CBCS SCHEME

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17EE563

Fifth Semester B.E. Degree Examination, Jan./Feb. 2021
Renewable Energy Resources

Time: 3 hrs. Max. Marks: 100

Note: Answer any FIVE full questions, choosing ONE full question from each module.

Module-1

1 a. Define:
i) Latitude angle
ii) Declination angle
iii) Hour angle
iv) Solar altitude angle. **(08 Marks)**

b. Write notes on classification of energy resources. **(08 Marks)**

c. What are the factors affecting renewable energy development? **(04 Marks)**

OR

2 a. What are the advantages and limitations of renewable energy source? **(08 Marks)**

b. Describe thermal energy storage systems. **(08 Marks)**

c. Write a short note on layers of the sun. **(04 Marks)**

Module-2

3 a. With neat sketch, discuss important parts of flat plate collector. **(08 Marks)**

b. What are the advantages and disadvantages of concentrating collectors over a flat plate collector? **(08 Marks)**

c. Write short note on solar air heating. **(04 Marks)**

OR

4 a. Explain working of a solar water heating system with a neat diagram. **(06 Marks)**

b. With neat diagram, explain solar pond and write any two advantage of it. **(08 Marks)**

c. Explain working of solar cooker with flat plate box type. **(06 Marks)**

Module-3

5 a. Explain various factors in wind turbine site selection. **(06 Marks)**

b. Explain the various methods of hydrogen energy storage. **(08 Marks)**

c. Describe a binary cycle geothermal power plant. **(06 Marks)**

OR

6 a. With a neat diagram, explain working of double flash type geo thermal electric power generation. **(08 Marks)**

b. Derive the expression for power developed due to wind. **(06 Marks)**

c. Briefly explain tank type electrolyzer of hydrogen energy production. **(06 Marks)**

Module-4

7 a. Classify and explain methods for obtaining energy from biomass. **(08 Marks)**

b. With a neat sketch, explain fixed-dome type of Bio-gas plant. **(06 Marks)**

c. Explain briefly advantages of Anaerobic digestion. **(06 Marks)**

OR

8	a.	Using a schematic diagram, explain the co-operating two-basin systems.	(08 Marks)
	b.	Explain fluidized bed gasifier, with a neat diagram.	(06 Marks)
	c.	List the advantages and limitations of tidal power.	(06 Marks)

Module-5

9	a.	Explain open cycle ocean thermal energy conversion technique.	(08 Marks)
	b.	With a neat diagram, explain OTEC Ranking cycle.	(06 Marks)
	c.	Brief on advantage and disadvantage of sea wave power.	(06 Marks)

OR

10	a.	Describe the closed cycle OTEC system, with the help of diagram.	(10 Marks)
	b.	Briefly discuss about devices used for harnessing sea wave energy.	(10 Marks)

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