



Course/Branch : B Tech, ME
Subject Name : Renewable Energy Resources
Subject Code : KOE 074
Semester : VII
Max. Marks : 100
Time : 180min

- CO-1 : Understand the various conventional energy systems, their prospects and limitations.
CO-2 : Describe the use of solar energy and the various components used in the energy production with respect to applications.
CO-3 : Understand the geothermal principles working of Magneto-hydrodynamics (MHD) power plant.
CO-4 : Acquire the knowledge of fuel cells and wind energy.
CO-5 : Understand the concept of Biomass energy resources and their classification.
CO-6 : Understand the concept of wave power, tidal power.

Section –A

Attempt ALL the questions. Each Question is of 2 marks (10 x 2 = 20 marks)

Q. No	Question Description #	Attempt ALL the questions. Each Question is of 2 marks
1	a	CO1 Define the scope of Renewable energy.(BKL : K1)
	b	CO1 State the importance of solar cells.(BKL : K2)
	c	CO2 Comment on Solar radiation and its benefits.(BKL : K1)
	d	CO2 State Solar Irradiance and sun peak hours. (BKL : K2)
	e	CO3 Enlist the sources of Geothermal energy in our environment. (BKL : K1)
	f	CO3 Enlist the types of MHD system. (BKL : K1)
	g	CO4 State Thermo ionic conversions(BKL : K2)
	h	CO4 Define briefly about cut in speed and tip speed ratio.(BKL : K1)
	i	CO5 Enlist 2 advantages of Anaerobic digestion(BKL : K1)
	j	CO5 Define Methanogenesis. (BKL : K1)

Section –B

Attempt ALL the questions. Each Question is of 6 marks (5 x 6 = 30 marks)

- Q 2 (CO-1): Discuss the classifications of Non Conventional Energy Resources (BKL : K2)
OR
Discuss the role of solar cell materials under the Non Conventional Energy Resources (BKL: K2)
- Q 3 (CO-2): Discuss about the concept of focusing of collectors and their materials in the process of creation of Solar Thermal Energy. (BKL: K2)
OR
What is Demand Side management? How it is useful in Energy conversion? (BKL: K1)
- Q 4 (CO-3): Describe with the help of a neat sketch the construction and working of Wind Conversion System. (BKL: K2)
OR
Define Geothermal Electrical conversion and Geothermal Non Electrical conversion. (BKL: K1)
- Q 5 (CO-4): Explain Sensible and Latent heat storage. (BKL: K1)
OR
Explain in detail about Solar cell power plant (BKL: K1)
- Q 6 (CO-5): Discuss about the Waste Recycling Plant (BKL: K1)
OR
Discuss about the methods which are used to overcome the fluctuating power generation of a windmill. (BKL: K2)

Section –C

Attempt ALL the questions. Each Question is of 10 marks.

- Q 7 (CO-1): Attempt any ONE question. Each question is of 10 marks:
a. Explain Renewable Energy and its classification with the help of flow chart also State Solar absorption radiation and the conversion process happening directly from the sun. (BKL: K1)
b. Discuss in detail about Solar Thermal Power plant and its methodological process with suitable process flow diagram. (BKL: K2)
- Q 8 (CO-2): Attempt any ONE question. Each question is of 10 marks.
a. Explain the working of Solar Flat plate collectors with the help of a diagram and briefly explain its components. (BKL: K2)
b. Describe in detail about solar concentrators and the process involved in the making of solar concentrators with the help of diagrams. (BKL: K2)
- Q 9 (CO-3): Attempt any ONE question. Each question is of 10 marks.
a. Explain in detail about Flash steam and Dry steam plant systematic process with clear flow chart diagram. (BKL: K2)
b. Illustrate in detail about MHD Power generation system. Classify its systems with clear flow chart diagram, applications and its uses. (BKL: K2)
- Q 10 (CO-4): Attempt any ONE question. Each question is of 10 marks.
a. Explain Wind energy and its importance in detail. Describe briefly about the main components of the windmill. (BKL: K2)
b. State Thermo-electrical conversions towards field. Discuss in detail about performance and limitations of thermoelectric power generator (BKL: K2)
- Q 11 (CO-5): Attempt any ONE question. Each question is of 10 marks.
a. Describe in detail about Anaerobic digestion and its Process steps in Biomass. (BKL: K2)
b. Explain in detail about OTEC and its types. (BKL: K2)