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ELECTIVE - II
Energy Engineering
(New) (1315)

P. Pages : 2

Time : Three Hours

Max. Marks : 100

Instructions to Candidates :

1. Do not write anything on question paper except Seat No.
2. Answersheet should be written with blue ink only. Graph or diagram should be drawn with the same pen being used for writing paper or black HB pencil.
3. Students should note, no supplement will be provided.
4. Solve **any two** bits from a, b, c.
5. Assume suitable data if necessary.
6. Use of non - programmable calculator is allowed.

UNIT - I

1. a) Give the global primary energy reserves. List atleast five states where coal deposits are concentrated in India. 10
b) Explain the principle of energy conservation with energy efficiency. State its importance. 10
c) Give ten steps methodology for Detailed Energy Audit. 10

UNIT - II

2. a) What are different types of solar radiations ? How are they measured ? Explain pyranometer for measuring global radiation. 10
b) Define the solar constant I_{sc} ? Explain the types of solar radiation reaching the earth's surface. 10
c) Explain in detail flat plate collector with its applications. 10

UNIT - III

3. a) Explain Lithium - Bromide Water Absorption cooling system. 10
b) Explain solar chimney power plant. 10
c) Explain solar drying with its types. 10

UNIT - IV

4. a) Describe the main considerations in selecting site for wind power generation. 10
- b) Prove that in case of Horizontal Axis Wind turbine, maximum power can be obtained when exit velocity = $\frac{1}{3}$ rd wind velocity and $P_{\max} = \frac{8}{27} \rho AV^3$. 10
- c) Give the classification of gasifier and explain any one with neat sketch with application. 10

UNIT - V

5. a) Give the origin and Nature of tidal energy. 10
- b) Explain Open OTEC plant. 10
- c) Give the origin and distribution of geothermal energy. 10
