GUJARAT TECHNOLOGICAL UNIVERSITY

M. E. - SEMESTER – I • EXAMINATION – SUMMER • 2013

| Subject code: 710706N | | code: 710706N Date: 06-06-2013 | |
|-----------------------|------------|---|----|
| Sul | bject [| Name: Energy Management | |
| Tir | me: 10 | 0.30 am – 01.00 pm Total Marks: 70 | |
| Ins | struc | tions: | |
| | | Attempt all questions. | |
| | 2. 3. | Make suitable assumptions wherever necessary. Figures to the right indicate full marks. | |
| Q.1 | (a) | Explain ROI, IRR cost evaluation by payback terms. | 07 |
| | (b) | Explain how power factor improvement affects saving of energy. | 07 |
| Q.2 | (a) | Explain the series and shunt compensation for voltage control. | 07 |
| | (b) | Demand side management. | 07 |
| | | OR | |
| | (b) | Explain how an energy-efficient induction motor is designed? State the efficiencies of 5 H.P., 10 H.P. and 20 H.P. induction motors at full load. | 07 |
| Q.3 | (a) | State and explain qualitative parameters of quality power. | 07 |
| | (b) | Explain how maximum demand controllers work? | 07 |
| | | OR | |
| Q.3 | (a) | Explain Preliminary Energy Audit and Detailed Energy Audit. | 07 |
| | (b) | What are the instruments required to do Energy Audit. | 07 |
| Q.4 | (a) | List the factors that affect energy efficiency in air compressor. | 07 |
| | (b) | Enlist and explain the factors affecting cooling tower performance. | 07 |
| | | OR | |
| Q.4 | (a) | Discuss the points of energy wastage in a power system? | 07 |
| | (b) | Compare the efficiencies of power and distribution transformers. | 07 |
| Q.5 | (a) | Minimization of losses in Boiler. Also state overall efficiency of thermal Power plant. | 07 |
| | (b) | Where does co-generation find its applications? | 07 |
| | | OR | |
| Q.5 | (a) | What is reduction in efficiency of rewound induction motor? Why does such a reduction take place? | 07 |
| | (b) | Which are the harmonics generated by arc furnace and arc welding? | 07 |
