D 90304 (Pages : 2) Name.....

Reg. No.....

SEVENTH SEMESTER B.TECH. (ENGINEERING) [09 SCHEME] DEGREE EXAMINATION, NOVEMBER 2015

ME 09 706 L 25—ENERGY ENGINEERING AND MANAGEMENT

Time : Three Hours Maximum : 70 Marks

Part A

Answer **all** *questions.*
Each question carries 2 *marks.*

1. How do fix the energy prices ?
2. What are the energy conservation schemes ?
3. Write down the equation for blow down.
4. How to divide operating cost into two categories ?
5. What are the improvement due to energy conservation ?

(5 × 2 = 10 marks)

Part B

Answer any **four** *questions.*
Each question carries 5 *marks.*

6. List the properties of natural gas and town gas.
7. Write short note on "Solar energy".
8. Discuss the initial objectives of the EAS.
9. Describe the heat losses in boiler and combustor.
10. Briefly explain the optimal target investment schedule.
11. Write short note on "cost optimisation".

(4 × 5 = 20 marks)

Part C

Answer **either** *section (a)* **or** *section B of each question.*

12. Explain industrial energy thrift scheme in details.

Or

13. Explain the environmental aspects utilization of energies with examples.

Turn over

14. An office block uses 40 m^3 of fuel oil per year for heating purposes. The calorific value is 42000 MJ/m^3. The efficiency of heating process is 80% and the fuel cost Rs. 8 0000/m^3. Determine actual fuel cost/year, theoretical fuel cost/year and energy index.

Or

15. Explain the typical boiler water treatment system for enhancing thermal efficiency.

16. With an aid of block diagram, explain the energy balances of heat pump and refrigerators.

Or

17. Calculate the quantity of air required for complete combustion of coal having the analysis by weight :

$C = 74\%$, $H_2 = 5\%$, $S = 1\%$, $N_2 = 1\%$, $O_2 = 5\%$, moisture = 9% and ash = 5%.

18. Explain the different costing techniques.

Or

19. Describe the computerised energy management in details.

(4 × 10 = 40 marks)