

316327

25226

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) 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 Efficient Motor.
 - b) List any two types of sensors used in lighting systems.
 - c) List any four energy conservation equipment.
 - d) State the benefit of flexible tariff.
 - e) Give example of captive power plant in energy conservation system.
 - f) Define Energy Audit.
 - g) State the use of Power analyzer.

P.T.O.

- 2. Attempt any THREE of the following : 12**
- a) Explain the role of MEDA and BEE to promote energy conservation programme.
 - b) Explain working of soft starter.
 - c) Differentiate between technical and commercial losses.
 - d) Justify the use of energy audit software tools in system.
- 3. Attempt any THREE of the following : 12**
- a) Describe the concept of Star Labeling and its benefits.
 - b) Explain energy conservation techniques in induction motors.
 - c) Explain energy conservation techniques in lighting systems.
 - d) Differentiate between topping cycle and bottoming cycle cogeneration.
- 4. Attempt any THREE of the following : 12**
- a) Select and justify suitable renewable energy sources for electrification.
 - b) Explain VFD drive for energy saving in variable load drives.
 - c) Explain energy conservation strategies in fan and blower systems.
 - d) Describe the gas turbine cogeneration system.
 - e) Explain the role of energy auditor in an industry.

5. Attempt any TWO of the following : 12

- a) Explain power factor improvement techniques used in electrical installations.
- b) For the tariff of ₹125/kVA of maximum demand and ₹1 per unit consumed, load factor 50%. Find overall cost at
 - i) unity p.f.
 - ii) 0.8 p.f.Consider maximum demand = 1kVA
- c) Prepare a sample energy audit report for an electrical department.

6. Attempt any TWO of the following : 12

- a) Explain simple payback period method for project evaluation.
 - b) Explain the working of captive power plant with neat block diagram.
 - c) Prepare an energy conservation plan for a classroom lighting system.
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