# KERALA AGRICULTURAL UNIVERSITY

**B.Tech (Food.Engg) 2012 Admission**

**V$^{th}$ Semester Final Examination- January -2015**

**Cat. No:Fden.3108** **Marks: 80.00**

**Title: Energy for Food Industries (1+1)** **Time: 3 hours**

**I Fill up the blanks** **(10 x 1=10)**

1. _____is the energy obtained from the continuous or repetitive currents of energy occurring in the natural environment
2. The standard value of solar constant is _____
3. A pyranometer is used to measure_____
4. The mixture of methane , carbon dioxide,hydrogen sulphide and several other gases is called as_____
5. In downdraft gasifier ,fuel and gas move in the _____direction
6. Zenith angle
7. Biomass
8. Solar azimuth angle
9. Solar cell
10. Photovoltaic effect

**II Write short notes on any TEN questions** **(10 x 3=30)**

1. Differentiate between renewable and non renewable energy sources
2. Differentiate between biogas and fuel gas
3. List the factors affecting the production of biogas
4. Differentiate between updraft and downdraft gasifier
5. Write a short note on energy utilization from vegetable and municipal solid waste
6. State the advantages and disadvantages of of wind energy
7. What do you mean by aerobic and anaerobic fermentation
8. Parts of a wind generator
9. Solar grain driers
10. Heat energy recovery in food industries
11. Principles of photo voltaic cell
12. Semi conductors

**III Write short notes on any SIX questions** **(6 x 5=30)**

1. Explain with neat sketch the solar distillation system
2. Classify the biomass gasifiers .Explain anyone with neat sketch
3. What are the different types of biogas plant .Explain any one with neat labeled sketch
4. Explain in brief about the importance of solar drying for agricultural produce
5. Write short note on energy auditing
6. Write about the pumping of water from wind energy
7. Explain the principle of operation of solar cooker with a neat sketch
8. Mention the application of solar photo -voltaic system for power generation

**IV Write an essay on any ONE** **(1 x 10=10)**

1. Application of solar energy in food industries
2. Classify wind turbines .Derive the expression for estimating power from wind

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