

Basavarajeswari Group of Institutions
BALLARI INSTITUTE OF TECHNOLOGY & MANAGEMENT
 (Autonomous Institute under Visvesvaraya Technological University, Belagavi)

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Course Code

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First Semester B.E. Degree Examinations, March/April 2024

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 energy source and non-renewable energy source?	06	(2: 1: 1.2.1)
	b. Explain the principles of renewable energy source.	08	(2 : 1: 1.2.1)
	c. Briefly describe about internet of energy (IOE).	06	(2 : 1: 1.2.1)
OR			
2.	a. Describe about the availability of renewable energy source in India.	06	(2: 1: 1.2.1)
	b. Explain the production of oil from oil shale and mention its limitations.	06	(2 : 1: 1.4.1)
	c. With a neat diagram explain binary cycle based geo-thermal power plant.	08	(2 : 1: 1.4.1)
<u>MODULE – 2</u>			
3.	a. Define the following angles: (i) Latitude angle (ii) Hour angle (iii) Solar altitude angle (iv) Surface azimuth angle	06	(2: 2: 1.4.1)
	b. Discuss the advantages and disadvantages of photovoltaic system.	06	(2 : 2: 1.2.1)
	c. With a neat sketch explain Pyranometer.	08	(2 : 2: 1.2.1)
OR			
4.	a. With a neat sketch explain solar distillation.	06	(2: 2: 1.4.1)
	b. With a neat sketch explain the working of liquid flat plate collector.	08	(2: 2: 1.4.1)
	c. Write short notes on beam and diffuse radiation.	06	(2: 2: 1.2.1)
<u>MODULE – 3</u>			
5.	a. With a neat sketch of a HAWT, explain the functions of its main components.	08	(2: 3: 1.4.1)
	b. Explain the photosynthesis process.	06	(2: 3: 1.2.1)
	c. Explain with a neat sketch downdraft biomass gasifier.	06	(2: 3: 1.4.1)
OR			
6.	a. With the help of block diagram explain the functions of various blocks of a wind energy conversion system.	10	(2: 3: 1.4.1)
	b. Explain with a neat sketch fixed dome type bio digester.	10	(2: 3: 1.4.1)
<u>MODULE – 4</u>			
7.	a. Discuss the advantages and disadvantages of tidal energy.	06	(2: 4: 1.2.1)
	b. Explain the working principle of closed cycle OTEC system, with a neat diagram.	08	(2: 4: 1.4.1)
	c. Draw a schematic layout of double basin tidal plant and explain its operation.	06	(2: 4: 1.4.1)

OR

Note: (RBTL - Revised Bloom's Taxonomy Level: CO - Course Outcome: PI - Performance Indicator)

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| 8. | a. What are the main advantages and disadvantages of OTEC system? | 06 | (2: 4: 1.2.1) |
| | b. Explain with a neat sketch the working of single basin tidal power plant. | 08 | (2: 4: 1.4.1) |
| | c. Explain the working principle of open cycle OTEC system, with a neat diagram. | 06 | (2: 4: 1.4.1) |

MODULE – 5

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| 9. | a. Explain briefly the zero energy concept. | 06 | (2: 5: 1.2.1) |
| | b. Explain the storage methods of hydrogen energy. | 06 | (2: 5: 1.2.1) |
| | c. Mention the problems associated with the development and application of hydrogen energy. | 08 | (2: 5: 1.4.1) |

OR

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| 10. | a. List the advantages and disadvantages of hydrogen energy. | 06 | (2: 5: 1.2.1) |
| | b. Draw the line diagram and explain the working of hydrogen fuel cell. | 08 | (2: 5: 1.4.1) |
| | c. Explain photo electrolysis method of hydrogen production technologies. | 06 | (2: 5: 1.4.1) |

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