



- Notes :
1. All questions carry equal marks.
 2. Due credit will be given to neatness and adequate dimensions.
 3. Assume suitable data wherever necessary.
 4. Illustrate your answers wherever necessary with the help of neat sketches.
 5. Use of slide rule, Logarithmic tables, Steam tables, Mollier's chart, Drawing instruments, Thermodynamic tables for moist air, Psychrometric charts and Refrigeration charts is permitted.
 6. Attempt **any five** questions.
 7. Use of programmable calculator is prohibited.
 8. Assume suitable data wherever necessary.
 9. Draw neat and proper diagram/sketches.
 10. Don't use red pen for writing the answer.
 11. Don't write any other comment except answers of questions.

1. a) With a neat diagram explain the standalone wind solar photo-voltaic system. 7
b) Explain in details, "Implementation of motor management program". 7
2. a) Discuss selection and installation factors of diesel-generator set. 7
b) Write short notes on energy efficient transformer. 7
3. a) What are the implications of global warming? Describe the greenhouse effect. 7
b) Give brief introduction to energy efficient motors. 7
4. a) Write short note on proper selection, operation and maintenance of steam traps. 7
b) Explain ILER assessment. 7
5. a) How the process flow chart is prepared for any industry? 7
b) Draw typical process flow with electrical and thermal energy flow for an integrated paper and pulp industry. 7
6. a) What are the objectives of energy conservation? How will you achieve the objective with motors? 7
b) Explain the key features of IS12615 and IEEMA standards. 7
7. a) Explain the fixed and variable concepts of tariff system. 7
b) Differentiate between non-conventional energy sources and renewable energy sources. 7
8. a) Draw block diagrams showing various components of 7
i) Energy Balance ii) Material Balance.
b) Discuss briefly any five energy efficiency improvement opportunities in lighting systems. 7
