



ADAMAS UNIVERSITY
END-SEMESTER EXAMINATION : MAY 2021
(Academic Session: 2020 – 21)

Name of the Program:	B. Tech ME	Semester:	VIII
Paper Title :	Elective – VIII (Renewable Energy Resources)	Paper Code:	EME44108
Maximum Marks :	40	Time duration:	3 Hours
Total No of questions:	8	Total No of Pages:	01
Instruction to the Candidate:	<ol style="list-style-type: none">1. At top sheet, clearly mention Name, Univ. Roll No., Enrolment No., Paper Name & Code, Date of Exam.2. All parts of a Question should be answered consecutively. Each Answer should start from a fresh page.3. Assumptions made if any, should be stated clearly at the beginning of your answer.		

Answer all the Groups

Group A

Answer all the questions of the following

$5 \times 1 = 5$

1.
 - a) Which instrument is used for measuring wind speed?
 - b) Define energy.
 - c) Define Solar Constant.
 - d) What is geothermal power?
 - e) What is the optimum range for electricity generation in wind turbine?

GROUP –B

Answer *any three* of the following

$3 \times 5 = 15$

2. Explain pyrolysis.
3. Explain photoelectric effect.
4. What are the classifications of geo thermal fields? Discuss the advantages and disadvantages of geothermal plant. 2+3
5. Explain in brief the principles of OTEC energy utilization. Write a short notes on progressive wave. 3+2

GROUP –C

Answer *any two* of the following

$2 \times 10 = 20$

6. Write a short notes on selection of site for biogas plant. Explain the difference between Bio mass and biogas. 5+5
 7. How are solar panel produced? Explain.
 8. (i) Calculate the useful heat content per square kilometre of dry rock granite to a depth of 7 km. Take the geothermal temperature gradient at $40^{\circ}\text{C km}^{-1}$, the minimum useful temperature as 140K above the surface temperature T_0 , $\rho_r=2700 \text{ kg m}^{-3}$, $C_r= 820 \text{ J kg}^{-1}\text{K}^{-1}$. (ii) What is the time constant for useful heat extraction using a water flow rate of $1 \text{ m}^3 \text{ s}^{-1} \text{ km}^{-2}$? (iii) What is the useful heat extraction rate initially and after 10 years?
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