

MANGALAM COLLEGE OF ENGINEERING

MANGALAM CAMPUS, ETTUMANOOR

KOTTAYAM, KERALA- 686631



Accredited by NAAC & ISO 9001: 2008 Certified Institution

Question Bank

Course Code :

Course Name :

Academic Year :

Class/ Semester :

Submitted By :

Department

Module 1

1. Differentiate between flatbed collectors and solar concentrators.
2. Discuss advantages on limitations of conventional energy sources
3. With the aid of a neat diagram explain the working of a central tower collector type solar thermal electric plant.
4. Define 1, open circuit voltage 2, Short circuit current 3, fill factor 4, Efficiency of solar cell.
5. Compare the components and working of a standalone and grid connected PV system.
6. How energy resources are classified. Compare conventional and non conventional sources of energy resources.
7. List any three merits and demerits of renewable energy resources.
8. Explain the present status of renewable power generation in India

Module 2

1. With the help of a block diagram explain the working of a hybrid OTEC.
2. List out the advantages and disadvantages of a tidal power plant.
3. What are the site selection criteria for OTEC? Draw the block diagram and explain the working of Anderson cycle based OTEC system.
4. Explain how biofouling affects efficiency of energy conversion and how can it be minimized?

5. Explain the principle of Operation of tidal power plant. How it is classified?
6. Draw the layout of a double basin Tidal power plant and label all the components. Explain the function of each component.

Module 3

1. Discuss the different types of wind turbine rotors using it to extract wind power.
2. The Danish offshore wind farm has a nameplate capacity of 209.3 megawatt. As of January 2017 It has produced 6416 gigawatt hour since its commissioning 7.3 years ago . Determine the capacity factor of above wind farm
3. What is pitch control of wind turbine? Explain.
4. Determine the power output of a wind turbine whose blades of 12 meter in diameter and when the wind Speed is 6 meter per second, the air density is about 1.2 kilogram per meter cube and the maximum power coefficient of the wind turbine is 0.35.
5. Explain the parts, their function and working of a wind power plant. What are the site selection criteria of a wind power plant?

Module 4

1. What are the factors that affect biogas generation.
2. Discuss the process of biomass to ethanol conversion.
3. With a neat schematic diagram, explain the biomass gasification based electric power generation system.

4. Explain How the urban waste is converted into useful energy.
5. Compare the construction and performance of floating drum type and Fixed Dom typed biogas plant with the help of neat sketches.
6. Explain the importance of biomass program in India.

Module 5

1. What are the components of micro hydel power plant.
2. Enumerate the design and selection of different Types of turbines used for small hydro plants.
3. Explain the operation of a phosphoric acid fuel cell with the help of a suitable diagram.
4. What are the different methods used for the production and storage of hydrogen.
5. Draw the layout of a mini hydro project and explain it's working.
6. Describe the working end constructional futures of P E M fuel cell .