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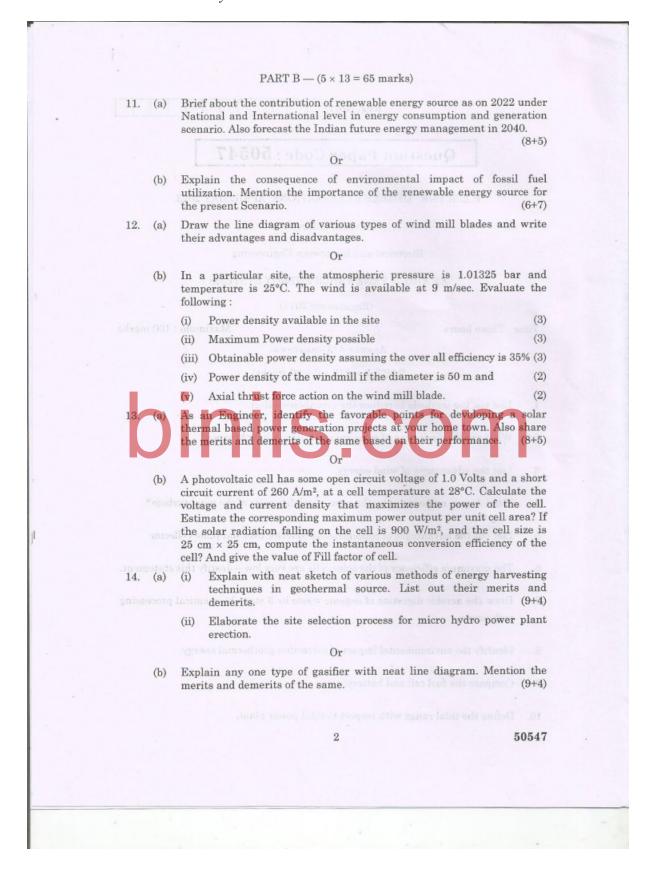
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	Question Paper Code: 50547
	B.E./B.Tech. DEGREE EXAMINATIONS, APRIL/MAY 2023.
	Seventh Semester
	Electrical and Electronics Engineering
	EE 8703 — RENEWABLE ENERGY SYSTEMS
	(Regulations 2017)
Tin	ne : Three hours Maximum : 100 marks
	Answer ALL questions.
	PART A — $(10 \times 2 = 20 \text{ marks})$
1. 2. 3.	List out the methods to reduce the greenhouse effect. What are the limitation of solar energy utilization techniques? List the advantages of wind energy.
4.	What do you understand by the term of solidity ratio of the wind turbine?
5.	List out the advantages of concentrating collector over flat plate collector.
6.	The maximum efficiency of the solar cells are very low – Justify this statement.
7.	Draw the aerobic digestion of organic waste by 3 stage biochemical processing
	techniques.
8.	Identify the environmental impact of extraction geothermal energy.
9.	Compare the fuel cell and battery.
10.	Define the tidal range with respect to tidal power plant.

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(a) (i) Explain the methods of energy extraction technique on ocean tidal How do you estimate the power potential of ocean tidal energy source? (iii) List out the limitations of tidal energy conversion system. (3) Explain the construction of various types of fuel cells. PART C — $(1 \times 15 = 15 \text{ marks})$ 16. (a) Explain with neat diagram of cow dung used biomass gasifier. Design a bio gas gasifier for a community hall located in Village of Yelagiri hills, Tamil Nadu. In this village has a total population of 300 families with 120 mens, 80 womens and 100 children. The bio gas consumption for food preparation of the tribalpeople are 300 litres for men, 200 litres for women and 100 litres for children respectively. A buffalo yields an average of 40 kg of dung every day. The average estimated the gas production from the dung is around 10 litres/kg of dung. Estimate the number of buffaloes required to meet the gas requirement for food preparation for that tribal people. The density of slurry is 1090 kg/m³. Estimate the size of the digester if the Height: Diameter ratio is 3:1. Or Design a Stand-along solar PV for an emergency 24 hours × 7 days clinic room. The following data were observed during the operation hours. The clinic has 10 tube lights, 5 Fans, 2 PC with 200 Watts, 1 Water cooler with 750 watts. Assume the average solar radiation available in Vellore is 800 W/m2. Estimate and form array the battery and module requirements. The manager of the clinic wants reduce the electrical consumption by replacing all the tube lights LEDs of 28 Wafts with same light illumination. Redesign the sizing of solar PV system for the revised (iii) Suggest suitable hybrid system for uninterrupted power supply by completely renewable energy sources. 3 50547