

Total No. of Printed Pages:02

SUBJECT CODE NO:- H-269
FACULTY OF ENGINEERING AND TECHNOLOGY
T.E. (EEP/EE/EEE)
Energy Conservation & Audit
(REVISED)

[Time: Three Hours]

[Max. Marks: 80]

Please check whether you have got the right question paper.

- N.B
- i) Q.1 and Q.6 are compulsory.
 - ii) Attempt any two from the remaining each section.

Section A

- | | | |
|-----|--|----------|
| Q.1 | Solve any five | 10 |
| | <ol style="list-style-type: none"> a. What is the role of BEE in achieving energy efficiency in our country? b. Define energy audit as per energy conservation act 200.1 c. State second law of thermodynamics. d. Draw schematic diagram for bottoming cycle cogeneration. e. What is meant by Evaporation ratio in case of steam boiler? f. What is meant by Global-warming potential? g. What is emission trading? h. What is the use of Lux meter & leak detector? | |
| Q.2 | <ol style="list-style-type: none"> a. What are the duties & responsibilities of an energy manager? b. Write down steps involved in energy audit with example. | 08
07 |
| Q.3 | <ol style="list-style-type: none"> a. Explain the steps to calculate boiler efficiency by indirect method. b. What are major heat losses in boiler? Give energy efficiency opportunities in Boilers. | 07
08 |
| Q.4 | <ol style="list-style-type: none"> a. What is cogeneration? With the help of diagram explain back pressure turbine cogeneration system. b. Explain “affinity laws” applicable to pumping systems & list energy conservation opportunities in pumping system in industry. | 08
07 |
| Q.5 | Write a short note on any 3 | 15 |
| | <ol style="list-style-type: none"> i. CDM & its objectives ii. Energy & sustainable development iii. Energy audit in HVAC system iv. KYo To protocol | |

Section B

- Q.6 Solve any five 10
- i. Define NPV. Mention its formula.
 - ii. What is IRR?
 - iii. What is PI for energy conservation project?
 - iv. Define power factor. Mention the methods to improve it.
 - v. What is meant by TOD-Tariff
 - vi. What is DSM?
 - vii. For light system define room-index.
 - viii. How will you calculate discount factor?
- Q.7 a. Briefly explain simple payback period & mention its advantages & disadvantages. 08
 b. Explain the importance of power factor in energy conservation program. 07
- Q.8 a. Give comparison between NPV & IRR method of financial analysis. 07
 b. It is proposed to install a heat recover device in industry the capital cost is Rs.200000 & after 5 years the salvage value is to be 15000. The saving is as follow determine the NPV after 5 years for a discount rate of 8%. 08
 Year- 1, 2, 3, 4, 5. Saving -> 70000, 60000, 60000, 50000, 50000 Rs respectively.
- Q.9 Explain in detail the procedure to carry out energy audit in thermal power plant. Mention the instruments used. Suggest energy conservation measures to improve performance of thermal power plant. 15
- Q.10 Write a short note on any 3 15
- i. APFC
 - ii. ISO 50001-energy management system.
 - iii. E.A. 2003 of energy sector reforms.
 - iv. Electricity tariff-applicable to industrial consumers.