

Basavarajeswari Group of Institutions

2022 SCHEME

BALLARI INSTITUTE OF TECHNOLOGY & MANAGEMENT

(Autonomous Institute under Visvesvaraya Technological University, Belagavi)

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Course Code

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First / Second Semester B.E.Degree Summer Semester Examinations, September/October 2025

RENEWABLE ENERGY SOURCES

Duration: 3 hrs

Max. Marks: 100

Note: 1. Answer any FIVE full questions, choosing ONE full question from each module.
2. Missing data, if any, may be suitably assumed

<u>Q. No</u>	<u>Question</u>	<u>Marks</u>	<u>(RBTL:CO:PI)</u>
<u>Module-1</u>			
1.	a. Differentiate between renewable and non-renewable energy sources.	08	(2 : 1 : 1.4.1)
	b. Discuss worldwide renewable energy availability.	04	(3 : 1 : 1.4.1)
	c. Describe scientific principles of renewable energy sources.	08	(3 : 1 : 1.4.1)
(OR)			
2.	a. Discuss different ways of classification of renewable energy with example.	08	(2 : 1 : 1.4.1)
	b. Briefly describe oil shale.	06	(3 : 1 : 1.4.1)
	c. Briefly explain about Internet of Energy (IOE).	06	(3 : 1 : 1.4.1)
<u>Module-2</u>			
3.	a. Explain working principle of Pyrheliometer, with neat sketch for measuring solar radiation.	10	(3 : 2 : 1.4.1)
	b. With a neat sketch explain working of liquid flat-plate collector.	10	(3 : 2 : 1.4.1)
(OR)			
4.	a. What are the advantages, disadvantages and applications of solar photovoltaic system?	10	(2 : 2 : 1.4.1)
	b. With the help of a neat sketch explain photovoltaic system.	10	(3 : 2 : 1.4.1)
<u>Module-3</u>			
5.	a. With a neat sketch of Horizontal Axis Wind Turbine (HAWT), explain the functions of its main components.	10	(3 : 3 : 1.4.1)
	b. Explain basic components of wind energy conversion system.	10	(3 : 3 : 1.4.1)
(OR)			
6.	a. What is biomass, explain the biomass resources available for energy conversion.	10	(3 : 3 : 1.4.1)
	b. Explain with a neat sketch, downdraft gasifier.	10	(3 : 3 : 1.4.1)

Module-4

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| 7. | a. | With a neat diagram explain single and double basin tidal power plant. | 10 | (3 :4 : 1.4.1) |
| | b. | List the advantages and disadvantages of tidal power plant. | 06 | (2 :4 : 1.4.1) |
| | c. | What are the fundamental characteristics of tidal power? | 04 | (3 :4 : 1.4.1) |

(OR)

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|----|----|---|----|----------------|
| 8. | a. | With a neat sketch explain the working principle of Closed Cycle OTEC. | 10 | (3 :4 : 1.4.1) |
| | b. | Briefly explain in detail about the problems associated with OTEC and OTEC power stations in the world. | 10 | (3 :4 : 1.4.1) |

Module-5

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| 9. | a. | Explain the principle and functioning of a typical fuel cell. | 10 | (3 :5 : 1.4.1) |
| | b. | Describe the classification of the fuel cells. | 10 | (3 :5 : 1.4.1) |

(OR)

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|-----|----|--|----|----------------|
| 10. | a. | Describe electrolytic method of hydrogen production. | 10 | (3 :5 : 1.4.1) |
| | b. | Describe the method of storage of hydrogen energy. | 05 | (3 :5 : 1.4.1) |
| | c. | Explain benefits of hydrogen energy. | 05 | (3 :5 : 1.4.1) |

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