



KERALA AGRICULTURAL UNIVERSITY
B.Tech.(Agri. Engg) 2016 Admission
IV Semester Final Examination-July 2018

Fpme. 2208

Fundamentals of Renewable Energy Sources (2+1)

Marks: 50
Time: 2 hours

I Fill in the blanks.

(10x1=10)

- 1 SI Unit of Energy is
- 2 Equivalent energy coefficient of a bullock-pair is
- 3 Primary source behind all the sources of energy is
- 4 The value of Betz power coefficient is
- 5 The main constituents of producer gas are

Define

- 6 Solar constant.
- 7 Lift and drag.
- 8 Biomass.
- 9 Anaerobic digestion.
- 10 Solar Photovoltaic cell

II Write short notes/answers etc on ANY FIVE

(5x2=10)

- 1 Classification of energy sources.
- 2 What is a solar collector? How do you classify them?
- 3 Basic principle of solar photo-voltaic effect.
- 4 Derive the expression for the power available in the wind.
- 5 Phases of anaerobic digestion.
- 6 What is gasifier? How do you classify them?
- 7 Basic principle of production of alcohol.

III Answer any FIVE of the following.

(5x4=20)

- 1 Explain the working of solar water heater with a neat sketch.
- 2 Explain the different solar dryers used for drying of agricultural/horticultural produce.
- 3 How do you classify the wind turbines? Write their salient features.
- 4 Working of downdraft gasifier.
- 5 Working principle of floating drum type biogas plant with a neat sketch.
- 6 Improved biomass cook stoves and their role in reduction of environmental pollution.
- 7 Process of production of biodiesel.

IV Answer any ONE of the following

(1x10=10)

- 1 Role of renewable energy for mitigation of global warming.
- 2 Basic design aspects of biogas plants.
