**KERALA AGRICULTURAL UNIVERSITY**
**B. Tech. (Food Engg.) 2019 Admission**
**VI Semester Final Examination – June 2022**

**Fden.3208** **Energy for Food Industries (1+1)** **Marks: 50**
**Time: 2 hours**

**I** **Fill in the blanks** **(10x1=10)**

1. Capacity to do work is termed as _____.
2. PV cells are made of _____.
3. _____ denotes the total radiation energy received from the Sun.
4. Heating of water can be done using _____.
5. Direct solar drying is otherwise known as _____.
6. _____ is an example of waste heat.

**State True or False**

7. Wavelength of light is described by electromagnetic spectrum.
8. Wind power is non renewable source of energy.
9. Efficiency of a cook stove is decided by fuel consumption.
10. Desalination of water can be done by indirect solar drying.

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

1. What is renewable energy?
2. What is the role of energy management?
3. Define solar constant.
4. What is a solar collector?
5. What are the basic characteristics of PV cells?
6. What is meant by cooking efficiency?
7. Write on the importance of waste heat utilization.

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

1. What are the different energy sources? Give examples.
2. What is electromagnetic spectrum? List out the different waves in electromagnetic spectrum.
3. What are the characteristics of sun?
4. Describe a flat plate collector.
5. How does a solar pump operate?
6. Discuss on the use of biomass gasifier in food industry.
7. Explain on energy recovery from wastes.

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

1. Explain in detail the application, merits & demerits of a PV system. With a neat sketch, explain the working of a solar PV sprayer.
2. What are the different types of windmill? Discuss in detail. How will you estimate power from the wind?

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