

GUJARAT TECHNOLOGICAL UNIVERSITY**M.E. Sem- I Examination January 2010****Subject code: 710706****Subject Name: Energy Management****Date: 29 / 01 /2010****Time: 12.00- 2.30pm****Total Marks: 60****Instructions:**

1. Attempt all questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.

- Q.1 (a)** Explain the concept of Energy Management. What are the approaches for the same in industrial as well as domestic fields? **06**
- (b)** (i) State efficiency of 5 h.p. , 10 h.p. , 15 h.p. and 30 h.p. energy efficient motors. Each motor is 4-pole motor. **06**
(ii) Explain effect of number of poles on p.f. pf an induction motor with same rating.
(iii) Discuss efficiency of combined cycle power plant with and without co-generation.
- Q.2 (a)** What is the difference in Quality Power and Reliable Power? **06**
(b) How to find out power system reliability for any system you choose. **06**
- OR**
- (b)** What is power system security? **06**
- Q.3 (a)** State and explain qualitative parameters of quality power. **06**
(b) How power factor is improved for distribution system? **06**
- OR**
- Q.3 (a)** Explain the effect of choice of voltage of transmission on saving energy of transmission. **06**
(b) Why modern distribution system should adopt 4 core cables at the place of 3^{1/2} core cable? **06**
- Q.4 (a)** Explain: ROI, IRR cost evaluation by payback terms. **06**
(b) State the luminous efficiency of Tungsten filament lamp, Tube light and CFL tube **06**
- OR**
- Q.4 (a)** Explain Preliminary Energy Audit and Detailed Energy Audit. **06**
(b) What are the instruments required to do Energy Audit. **06**
- Q.5** Write technical note on:
- (a)** Demand side management. **06**
(b) Minimization of losses in Boiler. Also state overall efficiency of thermal Power plant. **06**
- OR**
- Q.5 (a)** How variable speed drive is saving energy? **06**
(b) Discuss the points of energy saving in buildings. **06**

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