

**N.B.**

1. Question No. 1 is Compulsory.
2. Attempt any **Three** Questions from remaining **Five** Questions
3. Assume Suitable Data if needed and Justify the Same
4. Figures to the right indicate full marks.

**Que.1** Solve any **FIVE**

- a) State law of conservation of energy with one example.. [03]
- b) Differentiate between commercial and non-commercial energy sources. [03]
- c) Describe the forms of energy with two examples for each. [03]
- d) Explain types, applications, and adverse effects of Natural Gas. [03]
- e) State applications of Solar Thermal energy.. [03]
- f) Differentiate between HAWT and VAWT [03]

**Que.2**

- a) Classify conventional energy sources and give two examples of each type.. [05]
- b) Draw and explain basic components of a Wind Energy Conversion System (WECS). [06]
- c) Explain types, applications, and adverse effects of Crude Oil. [04]

**Que.3**

- a) Short note on: Ocean Thermal Energy Conversion (OTEC) with neat diagram. [06]
- b) Explain types, applications, and adverse effects of Coal [05]
- c) Short note on Biomass energy. [04]

**Que.4**

- a) Short note on: Wave energy and Tidal energy with neat labelled diagrams.. [06]
- b) Describe the oil and gas resources available in India and their major applications. [05]
- c) Define API gravity of crude oil with one example. [04]

**Que.5**

- a) Explain types, applications, and adverse effects of Nuclear energy. [06]
- b) Short note on Geothermal energy with a neat diagram. [05]
- c) Summarize why replacing incandescent bulbs with LED bulbs improves household sustainability. [04]

**Que.6**

- a) Explain the concept of carbon footprint with an everyday example showing environmental impact. [05]
- b) Explain the global energy scenario with relevant statistics/trends. [05]
- c) Discuss why travelling by public bus results in a lower carbon footprint per person than travelling alone in a private car. [05]

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