

# Faculty of Engineering

## End Semester Examination May 2025

### OE00036 Renewable Sources of Energy

<b>Programme</b>	:	B.Tech.	<b>Branch/Specialisation</b>	:	All
<b>Duration</b>	:	3 hours	<b>Maximum Marks</b>	:	60

**Note:** All questions are compulsory. Internal choices, if any, are indicated. Assume suitable data if necessary. Notations and symbols have their usual meaning.

#### Section 1 (Answer all question(s))

**Marks CO BL**  
1    1    1

**Q1.** Which of the following is a primary energy resource?

<b>Rubric</b>	<b>Marks</b>
Sun light	1

- Sun light       Electrical energy  
 Chemical energy       All of these

**Q2.** Which of the following is not a renewable energy source?

1    1    1

<b>Rubric</b>	<b>Marks</b>
Nuclear	1

- OTEC       Nuclear  
 Geothermal       Tidal

**Q3.** Which of the following is true in context of concentrating solar collectors?

1    1    1

<b>Rubric</b>	<b>Marks</b>
Solar tracking is required	1

- Both beam and diffused radiation can be used       Solar tracking is required  
 Solar tracking is not required       All of these

**Q4.** Which of the following is not a type of solar cooker?

1    1    1

<b>Rubric</b>	<b>Marks</b>
None of these	1

- Direct type       Indirect type  
 Advanced type       None of these

**Q5.** Which is the process in which energy is produced using the heat trapped inside the earth surface?

1    1    1

<b>Rubric</b>	<b>Marks</b>
Geothermal Energy conversion	1

- Geothermal energy conversion       Hydrothermal energy conversion  
 Solar energy conversion       Tidal energy conversion

**Q6.** Which of the following is a type of wind turbine?

1 1 1

Rubric	Marks
Both Vertical axis and horizontal axis wind turbine	1

- Vertical axis wind turbine       Horizontal axis wind turbine  
 Both (A) and (B)       None of these

**Q7.** Which of the following is produced using the biomass?

1 1 1

Rubric	Marks
Biochemical	1

- Biochemical       Fuel  
 Fibre       All of these

**Q8.** Which of the following is not present in producer gas?

1 1 1

Rubric	Marks
Argon	1

- Carbon mono oxide       Carbon di oxide  
 Argon       Nitrogen

**Q9.** What is the primary source of tidal energy?

1 1 1

Rubric	Marks
Gravitational pull from the Sun and the Moon	1

Earth rotation       Wind movement  
 Solar radiation       Gravitational pull from the Sun and the Moon

**Q10.** Which of the following is the major advantage of OTEC?

1 1 1

Rubric	Marks
No green house gas emission	1

High energy efficiency       No impact on environment  
 No green house gas emission       Works in all ocean locations

## Section 2 (Answer all question(s))

Marks CO BL

**Q11.** What are the solutions to energy scarcity?

2 1 1

Rubric	Marks
Minimum two solutions = 2 marks	2

**Q12.** Enlist the factors which affect energy resource development.

3 1 1

Rubric	Marks
Minimum three factors = 3 marks	3

**Q13. (a)** Explain in detail about the classification of renewable energy.

5 2 2

Rubric	Marks
Classification = 2 marks	5

(OR)

**(b)** What are the causes of energy scarcity in the world?

Rubric	Marks
1 mark for each cause	5

### Section 3 (Answer all question(s))

Marks CO BL

**Q14.** With the help of a neat diagram, explain solar water heating system.

4 2 2

Rubric	Marks
Explanation and Diagram = 4 marks	4

**Q15. (a)** What are different types of solar collectors? Explain any one with neat sketch.

6 2 2

Rubric	Marks
Total = 6 marks	6

(OR)

**(b)** Write informative note on the following:

- Crop drying with solar energy
- Solar cell

Rubric	Marks
Crop drying with solar energy	6

### Section 4 (Answer all question(s))

Marks CO BL

**Q16.** Enlist factors that should be considered during site selection for installation of wind turbines.

4 2 2

Rubric	Marks
Minimum four factors with explanation = 4 marks	4

**Q17. (a)** Explain in detail the advantages and disadvantages of waste recycling.

6 2 2

Rubric	Marks
6 Marks	6

(OR)

**(b)** Explain a Geothermal system. What are different geothermal resources?

Rubric	Marks
Total = 6 marks	6

### Section 5 (Answer all question(s))

Marks CO BL

**Q18.** What is the composition of biogas? Explain the production of biogas.

4 2 2

Rubric	Marks
Composition = 1 mark	4

**Q19. (a)** Explain fluidized bed gasifier with a neat sketch.

6 2 2

Rubric	Marks
Explanation = 4 marks	6

**(OR)**

**(b)** What is biomass gasification? Explain the process involved in gasification.

Rubric	Marks
Gasification = 2 marks	6

### Section 6 (Answer any 2 question(s))

**Marks CO BL**

**Q20.** What are different types of ocean thermal energy conversion cycles? Explain any one with a neat sketch.

5 2 2

Rubric	Marks
Types = 1 mark	5

**Q21.** Explain any one method executed for power generation using tidal energy. Sketch diagram in support of your answer.

5 3 3

Rubric	Marks
Diagram = 2 marks	5

**Q22.** With the help of an informative note, demonstrate tidal energy availability and tidal power generation in India.

5 3 3

Rubric	Marks
Tidal energy availability in India	5

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