RAMAIAH
Institute of Technology

ETC144

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(Autonomous Institute, Affiliated to VTU)
(Approved by AICTE, New Delhi & Govt. of Karnataka)
Accredited by NBA & NAAC with 'A+' Grade

SEMESTER END EXAMINATIONS – MAY 2023

Program : **B.E. – Common to ECE / EEE / EIE /ETE / MLE / ME / IEM / CH**
Course Name : **Renewable Energy Sources**
Course Code : **ETC144**
Semester : **I**
Max. Marks : **100**
Duration : **3 Hrs**

Instructions to the Candidates:

- Answer one full question from each unit.

UNIT - I

1.	a)	Write the difference between renewable energy sources and non-renewable energy sources.	CO1	(05)
	b)	With a help of block diagram explain the hydro power generation and applications of renewable energy sources.	CO1	(10)
	c)	Write a note on contribution of renewable energy towards sustainability development.	CO1	(05)
2.	a)	With help of diagram explain the operation of internet of energy (IOE) in renewable energy sources.	CO1	(05)
	b)	List the principles of renewable energy sources. Explain any two in detail.	CO1	(10)
	c)	Write any five applications of renewable energy sources.	CO1	(05)

UNIT - II

3.	a)	With a neat sketch explain the working of pyrheliometer.	CO2	(08)
	b)	With a neat sketch explain the working of Photovoltaic cell.	CO2	(08)
	c)	Briefly explain the any four applications of solar energy.	CO2	(04)
4.	a)	With a neat sketch explain the working of solar pond system and mention any two limitations of it.	CO2	(08)
	b)	With a neat sketch explain the construction and working of flat plate collector.	CO2	(08)
	c)	Mention any two advantages and disadvantages of solar energy.	CO2	(04)

UNIT - III

5.	a)	Explain the properties of wind energy.	CO3	(07)
	b)	With a neat sketch mention difference between vertical and horizontal axis wind mills.	CO3	(10)
	c)	Mention the major problem associated with wind energy.	CO3	(03)
6.	a)	With a neat sketch explain the fixed dome biomass energy conversion system.	CO3	(10)
	b)	With a neat sketch explain the working of biomass gasification system.	CO3	(10)

UNIT- IV

7.	a)	With a neat sketch explain the components of tidal power plant.	CO4	(08)
	b)	What are the problem associated with ocean thermal energy conversion system.	CO4	(07)
	c)	List any three advantages and limitations of tidal Energy.	CO4	(05)

8. a) What are the problems associated with the geothermal energy conversion. CO4 (10)
   b) With a neat sketch explain the working principle of ocean thermal energy conversion system. CO4 (10)

UNIT - V

9. a) Show the classification of fuel cells along with their applications. CO5 (10)
   b) With a neat line diagram explain the working of hydrogen production technology by electrolysis method. Also mention the different methods of hydrogen storage. CO5 (10)

10. a) List the various sectors and places where hydrogen energy is used along with purpose of using hydrogen energy instead of other energy. Highlight the problem associated with this energy. CO5 (10)
    b) Draw the line diagram which shows the concept of zero energy by explaining in brief. CO5 (10)

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