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GUJARAT TECHNOLOGICAL UNIVERSITY M. E. - SEMESTER – I • EXAMINATION – SUMMER • 2014

Subject code: 710706N Date: 21-06-2014 **Subject Name: Energy Management** Time: 02:30 pm - 05:00 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 (a) What is power factor? State the advantages of good power factor. Also, explain any one method of improving power factor used in industry with its advantages and disadvantages. **(b)** Write technical notes on Demand Side Management (DSM). 07 **Q.2** (a) State and explain in detail qualitative parameters of quality power. Also explain the difference between quality power and reliable power. **(b)** Write short note on Power System Security. 07 **(b)** Write the methodology for assessment of fans. 07 Q.3 (a) Explain the concept of Energy Management. What are the approaches for the same in industries as well as domestic fields? (b) Define ROI. What is the limitation of ROI? What are the advantages of 07 simple payback method? 0.3 (a) List down the objectives of Energy Management. Also define Energy 07 Management. (b) Discuss the factors for successful implementation of variable speed 07 drives. 0.4 (a) Explain following (i) Working of Soft Starter and its advantages 07 (ii) Working of Electronic Ballast. **(b)** List the factors that affect energy efficiency in Air Compressor. 07 (a) Explain briefly the difference between preliminary and detail energy 0.4 **(b)** Enlist instruments used in energy audit and explain any two in detail. 07 0.5 (a) Explain with neat sketch cooling tower performance and factors 07 affecting cooling tower performance. (b) Explain in detail the approach for energy saving in domestic and 07 commercial buildings. OR (a) Prepare a report of energy audit of any industry / hostel / commercial 07 Q.5 building you visited. (b) What is the purpose of material and energy balance? How Sankey 07 Diagram is useful for energy balance analysis?
