

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

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

Time : 2 Hours

Full marks : 40

Questions are of value as indicated in the margin

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

Time : 20 minutes

Full marks : 10

- Note:** 1. Answer in question paper itself.
2. Striking, rewriting or overwriting are not allowed in the objective type questions.

1. Fill in the blanks with appropriate phrases or numbers: (any ten)

0.5×10=5

- (a) Janata plant is a _____ type Biogas plant.
- (b) Heat value of biogas is _____.
- (c) Pyrolysis of biomass produces _____.
- (d) The duration of sunshine is recorded by _____.
- (e) Solar cells are usually made of _____.
- (f) In a wind mill, if wind velocity increases two times, power from the wind mill increases _____.
- (g) The value of solar constant is _____.
- (h) The calorific value of cow-dung cake is _____ kcal/kg.
- (i) The wind velocity of over _____ kmph is necessary for satisfactory operation of wind mill.
- (j) Solar energy on earth is measured with _____.
- (k) C:N ratio is maintained _____ for the production of Biogas.
- (l) In Biogas plant the cow dung is mixed with water usually in the proportion _____.

2. Write short note on the following: (any five):

1×5=5

- (a) Parabolic trough collector

- (b) Solar pumping

(2)

(c) Solar street light

(d) Binary plant

(e) Parabolic dish solar cooker

(f) Cetane number

(g) Acid Formation

B.Sc. (Ag.) Honours Semester-VI Examination, 2019
Course No: AEG-321 (Renewable Energy)

Part - II
(Descriptive Type)

Time : 100 minutes

Full marks : 30

Questions are of value as indicated in the margin

Answer *any four* questions

3. (a) In block diagram mention about the different steps of anaerobic digestion for the production of biogas.
(b) What is retention time in biogas plant?
(c) What are the main factors that affect the production of biogas in a biogas plant?
2+2+3.5=7.5
4. (a) What is briquetting and where is it used?
(b) With neat sketch describe the constructional details of KVIC biogas plant. 2+5.5=7.5
5. (a) Draw the diagram of a down draft gasifier and mention the reaction zones.
(b) What are the basic differences between up draft and down draft gasifier?
(c) What are the major components of biogas with percentage? 4+2+1.5=7.5
6. (a) With neat sketch explain about the different components of flat plate collector.
(b) What is the application of solar dryers?
(c) With diagram describe the working of forced circulation solar dryers. 3.5+1+3=7.5
7. (a) What is tip speed ratio of wind mill?
(b) Derive the expression of available wind power.
(c) Explain with diagram the application of Wind mill as electricity generator.
1+2.5+4=7.5
8. (a) Explain in brief the ethanol production process from Starch.
(b) What are the types of pyrolysis process based on operating conditions?
(c) Explain any one type of pyrolysis process. 3+1.5+3=7.5
-