

PARUL UNIVERSITY
COLLEGE OF AGRICULTURE

B.Sc.(Hons.) Agriculture Winter 2019 - 20 Examination

Semester: 3

Date: 07/12/2019

Subject Code: 20106252

Time: 2:00 pm to 04:30 pm

Subject Name: Renewable Energy and Green Technology

Total Marks: 50

Instructions

1. All questions are compulsory.
2. Figures to the right indicate full marks.
3. Make suitable assumptions wherever necessary.
4. Start new question on new page.

Q.1 Do as Directed.**A. Fill in the blanks. (Each of 0.5 mark)****(05)**

- 1 In biogas plant, proportion of cattle dung and water is _____ for inlet feed slurry
- 2 The gas produced in the gasifier is a clean burning fuel having heating value of about _____ kcal/m³
- 3 For producing 1 m³ biogas _____ kg of cow dung is required.
- 4 Biomass based producer gas is contained _____ CO (carbon monoxide).
- 5 Methanogens bacteria work better at _____ temperature to produce maximum biogas.
- 6 Large size gasifiers have power generation capacity _____
- 7 Briquettes can be produced with the density of 1200 to 1400 Kg/m³ from loose agro residues with a bulk density of _____ Kg/m³
- 8 The conversion of biomass to heat and power by directly burning it, is called _____ process.
- 9 Biogas generally contains _____ % CO₂.
- 10 Floating dome type biogas plant is also known as _____

B. Multiple choice type questions. (Each of 0.5 mark)**(10)**

- 1 The major non renewable energy used in India is

a) Coal	c) Natural Gas
b) Petroleum	d) Nuclear
- 2 Which of the following is not a fossil fuel?

a) Coal	c) Uranium
b) Petroleum	d) Natural gas
- 3 Wind energy is used to

a) Draw underground water	c) Operate flour mills
b) Generate electricity	d) All of the above
- 4 The total solid content in fresh cow dung is

a) 18-20%	c) 24-25%
b) 20-22 %	d) 12-14%
- 5 In a solar cell what is used to convert sun light into electrical energy

a) Photovoltaic cell	c) lead acid battery
b) Lithium ion battery	d) None of the above
- 6 Biogas contains how much % of methane?

a) 5-15	c) 50-55
b) 20-30	d) 65-75
- 7 1 kg of cow dung produces how much amount of biogas

a) 0.08 m ³	c) 0.02 m ³
b) 0.1 m ³	d) 0.04 m ³
- 8 Energy source used mainly in Indian villages is

a) Electricity	c) Sun
b) Coal	d) Cow dung
- 9 Anemometer is used to measure

a) Wind Direction	c) Wind speed
b) Wind rotation	d) All the above
- 10 Renewable energy is also known as

a) Conventional Energy	c) Non Conventional Energy
b) Both (a) and (c)	d) None of the above
- 11 Which of the following is an example of Biomass?

a) Electricity	c) Trees
b) Coal	d) Water

- 12 Pick the odd one
 a) Diesel
 b) Gasoline
 c) Petrol
 d) Coal
- 13 Pick the odd one
 a) Coal
 b) Geothermal
 c) Oil
 d) Natural Gas
- 14 Which of the following is a non renewable source of energy?
 a) Coal
 b) Sun
 c) Petroleum
 d) Both (a) and (c)
- 15 Both power and manure is provided by
 a) Nuclear plants
 b) Biogas plants
 c) Thermal plants
 d) Hydroelectric plants
- 16 Bio-diesel is produced from oils or fats using the process known as
 a) Transaction
 b) Transformation
 c) Transesterification
 d) Transportation
- 17 Which of the following energy can be used to generate electricity directly?
 a) Solar energy
 b) Wind energy
 c) Petroleum
 d) Natural Gas
- 18 Horizontal axis and vertical axis are the types of
 a) Nuclear reactor
 b) Wind Mills
 c) Biogas reactor
 d) Solar cell
- 19 Most of the energy used on earth today originally came from which of these source?
 a) The sun
 b) The moon
 c) Soil
 d) Oceans
- 20 Which plant has been cited as a high yield source of bio – diesel?
 a) Jatropha
 b) Mustard
 c) Sesame
 d) All the above

Q.2 Do as Directed.

A. Define the following. (Any five out of seven)

(05)

1. Photovoltaic Cell
2. Briquettes
3. Pyrolysis
4. Gasifier
5. Solar lantern
6. Solar still
7. Wind mill

B. Answer the following. (Any five out of seven)

(05)

1. Why is solar sometimes termed the primary renewable energy?
2. Enlist different types of gasifiers.
3. Do biofuels have impact on society?
4. Is coal a renewable energy source?
5. Enlist various equipments running on solar energy.
6. State the function of Central Guide Frame in KVIC type biogas plant
7. State the use of Briquettes

Q.3 Write short notes. (Any five out of six)

(10)

1. Biodiesel production from Jatropha Seeds
2. Downdraught Gasifier
3. Parabolic Solar Cooker
4. Agriculture wastes
5. Construction of Biogas Plant
6. Indirect Solar Dryer

Q.4 Long Questions/Example (Attempt any three out of four)

(15)

1. Write difference between On shore and Off shore Wind Mill
2. Write difference between Renewable and Non Renewable Energy Source
3. Explain thermochemical conversion of Biomass
4. Explain the working of a solar water heater.