

22312

11819

3 Hours / 70 Marks

Seat No.

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- Instructions* –
- (1) All Questions are *Compulsory*.
 - (2) Answer each next main Question on a new page.
 - (3) Illustrate your answers with neat sketches wherever necessary.
 - (4) Figures to the right indicate full marks.
 - (5) Assume suitable data, if necessary.
 - (6) Use of Non-programmable Electronic Pocket Calculator is permissible.
 - (7) Mobile Phone, Pager and any other Electronic Communication devices are not permissible in Examination Hall.

Marks

- 1. Attempt any FIVE of the following: **10****
- a) Define Energy Policy.
 - b) List any four applications of solar energy.
 - c) Define commercial and non commercial energy sources.
 - d) List any four instruments used for energy Audit.
 - e) Define Economics.
 - f) List the types of market.
 - g) List various types of costs with example.

P.T.O.

- 2. Attempt any THREE of the following:** **12**
- a) Explain the construction and working of solar water heater.
 - b) Explain importance of energy conservation in chemical industry.
 - c) Explain the importance of clean energy technologies.
 - d) Explain depreciation and list methods of depreciation.
- 3. Attempt any THREE of the following:** **12**
- a) Describe any four duties and responsibilities of Energy Manager.
 - b) State any four environmental benefits of wind energy.
 - c) Explain the construction and working of fixed roof bio-gas plant.
 - d) Classify new energy sources with their industrial applications.
- 4. Attempt any THREE of the following:** **12**
- a) Explain detailed energy audit.
 - b) Describe commercial and Non-commercial energy with example.
 - c) Illustrate the benefits of hydrogen energy as a future energy.
 - d) Explain construction and working of solar flat plate collector.
 - e) A fluid heater having capacity of 5 MW uses furnace oil as a fuel. Calorific value of oil is 10,500 Kcal/kg. Calculate mass flow rate of fuel oil.
- 5. Attempt any TWO of the following:** **12**
- a) Describe the concept of excise tax and income tax.
 - b) Explain law of demand and law of supply.
 - c) It is desired by the firm to borrow Rs. 2 lakh to make a financial obligation the money can be borrowed from a loan agency at a monthly interest rate of 3%. Determine total amount of principle plus simple interest due after 2 years if no intermediate payment are made and effective interest rate when interest is compounded monthly.

6. Attempt any TWO of the following:**12**

- a) Describe the concept of cost, total cost, fixed cost, variable cost, direct cost and indirect cost.
 - b) Explain concept and types of interest.
 - c) A heat exchanger cost Rs. 50 lakhs is fabricated in India, the exchanger is estimated to have useful life of 10 years and a salvage value of Rs. 5 lakhs if the same unit is imported, it shall cost Rs. 150 lakh and would have an useful life of 20 years and a salvage value of 40 lakhs. Suggest the better option of among two options for purchase of heat exchanger. (I = 8% Pa)
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