## GBGS SCHEME

## Semester B.E./B.Tech. Degree Examination, June/July 2023

## Renewable Energy Sources

ORETime

3 hrs.

Max. Marks: 100

Note: 1. Answer any FIVE full questions, choosing ONE full question from each module.

2. M: Marks, L: Bloom's level, C: Course outcomes.

	Module - 1	M	L	C
a.	Explain need for renewable energy sources.	5	L2	CO1
b.	Compare renewable and non-renewable energy sources (any five)	10	L2	CO1
c.	Briefly discuss solar energy source.	5	L2	CO1
	OR	•		
a.	Write a short note on i) IOE ii) Wind energy.	10	L2	CO1
b.	Explain with a neat sketch construction and working of Geothermal energy power plant.	10	L2	CO1
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a.		6	L2	CO2
b.	With a neat diagram discuss the construction and working of pyrheliometer.	8	L2	CO2
c.	With a neat sketch explain the working of sunshine recorder.	6	L2	CO2
a.	With a line diagram, explain working of solar pond.	8	L2	CO2
b.	Explain the working principle of photo voltaic cell with sketch.	6	L2	CO2
c.	Discuss the advantages, disadvantages and application of solar energy.	6	L2	CO2
	Module – 3			
a.	With a neat block diagram, explain the working of wind energy conversion system.	10	L2	CO3
h	Draw and evaluin the construction and working of Horizontal axis wind	6	12	CO2
<b>D.</b>	mill.	O	LZ	CO3
c,	Compare between horizontal axis wind turbine and vertical axis wind turbine.	4	L2	CO3
	OR			
a.	Explain with a neat sketch fixed dome bio digester.	5	L2	CO3
b.	Explain photo synthesis process.	5	L2	CO3
c.	With a line diagram discuss the construction and working of down draft gassifier.	10	L2	CO3
	a. b. c. a. b. c. a. b. c.	a. Explain need for renewable energy sources.  b. Compare renewable and non-renewable energy sources (any five)  c. Briefly discuss solar energy source.  OR  a. Write a short note on i) IOE ii) Wind energy.  b. Explain with a neat sketch construction and working of Geothermal energy power plant.  Module - 2  a. Define : i) Solar constant ii) insolation iii) Diffuse radiation  b. With a neat diagram discuss the construction and working of pyrheliometer.  c. With a neat sketch explain the working of sunshine recorder.  OR  a. With a line diagram, explain working of solar pond.  b. Explain the working principle of photo voltaic cell with sketch.  c. Discuss the advantages, disadvantages and application of solar energy.  Module - 3  a. With a neat block diagram, explain the working of wind energy conversion system.  b. Draw and explain the construction and working of Horizontal axis wind mill.  c, Compare between horizontal axis wind turbine and vertical axis wind turbine.  OR  a. Explain with a neat sketch fixed dome bio digester.  b. Explain photo synthesis process.  c. With a line diagram discuss the construction and working of down draft	a. Explain need for renewable energy sources.  b. Compare renewable and non-renewable energy sources (any five)  c. Briefly discuss solar energy source.  5  OR  a. Write a short note on i) IOE ii) Wind energy.  10  b. Explain with a neat sketch construction and working of Geothermal energy power plant.  Module -2  a. Define: i) Solar constant ii) insolation iii) Diffuse radiation  6  b. With a neat diagram discuss the construction and working of pyrheliometer.  8  c. With a neat sketch explain the working of sunshine recorder.  6  OR  a. With a line diagram, explain working of solar pond.  8  b. Explain the working principle of photo voltaic cell with sketch.  6  c. Discuss the advantages, disadvantages and application of solar energy.  6  Module -3  a. With a neat block diagram, explain the working of wind energy conversion system.  b. Draw and explain the construction and working of Horizontal axis wind mill.  c. Compare between horizontal axis wind turbine and vertical axis wind turbine.  OR  a. Explain with a neat sketch fixed dome bio digester.  5  b. Explain photo synthesis process.  5  c. With a line diagram discuss the construction and working of down draft 10	a. Explain need for renewable energy sources.  b. Compare renewable and non-renewable energy sources (any five)  c. Briefly discuss solar energy source.  5 L2  OR  a. Write a short note on i) IOE ii) Wind energy.  10 L2  b. Explain with a neat sketch construction and working of Geothermal energy power plant.  Module - 2  a. Define : i) Solar constant ii) insolation iii) Diffuse radiation  6 L2  b. With a neat diagram discuss the construction and working of pyrheliometer.  8 L2  c. With a neat sketch explain the working of sunshine recorder.  OR  a. With a line diagram, explain working of solar pond.  8 L2  b. Explain the working principle of photo voltaic cell with sketch.  6 L2  Module - 3  a. With a neat block diagram, explain the working of wind energy conversion system.  b. Draw and explain the construction and working of Horizontal axis wind mill.  c. Compare between horizontal axis wind turbine and vertical axis wind turbine.  OR  a. Explain with a neat sketch fixed dome bio digester.  5 L2  b. Explain photo synthesis process.  5 L2  c. With a line diagram discuss the construction and working of down draft 10 L2  C. With a line diagram discuss the construction and working of down draft 10 L2

0 = 1		Module – 4  Explain with a sketch single basin tidal power plant.	10	L2	CO
Q.7	a.		1	4.1	4
	b.	Explain wave energy and list out the advantages and limitations of wave	10	L2	CO
		energy.			
		OR	10	L2	CC
Q.8	a.	Explain with a neat sketch working of OTEC power plant.	10	LZ	
	b.	Discuss in detail about the problems associated with OTEC.	10	L2	CC
		Module – 5			
Q.9	a.	Sketch and explain construction and working of hydrogen fuel cell.	10	L2	CC
	b.	Explain zero energy concepts.	4	L2	CC
	c.	Classify fuel cell in details.	6	L2	CC
		OR			
Q.10	a.	Explain with a sketch electrolysis method for hydrogen production.	10	L2	CC
	b.	Discuss different methods of hydrogen storage (any two)	6	L2	CC
	c.	Write the advantages and disadvantages of hydrogen as fuel.	4	L2	CO
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		2 of 2			