

Reg. No.																			
----------	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Question Paper Code	12785
---------------------	-------

**B.E. / B.Tech. - DEGREE EXAMINATIONS, APRIL / MAY 2024**

Sixth Semester

**Mechanical Engineering**

**20MEEL601 - RENEWABLE ENERGY SOURCES**

Regulations - 2020

Duration: 3 Hours

Max. Marks: 100

**PART - A (10 × 2 = 20 Marks)**

Answer ALL Questions

	Marks	K- Level	CO
1. List the major sources of energy.	2	K1	CO1
2. Define Solar constant.	2	K1	CO1
3. What are the important aspects of solar collector system?	2	K1	CO2
4. Define Collector efficiency?	2	K1	CO2
5. Name the principles of aerodynamic control in wind turbine.	2	K1	CO3
6. What are the components of wind mill?	2	K1	CO3
7. What are the classifications of geo thermal fields?	2	K1	CO4
8. What is meant by biomass energy and biomass energy resource?	2	K1	CO5
9. What is battery?	2	K1	CO6
10. Mention the limitations of fuel cells.	2	K1	CO6

**PART - B (5 × 16 = 80 Marks)**

Answer ALL Questions

11. i) Explain the prospects of Non-conventional energy sources in India.	8	K2	CO1
ii) Summarize the conventional and unconventional energy sources.	8	K2	CO1
12. Describe the working of solar pond with neat sketches.	16	K2	CO2
13. With the help of a neat sketch describe a solar heating system using water heating solar collectors. List the advantages and disadvantages of this method.	16	K2	CO2
14. Briefly explain the environmental factors associated with wind energy.	16	K2	CO3
15. With a neat sketch explain HAWT and VAWT.	16	K2	CO3
16. i) Write short notes on geothermal energy potentials in India.	8	K2	CO4
ii) Mention the parameters considered for the selection of geo thermal power plant.	8	K2	CO4
17. Discuss briefly the classification of Biogas plants.	16	K2	CO5
18. Explain about Lithium Based Batteries in Energy Storage System.	16	K2	CO6