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

Question Paper Code: 49316

B.E./B.Tech. DEGREE EXAMINATION, NOV 2019

Elective

Electrical and Electronics Engineering

14UEE916- POWER QUALITY

(Regulation 2014)

Duration: Three hours Maximum: 100 Marks

PART A - (10 x 1 = 10 Marks)

(Answer all Questions)

1. Which one is called Power acceptability curve? CO1-R

   (a) Slip Torque curve (b)V-I curve (c) CBEMA curve (d) P-V curve

2. In voltage sag, breaker will remain open for typically a minimum of CO1-R

   (a) 10 cycles (b) 15 cycles (c) 12 cycles (d) 5 cycles

3. Transmission faults cause voltage sags that last about CO2-R

   (a) 40 sec (b) 10 sec (c) 20 millisec (d) 60 millisec

4. Vacuum Breaker Technology uses CO2-R

   (a) Static switches (b) Compensator

   (c) Automatic transfer switches (d) Fast transfer switches

5. The surge impedance of under-ground cables is of the order of CO3-R

   (a) 20 to 60 ohms (b) 200 to 600 ohms

   (c) 2 k ohm to 5 k ohm (d) 20 k ohm to 60 k ohm

6. The current carrying capacity of cables in D.C. is more than that in A.C. mainly due to CO3-R

   (a) Absence of harmonics (b) Non-existence of any stability limit

   (c) Smaller dielectric loss (d) Absence of ripples

7. The sources of harmonics are CO4-R

(a) Converters (b) Large rectifier loads

(c) Computer power supply (d) All the above

8. The crest factor of non-linear loads is between CO4-R

(a) 1 and 1.414 (b) 1 and 2.5 (c) 2.5 and 1.414 (d) Below 1

9. Power quality measuring equipments CO5-R

(a) Oscilloscopes (b) Harmonic analyzers (c) Energy monitors (d) All the above

10. Continuous and rapid variations in the load current magnitude which causes voltage variations CO5-R

(a) Harmonics (b) Flicker (c) Voltage sag (d) Voltage distortion

PART – B (5 x 2= 10Marks)

11. List the major electric power quality issues. CO1- R

12. What is the need of DSTATCOM? Give its main function. CO2- R

13. What are the problems associated with ferro resonance? CO3- R

14. Write the sources of current harmonics CO4- R

15. Which place is chosen for monitoring the power quality?. CO5- R

PART – C (5 x 16= 80Marks)

16. (a) Explain the various types of power quality disturbances and impacts of power quality. CO1- App (16)

Or

(b) With a waveform sketch, explain the terms CO1- App (16)
(i) Voltage Sag
(ii) Voltage interruption
(iii) Voltage swells
(iv) Sag with Harmonics .

17. (a) What are the different voltage sag mitigation techniques? Explain in details CO2- U (16)

Or

(b) Explain the system adapted to estimate the severity of the sag occurred due to various sources. CO2- U (16)

18. (a) Explain in detail about various methods to mitigate voltage swells CO3- Ana (16)

Or

	(b)	Discuss the sources of overvoltage due to following phenomena. (i) Capacitor switching. (ii) Lightning	CO3- Ana	(16)
19.	(a)	Explain in detail about the general procedure for harmonic distortion evaluation	CO4- U	(16)
		Or		
	(b)	Explain in detail about the classification of linear loads and non linear loads used in harmonic studies.	CO4- U	(16)
20.	(a)	Discuss in detail about the IEEE flicker meter and also Explain the statistical analysis of long term and short term flicker evaluation	CO5- U	(16)
		Or		
	(b)	Briefly explain the common objectives of power quality monitoring	CO5- U	(16)