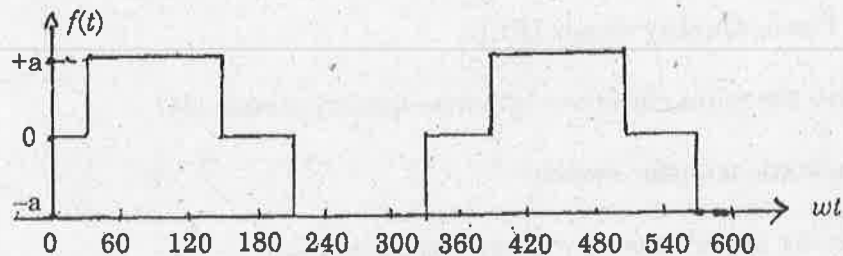
13. (a) Write short note on the followings:

- (i) Surge arrester (8)
- (ii) Lightning arrester. (8)

Or

(b) Illustrate the phenomena of impulsive transients and oscillatory transients.

14. (a) Determine the RMS value and THD of the following waveform.



Or

(b) Discuss the characteristics of harmonics generated by different types of industrial load.

15. (a) (i) Describe the need and role of harmonic/spectrum Analyzer. (8)
- (ii) Write short notes on power quality measurement system What are the characteristics of power quality measurement equipments? (8)

Or

- (b) (i) Discuss briefly about the different features of harmonic analyzer. (8)
- (ii) Draw and explain the functional structure of expert systems based power quality monitoring. (8)