

B.E., DEGREE EXAMINATIONS: MAY/JUNE 2013

Eighth Semester

ELECTRICAL AND ELECTRONICS ENGINEERING

EEE352 : Power Quality

Time: Three Hours

Maximum Marks: 100

Answer all the Questions:-

PART A (10 x 1 = 10 Marks)

1. Weightage factor for economic analysis for sag with minimum voltage between 50% and 70%
 - a) 1.0
 - b) 0.1
 - c) 0.4
 - d) 0.8
2. Which one of the following device can handle most sag conditions
 - a) Power transformer
 - b) Ferroresonant transformer
 - c) Current transformers
 - d) Isolation transformers
3. The internationally accepted maximum THD "compatibility level" in a low voltage system
 - a) 5%
 - b) 8%
 - c) 4%
 - d) 7%
4. The ill effect of retarding torque is created in 3 phase induction motor due to
 - a) 7th order harmonics
 - b) 9th order harmonics
 - c) Both 7th and 9th order harmonics
 - d) 5th order harmonics
5. Harmonic content will increase _____ in transformer
 - a) Regulation
 - b) Power factor
 - c) Efficiency
 - d) Heating
6. Audible noise, flicker, overheating and surge arrester failure are the cause of
 - a) Harmonics
 - b) Ferroresonance
 - c) Both voltage swell and sag
 - d) Voltage sag
7. Grounding is used for
 - a) Noise control
 - b) Power control
 - c) Frequency control
 - d) Current control
8. Which of the following is not connected to power quality
 - a) IEEE 519-1992
 - b) IEC 61000-2-2
 - c) IEEE 591-1998
 - d) IEC 61000-3-2

23. a) (i) Explain in detail the calculation of Total Harmonic Distortion and Total Demand Distortion (7)
(ii) How single phase powers and fluorescent lighting includes harmonics in power system? (7)

(OR)

- b) (i) How to locate the harmonic sources in a radial distribution feeder? How the direction of harmonic flow can be altered? (7)
(ii) What are the effects of parallel and series resonance in harmonics? (7)

24. a) (i) What are the effects of harmonics in transformer? (7)
(ii) List out the principles used for controlling harmonics. (7)

(OR)

- b) (i) Explain the six parts of IEC standards on Harmonics. (7)
(ii) What are the inadequacies in wiring and grounding, which causes power quality problem? (7)

25. a) With flicker standards and flicker measurement techniques, explain the operation of Flicker meters.

(OR)

- b) (i) Explain the basic design of an expert system for monitoring applications. (9)
(ii) How internet is used for power quality monitoring? (5)
