Reg. No. : | | | | | | | | | | | | |

Question Paper Code : 40464

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

Sixth Semester

Electrical and Electronics Engineering

EE 8006 – POWER QUALITY

(Regulations 2017)

Time : Three hours Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. What do you mean by over voltage?

2. What are the various types of interruptions?

3. Define Ferro resonance.

4. How does fast transfer switches differ from static transfer switches?

5. Distinguish between harmonics and transients.

6. Define inter-harmonics.

7. What are the functionalities of passive series compensators?

8. Name some power factor correction techniques.

9. When the available power supply is AC, which type of DVR should be chosen? Justify your answer.

10. What is the main functionality of flicker meter?

PART B — (5 × 13 = 65 marks)

11. (a) (i) Discuss in detail about transients.

(ii) Describe the CBEMA curve with help of neat sketch.

Or

(b) Discuss the source and effects of different categories of long duration voltage variations that affect the power quality.

12. (a) What is the need for estimating sag performance? Explain the different methods of estimating voltage sag performance.

Or

(b) Write short note on the following:

(i) Mitigation of voltage swell.

(ii) Capacitor switching.

13. (a) Explain how commercial and industrial loads are responsible for harmonic distortion.

Or

(b) (i) Explain the IEEE and IEC standards on harmonics distortion.

(ii) Explain the power system response characteristics under the presence of harmonics.

14. (a) (i) Explain the principle of operation of passive shunt compensators.

(ii) Discuss the limitations of passive filters.

Or

(b) Discuss in detail the parallel resonance of passive filters with the supply system and its mitigation.

15. (a) Explain the principle and working of DSTATCOM.

Or

(b) (i) With a neat schematic describe the structure of dynamic voltage restorer.

(ii) Write short note on applications of expert systems for power quality monitoring.

PART C — (1 × 15 = 15 marks)

16. (a) With necessary diagrams, explain the role of UPQC in mitigating various power quality issues.

Or

(b) Explain the various source of inter harmonics. Also describe the effect of inter harmonics in light flicker problem.

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