

# CBGS SCHEME

18EE653



## Sixth Semester B.E. Degree Examination, June/July 2023 Renewable Energy Resources

Max. Marks: 100

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

### Module-1

- 1 a. Discuss causes of energy scarcity. Mention factors to be considered for solving energy crunch problems. (10 Marks)  
b. Explain the classification of energy resources. (10 Marks)

OR

- 2 a. With a neat sketch explain layers of sun. (10 Marks)  
b. Define the following terms with help of diagram. (10 Marks)  
i) Hour angle ii) Declination angle.

### Module-2

- 3 a. Explain with a neat sketch Heliostat electric generating plant. (10 Marks)  
b. With the help of neat diagram, explain any of the dryer. (10 Marks)

OR

- 4 a. With a neat sketch explain key elements of photo - voltaic cell. (10 Marks)  
b. Find the number of solar cells for the array area of  $28.5\text{m}^2$  if each cell has a diameter of 2.25 inches. (04 Marks)  
c. Discuss photovoltaic panels with appropriate equations. (06 Marks)

### Module-3

- 5 a. Discuss the applications, advantages and disadvantages hydrogen energy. (10 Marks)  
b. Explain the thermochemical hydrogen production technology. (10 Marks)

OR

- 6 a. Describe the main considerations in selecting site for wind generations. (06 Marks)  
b. With a neat sketch explain dry steam geothermal electric power plant. (10 Marks)  
c. Discuss advantages of waste recycling system. (04 Marks)

### Module-4

- 7 a. Draw the sketch of updraft – draft gasifier and discuss its working and applications. (06 Marks)  
b. Explain construction parts of Biogas plant with the help of neat sketch. (10 Marks)  
c. Discuss factors affecting the selection of a bio gas plant. (04 Marks)

OR

- 8 a. Discuss tidal power generation in India. (04 Marks)  
b. Explain the single basin and two basin systems of tidal power harnessing. (10 Marks)  
c. Explain applications of bio – mass Gasifiers. (06 Marks)

### Module-5

- 9 a. With neat sketch explain two types of ocean thermal energy conversion plants. (10 Marks)  
b. Explain oscillating water column devices to harness sea wave energy. (10 Marks)

OR

- 10 a. Write a short note on ocean thermal energy for closed cycle. (10 Marks)  
b. Explain the devices used for harnessing wave energy. (10 Marks)

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Important Note : 1. On completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages.  
2. Any revealing of identification, appeal to evaluator and /or equations written eg. 42+8 = 50, will be treated as malpractice.

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