Code No: I4305/R16

M. Tech. I Semester Supplementary Examinations, February-2020

POWER QUALITY

Common to Power Electronics (43),P&ID(42),PE & ED(54),PE & D (52),PE & S(12), EM & D (44) and Power Electronics & Power Systems (99)

Time: 3 Hours **Max. Marks: 60**

Answer any FIVE Questions
All Questions Carry Equal Marks

1.	a	Define interruption. Discuss the causes of short and long interruptions. Suggest remedies to overcome the interruptions.	[6]
	b	What are nonlinear loads? Give examples for nonlinear loads? Mention the drawbacks of having nonlinear loads in distribution systems.	[6]
2.		What are the effects of over voltages? Discuss the main principle of over voltage protection. List and discuss different devices used for over voltage protection.	[12]
3.	a	Discuss different sources and effects of transient over voltages.	[6]
	b	What is Shielding? What is its use in distribution systems?	[6]
4.	a	What are harmonics? What are main sources for power system harmonics? If fundamental frequency is 50Hz, what are the 3^{rd} and 5^{th} order harmonic frequencies?	[6]
	b	What are the values of maximum permissible THD in voltage and current? Discuss the schemes for mitigation of current harmonics.	[6]
5.	a	What are inter harmonics? Explain their causes and effects.	[6]
	b	Discuss the effect of harmonic supply on the performance of an Induction motor.	[6]
6.	a	What are the various types of power generation preferred for distributed generation? Discuss.	[6]
	b	Explain the regulation of utility voltage with distributed resources.	[6]
7.	a	Discuss the principles of voltage regulation in distribution systems.	[6]
	b	Discuss the working of any one device for voltage regulation in distribution systems.	[6]
8.	a	What are various power quality issues we face while interconnecting distributed generation to the grid? Explain.	[6]
	b	Discuss the solutions to wiring and grounding problems in distributed generation.	[6]

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