KERALA AGRICULTURAL UNIVERSITY
B.Tech.(Agrl. Engg.) 2019 Admission
VI Semester Final Examination - June 2022

Fpme.3215 Energy Technology for Renewable Power Production (2+0) **Marks: 50**
Time: 2 hours

I State True or False **(10x1=10)**

1. Cup anemometer is used to measure solar radiation.
2. Biomass store energy in the form of chemical energy.
3. Wind power is directly proportional to square of velocity.
4. Rotor is associated with wind energy.
5. Briquetting increases bulk density of the raw material.
6. PV cells convert radiation energy into electrical energy.
7. Improved cook stoves have higher efficiency as compared to traditional cook stoves.
8. Hydro power utilizes static energy of water.
9. Gas production in biogas plants take place under aerobic conditions.
10. Array is a term associated with hydro power.

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

1. Solar Photovoltaic Technology
2. Hydro power
3. Land fill technology
4. Principle of OTEC
5. Fuel cell technology
6. Velocity and power duration curves and their role in wind energy assessment and harnessing.
7. Micro hydel plants

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

1. What is biogas technology? Discuss factors governing or affecting biogas production in a biogas plant.
2. What are different biomass energy conversion technologies? Explain working of a down draft gasifier with a neat sketch.
3. What do you understand with the term renewable energy? What are the advantages and limitations of these energy sources.
4. Write on Central receiver type solar power plant.
5. Discuss on power generation from urban, municipal and industrial waste.
6. Instruments used for solar energy measurement
7. Discuss briefly on MHD.

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

1. (a) Explain a Wind Turbine with a neat sketch.
   (b) Calculate the energy or power of a wind mill with rotor blades of 3m length in a wind speed of 5m/s. The density of air is 1.293 kg/m^3.
2. What is the principle of a flat plat collector? Explain the working of a solar water heater or solar dryer with a neat schematic diagram.

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