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| **S NO** | **QUESTION** | **KNOWLEDGE**  **LEVEL** | **CO** |
| **UNIT I** | | | |
| **1** | Describe the energy conservation principle with example? | K2 | CO1 |
| **2** | Explain the solar radiation at the Earth’s surface? | K3 | CO1 |
| **3** | Illustrate the equation for Local Solar time? | K2 | CO1 |
| **4** | Describe the solar radiation Geometry | K2 | CO1 |
| **5** | Explain the solar radiation on tilted surface and their components? | K3 | CO1 |
| **UNIT 2** | | | |
| 1 | Explain the Liquid Flat Plate collectors with neat sketch? | K3 | CO1 |
| 2 | Analyze the Transmissivity of the cover system based on reflection and absorption? | K4 | CO1 |
| 3 | Describe the solar pond with neat sketch? | K2 | CO1 |
| 4 | Illustrate the working principle of solar air heater? | K2 | CO1 |
| **UNIT 3** | | | |
| **1** | Define solar photovoltaic effect? | K1 | CO1 |
| **2** | Explain the solar PV Balance of Systems? | K2 | CO1 |
| **3** | Explain IV characteristics of solar PV system with neat sketch? | K3 | CO1 |
| **4** | Explain the solar photovoltaic system design and sizing? | K3 | CO1 |
| **UNIT 4** | | | |
| **1** | Explain the advantages and limitations of wind energy conversion systems. | K2 | CO2 |
| **2** | A HAWT having the rotor diameter as 80 m is rotating at 40rpm.The wind speed is 20m/s at 1 atm and 270 C. Calculate the torque produced at the shaft for maximum output of the turbine. | K4 | CO2 |
| **3** | Explain the various types of wind turbines. | K2 | CO2 |
| **4** | Describe the equation for Power output of wind turbine | K2 | CO2 |
| **UNIT 5** | | | |
| **1** | Explain about single basin arrangement in tidal power generation. | K2 | CO3 |
| **2** | Explain the closed cycle OTEC plant and list out the major problems associated OTEC. | K3 | CO3 |
| **3** | Write the source of tidal energy? What is the minimum tidal range required for the working of a tidal plant? How much is the potential in tides? | K3 | CO3 |
|  | Explain the working principle and classification of hydro systems | K3 | CO3 |
| **UNIT 6** | | | |
| **1** | List the various types of Fuel cell and explain any one type and also its applications. | K1 | CO4 |
| **2** | Explain the various the biomass and biogas energy sources. | K3 | CO4 |
| **3** | Explain various types of geothermal resources? How are geothermal sides earthquakes & volcanoes related? | K3 | CO4 |
| **4** | List out various types of Geothermal resources. | K1 | CO4 |