

B.Sc. (Honours) Agriculture Semester-IV Examination, 2019

Course No: AEG-221 (Renewable Energy and Green Technology)

Signature of Centre Superintendent

Roll No. : (in figure) _____ (in words) _____

Student Index No. _____ Regn. No. _____ of _____

Time : Two Hours

Full marks : 50

Questions are of value as indicated in the margin

Part - I
(Objective and Short Answer Type)
(Use only ball point pen)

Time : 30 minutes

Full marks : 20

Note: 1. Answer in question paper itself.

2. Striking, rewriting or overwriting are not allowed in the objective type questions.

1. **State True (T) or False (F) in respect the following statements :**

0.5×8=4.0

- (a) The temperature at which an oil starts to solidify is called 'cloud point'.
- (b) PV was existed before the development of quantum theory.
- (c) In downdraft gasifier air-tight top cover is used.
- (d) The major component in biogas-acid formation process is acetic acid.
- (e) The solar water heater life span is around 5 years.
- (f) In large wind mills, yaw angle is controlled by tail mill.
- (g) Saconious developed horizontal wind mill.
- (h) DF2 diesel is known as transportation diesel.

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2. **Fill up the blanks with most appropriate words :**

1×6=6

- (a) Ignition temperature of biogas is _____ degree C.
- (b) Deenandhu biogas model was developed in _____ year.
- (c) Effluent as fertilizer reduces weed growth by _____ %
- (d) _____ by-product in biodiesel processing is used for soap making.
- (e) Maximum possible power from wind mill is called _____ limit.
- (f) Wet gas reaction may occurs in biomass gasification process at _____ degree C.

P.T.O.

3. Write short notes on **any five** :

2×5=10

(a) Amorphous Silicon (a-Si)

(b) Algae biofuel

(c) Type of wind speed levels

(d) Flash pyrolysis

(e) Continuous type biogas plant

(f) Cooling duct

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Part - II
(Descriptive Type)

Time : 90 Minutes

Full marks : 30

Questions are of value as indicated in the margin

Answer *any four* questions

4. a) Briefly explain different characteristics of efficient biodiesel. 5+2.5=7.5
b) Evaluate the suitability of biodiesel to replace diesel.
 5. a) How does co-utilization of biomass gasifier technology work? Describe its merits and demerits? 4.5+3=7.5
b) Briefly explain a pilot reactor for fast pyrolysis.
 6. a) Describe different industry standard tests for biomass. What is NREL standard? 5+2.5=7.5
b) Describe briefly different benefits of biogas plant.
 7. a) Briefly explain staged combustion with necessary diagram. 5+2.5=7.5
b) Also explain the removal process of unburnt pollutants.
 8. a) Briefly explain the importance of P-N junction in a solar PV. 4+3.5=7.5
b) What is solar collector? Describe different type of solar collectors.
 9. a) Describe briefly different type of manure collected. 4+3.5=7.5
b) Briefly explain the various factors to maintain better gas production in a biogas plant.
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