DR. BABASAHEB AMBEDKAR TECHNOLOGICAL UNIVERSITY, LONERE

Regular End Semester Examination – Summer 2022

Course: B. Tech. **Branch: Automobile/ Production/Mechanical Engineering.**

Semester : VIII **Subject Code: BTMEC801F/ BTAMC801F**

Subject Name: Non-Conventional Energy Resources

Max Marks: 60 **Date: 07/07/2022** **Duration: 3.45 Hr.**

Instructions to the Students:

1. *All the questions are compulsory.*
2. *The level of question/expected answer as per OBE or the Course Outcome (CO) on which the question is based is mentioned in ( ) in front of the question.*
3. *Use of non-programmable scientific calculators is allowed.*
4. *Assume suitable data wherever necessary and mention it clearly.*

		(Level/CO)	Marks
Q. 1	**Solve Any Two of the following.**		
A)	What is fossil fuel? What are different alternatives for fossil fuel?		6
B)	Explain national energy strategies and National energy plan		6
C)	Explain energy consumption as a measure of prosperity and world energy future.		6
Q.2	**Solve Any Two of the following.**		
A)	Explain solar energy as alternative energy source.		6
B)	Explain solar energy conversion systems and their applications.		6
C)	Explain with neat sketch solar flat plate collector as solar air heater.		6
Q. 3	**Solve Any Two of the following.**		
A)	Explain the following terms 1. Solar constant. 2. Solar spectrum. 3. Clarity Index. 4. Declination angle. 5. Zenith angle. 6. Day length hours.		6
B)	Explain principle of working of a solar cell.		6
C)	Explain various types of commercial solar cells.		6
Q.4	**Solve Any Two of the following.**		
A)	What is wind data and energy estimation in wind energy?		6
B)	What are various types of rotors in wind mill? Draw a neat labelled sketch of propeller type of wind machine.		6
C)	What is principle of OTEC? Draw neat labelled sketch of open cycle OTEC power plant.		6
Q. 5	**Solve Any Two of the following.**		
A)	Explain principle of MHD power generation.		6
B)	Write design and principle of operation of a fuel cell.		6
C)	Explain with neat sketch working of Lithium ion Batteries.		6

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