

SUBJECT CODE NO:- P-8120
FACULTY OF ENGINEERING AND TECHNOLOGY
M.E. (Electrical Power System) Examination May/June 2017
El-1 Energy Audit & Conservation
(Revised)

[Time : Three Hours]

[Max Marks :80]

Please check whether you have got the right question paper.

- N.B
- i) Answer any two full questions from each section.
 - ii) Assume suitable data if required.

Section A

- Q.1
- a) With neat sketches, explain solar thermal technology & limitations of solar thermal technology 10
 - b) Derive an expression for Maximum Rotor efficiency of wind turbine? Also give expression related to impact of tower height of wind turbine. 10

- Q.2
- a) Explain in details the net present value method? Calculate the net present value of project which have cash flow stream
Year → 1 2 3 4 5
Cash flow → 2,00,000 2,00,000 3,00,000 3,00,000 3,50,000
Total Investment is 1,000,000 at rate of 10% 10
 - b) Explain in detail the internal rate of return method; also give an example 10

- Q.3
- a) Explain in detail Level of illumination for different areas? Describe energy efficient technology for Lighting System? 10
 - b) Explain the Principle of Variable frequency drive with neat Block Diagram. Also describe different methods for improving efficiency of the existing motors. 10

Section B

- Q.4
- a) Explain in details, the concept of energy conservation in industrial and Agriculture sector 10
 - b) Explain in details, the concept of energy conservation in Transmission & Distribution. Also explain effective measures to reduce T&D losses. 10
- Q.5
- a) Draw the data energy flow diagram & Explain about its components & inter links 10
 - b) Explain in details "Energy accounting" & its methods. 10
- Q.6
- Write a short notes on each of following 20
- i) Concept of Energy input to different load
 - ii) Storage feasibility
 - iii) Least Square method
 - iv) Instruments used for Energy audit