



BRAINWARE UNIVERSITY

Term End Examination 2023
Programme – B.Tech.(ECE)-2019
Course Name – Renewable Energy
Course Code - OEC801A
(Semester VIII)

Full Marks : 60

Time : 2:30 Hours

[The figure in the margin indicates full marks. Candidates are required to give their answers in their own words as far as practicable.]

Group-A

(Multiple Choice Type Question)

1 x 15=15

1. Choose the correct alternative from the following :

- (i) Recall which of the following are renewable energy resource?
a) Solar
b) Wind
c) Geothermal
d) All of these
- (ii) Identify which of the area can often displaces conventional fuel by renewable energy?
a) Space heating
b) Transportation
c) Electricity generation
d) All of these
- (iii) Tell that Photovoltaic cell converts solar energy into
a) Heat energy
b) Electric energy
c) Mechanical energy
d) Chemical energy
- (iv) Based on the following options, choose the correct option. Statement I: Non-Conventional energy is available in nature free of cost. Statement II: Non-Conventional energy is exhaustible in nature.
a) Statement I and Statement II are correct and Statement II is the correct explanation of Statement I
b) Statement I and Statement II are correct and Statement II is not the correct explanation of Statement I
c) Statement I is true and Statement II is false
d) Statement II is true and Statement I is false
- (v) When was the first electric car discovered?
a) 1830
b) 1985
c) 1832
d) 1945
- (vi) Select which of the following has caused global warming?
a) Burning of biomass
b) Burning of fossil fuels
c) Releasing CFCs into the atmosphere
d) Melting metals
- (vii) Recall what are three relevant bands of solar radiation?
a) UV, infrared and far infrared
b) UV, visible and infrared
c) Ultrasonic, infrared and visible
d) UV, ultrasonic and near infrared
- (viii) Choose what are the components of a flat plate collector?

- a) Flat box, a plate with reflective coating and fluid circulation passageways, an opaque cover, a circulating fluid
- b) Flat box, a dark coloured plate with fluid circulation passageways, an opaque, a circulating fluid
- c) Flat box, a dark coloured plate with fluid circulation passageways, a transparent cover
- d) Flat box, a dark coloured plate fluid circulation passageways, a transparent cover, a circulating fluid
- (ix) Select which of the following is a circulating fluid in evacuated flat-plate solar collectors?
- a) Water
- b) Steam
- c) Nitrogen
- d) Hydrogen
- (x) Identify which of the following are combined to form an evacuated flat plate solar collector?
- a) Flat plate solar collectors and evacuated-tube solar collectors
- b) Flat plate solar collectors and bowl collectors
- c) Bowl collectors and evacuated-tube solar collectors
- d) Polymer collectors and bowl collectors
- (xi) Restate that wind energy is harnessed as _____ energy with the help of windmill or turbine
- a) mechanical
- b) solar
- c) electrical
- d) heat
- (xii) Select which of the following principles is used to concentrate sunlight in solar cookers?
- a) Refraction
- b) Evaporation
- c) Specular reflection
- d) Radiation
- (xiii) Select which type of generator are made to use in wind turbines?
- a) Recreational generators
- b) Synchronous generator
- c) Asynchronous generator
- d) Alternator
- (xiv) Interpret why the wind turbine designed to stop operation at cut out velocity?
- a) To protect wheel against damage
- b) To make a quick stop in emergencies
- c) To improve the efficiency
- d) In order to adjust the blades to wind direction
- (xv) The world's first 100% solar powered airport located at _____
- a) Cochin, Kerala
- b) Bengaluru, Karnataka
- c) Chennai, Tamil Nadu
- d) Mumbai, Maharashtra

Group-B

(Short Answer Type Questions)

3 x 5=15

2. Distinguish between Renewable and Nonrenewable energy sources? (3)
3. Explain standalone PV system. (3)
4. Describe the thermo chemical conversion related to biomass energy. (3)
5. Explain the characteristics of solar battery? (3)
6. Describe the advantage of Non-Conventional Energy Sources over Conventional Sources Economics. (3)

OR

Define different types of renewable energy in the world in brief. (3)

Group-C

(Long Answer Type Questions)

5 x 6=30

7. Estimate the advantage of solar system in brief. (5)
8. Classify the different types of solar inverter in brief. (5)
9. Compare the advantages and disadvantages of geothermal energy? (5)

10. Explain the impact on environment electricity generation from non-conventional energy sources (5)
11. Classify different types of solar water pumping system. (5)
12. Express the basic components of wind energy generation? (5)
- OR**
- Discuss each component of wind energy generation. (5)
