

300802(37)

B. E. (Eighth Semester) Examination, 2020

APR-MAY

(New Scheme)

(AEI, Bio-Tech, Chem., Civil, CSE, Elect., EEE, EI, Et & T, IT, Mech., Mining, Metallurgy, Mechatronics, Prod., Automobile)

ENERGY CONSERVATION & MANAGEMENT

Time Allowed : Three hours

Maximum Marks : 80

Minimum Pass Marks : 28

Note : Part (a) is compulsory solve any two part from (b), (c) and (d). Part (a) carries 2 marks and rest of carries 7 marks.

Unit-I

1. (a) Define 'Energy Auditing'.
- (b) List various primary energy sources and explain energy scenario in India.

- (c) Write the role of energy manager in detail.
- (d) List the key instruments for energy audit & explain its functions.

Unit-II

- 2. (a) What is Pump?
- (b) List various energy conservation opportunities in a refrigeration system.
- (c) Write in detail energy management programmes.
- (d) A domestic food freezer maintains a temperature of -15°C . The ambient air temperature is -30°C . If heat leaks into the freezer at the continuous rate of 1.75 kJ/s. What is the least power necessary to pump this heat out continuously?

Unit-III

- 3. (a) What is Stream Traps?
- (b) Explain in brief energy efficiency versus energy conservation. Write step wise procedue to calculate Boiler efficiency.

- (c) Explain Indirect method of Energy Efficiency calculation for furnace.
- (d) Discuss the effect of following parameters on the performance of Boiler.
 - (i) Excess air
 - (ii) Blow down
 - (iii) Waste heat utilization

Unit-IV

- 4. (a) Define electrochemical energy storage.
- (b) Write the detail of thermochemical energy storage.
- (c) Write the detail overview of storage technologies.
- (d) What the difference between mechanical energy storage & direct thermal storage.

Unit-V

- 5. (a) Define Energy management.
- (b) Write the role of new equipment and technology in industrial energy efficiency.

[4]

- (c) Write detail of thermal energy management in industry.
- (d) How to improve industrial energy audits of any industry. Explain in detail.