GUJARAT TECHNOLOGICAL UNIVERSITY

ME - SEMESTER- III • EXAMINATION – SUMMER 2015

Subject Code: 730701 Date: 30/04/2015 Subject Name: Power Quality Management Time: 2:30 pm to 5:00 pm **Total Marks: 70 Instructions:** 1. Attempt all questions. 2. Make suitable assumptions wherever necessary. 3. Figures to the right indicate full marks. Q.1 What is Power Quality? Find crest factor for sinusoidal 07 wave & square wave. Also discuss importance of crest factor. **07 (b)** Explain voltage sags with examples. Q.2(a) Explain all power quality concerns in brief. 07 **(b)** Define Flicker & Form factor with examples. 07 **(b)** What are susceptibility criteria for power quality? 07 (a) Describe shielded isolation transformers for low frequency Q.3 disturbances. (b) Define transients in power system. Discuss one example of 07 transient models and their response. Q.3 (a) Discuss the causes of transients in power system. 07 (b) Define individual and total harmonic distortion with 07 examples. **Q.4** (a) Discuss sub harmonics & non-integer harmonics. Which are 07 causes of them? (b) Describe harmonic phase rotation and phase angle 07 relationship. OR **Q.4** (a) Which are the causes of voltage and current harmonics? 07 **(b)** Discuss about power system grounding & bonding schemes. 0.4 07 0.5 (a) Explain voltage rise due to large power factor correction **07** capacitors are present in an electrical system. **(b)** What is EMI? Discuss EMI mitigation methods. 07 (a) Which are power quality measurement devices? Discuss Q.5 07 about number of test locations & test duration for power quality measurement. What is distributed generation? Discuss about power quality problems for distributed generation.
