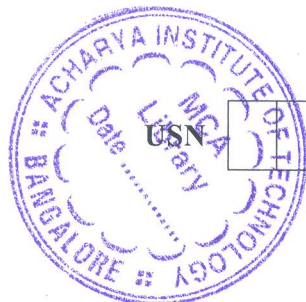


CBCS SCHEME

18EE653



Sixth Semester B.E. Degree Examination, June/July 2024 Renewable Energy Resources

Time: 3 hrs.

Max. Marks: 100

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

Module-1

- 1 a. With the help of diagram, define :
i) Hour Angle ii) Latitude Angle
iii) Surface Azimuth Angle iv) Declination Angle. (08 Marks)
b. Calculate Zenith Angle of the Sun at Lucknow (26.75°N) at 9:30am on February 16, 2016. (04 Marks)
c. What are the factors affecting Energy Resources development. (08 Marks)

OR

- 2 a. Discuss the causes of Energy Scarcity. (06 Marks)
b. Write a note on Solar Thermal Energy Storage. (06 Marks)
c. Find the Solar Altitude Angle at 2hr after Local Solar noon on 1 June 2016 for a City, which is located at (26.75 °N) Latitude also find the Sunrise and Sunset hour's. (08 Marks)

Module-2

- 3 a. With a neat sketch, discuss the Operation of Solar flat plate Air and Liquid collector. (08 Marks)
b. What are the advantages of Solar pond? With a neat diagram, explain Solar Pond. (08 Marks)
c. Discuss the material aspects of Solar collectors. (04 Marks)

OR

- 4 a. With the help of neat diagram, explain Brayton Cycle Solar Electric generation. (08 Marks)
b. Explain the principle of Solar photovoltaic power generation. List the application and 3 important function of Solar cell. (08 Marks)
c. Discuss the working of Solar cookers. (04 Marks)

Module-3

- 5 a. Explain different Hydrogen production technology. List applications, advantages and disadvantages of Hydrogen Energy. (08 Marks)
b. With a neat diagram, explain Vertical Wind mill and list advantages and disadvantages. (08 Marks)
c. Explain the problems associated with Hydrogen Energy. (04 Marks)

OR

- 6 a. With a neat diagram, explain Single Flash geothermal steam electric power plant. List its advantages and disadvantages. (08 Marks)
b. With a neat schematic representation, explain Waste refuse Energy Management. (06 Marks)
c. Difference between Pyrolysis and Incineration. (06 Marks)

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.

Module-4

- 7 a. With a neat sketch, explain Updraft and Down draft gasifiers. (08 Marks)
b. Define Biomass gasification. Explain the gasification process involved in Biomass. (08 Marks)
c. Explain the different process of Anaerobic digestion. (04 Marks)

OR

- 8 a. Explain with sketch, Two Basin system of Tidal power harnessing. (08 Marks)
b. Describe the construction and working of floating dome – type biogas plant. List its advantages and disadvantages. (08 Marks)
c. List the advantages and disadvantages of Tidal Energy. (04 Marks)

Module-5

- 9 a. Explain the various devices for Harnessing Wave Energy. (08 Marks)
b. Explain Oscillating water column device for wave Harnessing. (08 Marks)
c. Discuss the application of OTEC in addition to produce Electricity. (04 Marks)

OR

- 10 a. Explain the selection of working fluid for OTEC. (08 Marks)
b. Explain Open cycle and Closed cycle OTEC techniques. (08 Marks)
c. List the advantages and disadvantages of Wave power. (04 Marks)
