KERALA AGRICULTURAL UNIVERSITY
B. Tech. (Agrl. Engg.) 2021 Admission
IV Semester Final Examination – July 2023

Fpme.2208 **Fundamentals of Renewable Energy Sources (2+1)** **Marks: 50**
Time: 2 hours

I **Answer the following** **(10x1=10)**

1. Name any two greenhouse gases.

Fill in the blanks

2. The contribution of CO_2 to greenhouse gases is..... %
3. ..... is not a commercial form of energy
4. Ratio of the light reflected by a surface to the solar light incident upon it, is called .....

Choose the correct answer

5. A person can do the following with wind energy
   (a) destroy it
   (b) convert it
   (c) create it
   (d) burn it

Define the following

6. Secondary energy sources
7. Incident angle
8. Wind power density
9. Photosynthesis
10. Biogas

II **Write short notes on ANY FIVE of the following** **(5x2=10)**

1. What are the sources of renewable energy for agriculture?
2. What is the importance of renewable energy in achieving environmental sustainability?
3. Mention the application of solar energy.
4. What is angle of latitude?
5. What is wind energy?
6. Define Betz limit of a wind energy.
7. What is meant by gasification?

III **Answer ANY FIVE of the following** **(5x4=20)**

1. How can you classify energy resources give at least two examples?
2. Explain the fundamentals of energy analysis for crop production and agriculture.
3. Discuss the principle involved in solar photo voltaic electricity production.
4. State the advantage and disadvantage of concentrating collector over flat plate type collector.
5. Explain the working of horizontal axis wind turbine with a neat sketch.
6. How are gasifiers classified?
7. Explain the working of continuous process biogas plant.

IV **Write an essay on ANY ONE of the following** **(1x10=10)**

1. Write short notes on evacuated tube collector for solar energy applications with sketch.
2. Explain in detail about the renewable energy scenario in agricultural sector in India.

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