	DR. BABASAHEB AMBEDKAR TECHNOLOGICAL UNIVERSITY, LONERE **Supplementary Examination – Summer 2022** **Course: B. Tech. Branch : mechanical Engineering Semester :VI** **Subject Code & Name: Renewable energy resources-** BTMEC605C **Max Marks: 60 Date: Duration: 3 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)	Explain in detail energy reserves in India	CO1	6
B)	Explain attenuation of solar radiation in Earth's atmosphere	CO1	6
C)	Differential between Renewable Energy sources and non-Renewable Energy sources.	CO1	6
Q.2	**Solve Any Two of the following.**		
A)	Explain with neat sketch construction and working of pyroheliometer	CO 2	6
B)	Define a) Declination angle b) Solar Azimuth angle c) Altitude angle.	CO2	6
C)	Calculate angle made by beam radiation with normal to a flat plate collector on May 1at 09. 00 h. The collector is located in New delhi (28^0 35'N, 77^0 12'E). It is tilted atan angle of 36^0 with the horizontal and is pointing due south, also calculate for 12.00h (Local apparent time).	CO 2	6
Q. 3	**Solve Any two of the following.**		
A)	Explain any two types of concentration collectors with neat sketch.	CO 2	6
B)	Explain construction and selection criteria for flat plate collector.	CO 2	6
C)	Explain testing of flat plate collector with neat sketch.	CO 2	6
Q.4	**Solve Any Two of the following.**		
A)	Explain construction and working of Photo Voltaic cell.	CO 3	6
B)	What is wind energy? Explain selection of site for wind turbine generation system.	CO 4	6
C)	Explain construction and working of Photo Voltaic cell.	CO 3	6
Q. 5	**Solve Any Two of the following.**		
A)	What is OTEC system? Explain working of open cycle OTEC system.	CO 4	6
B)	Explain Nuclear Reactor	CO 4	6
C)	What is biomass energy? Explain with neat sketch floating drum type	CO 4	6

	Biogas plant.		
	***** End *****		

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DR. BABASAHEB AMBEDKAR TECHNOLOGICAL UNIVERSITY, LONERE

Regular End Semester Examination – Summer 2022

Course: B. Tech. Branch : Mechanical Engineering Semester : VI

Subject Code & Name: BTMEC605C Renewable Energy Sources

Max Marks: 60 Date:26/08/2022 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.*

		(CO)	Marks
Q. 1	**Solve Any Two of the following.**		
A)	Differential between Renewable Energy sources and non-Renewable Energy sources.	CO1	6
B)	Explain in detail energy reserves in India	CO1	6
C)	Explain nuclear fission and Fusion.	CO1	6
Q.2	**Solve Any Two of the following.**		
A)	Define a) Declination angle b) Solar Azimuth angle c) Zenith angle.	CO2	6
B)	Explain with neat sketch construction and working of pyranometer.	CO 2	6
C)	Calculate angle made by beam radiation with normal to a flat plate collector on May 1 at 09. 00 h. The collector is located in New delhi (28^0 35'N, 77^0 12'E). It is tilted at an angle of 36^0 with the horizontal and is pointing due south, also calculate for 12.00 h (Local apparent time).	CO 2	6
Q. 3	**Solve Any Two of the following.**		
A)	Explain the different types of concentration collectors with neat sketch.	CO 2	6
B)	Explain testing of flat plate collector with neat sketch.	CO 2	6
C)	Explain construction and selection criteria for flat plate collector.	CO 2	6
Q.4	**Solve Any Two of the following.**		
A)	Give the different application of solar energy and explain with neat sketch solar space heating.	CO 3	6
B)	Explain construction and working of Photo Voltaic cell.	CO 3	6
C)	What is wind energy? Explain selection of site for wind turbine generation system.	CO 4	6
Q. 5	**Solve Any Two of the following.**		
A)	What is biomass energy? Explain with neat sketch floating drum type Biogas plant.	CO 4	6
B)	Explain with neat sketch 1) Geothermal field. 2) liquid dominated geothermal plant.	CO 4	6
C)	What is OTEC system? Explain working of open cycle OTEC system.	CO 4	6

***** End *****