



BRAINWARE UNIVERSITY

Term End Examination 2023

Programme – Dip.ME-2019

Course Name – Renewable Energy

Course Code - DME606B

(Semester VI)

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Brainware University
Barasat, Kolkata -700125

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) Which of the energy resources were considered for large scale use after the oil crisis of 1973?
- a) Conventional Sources
b) Non-Conventional Sources
c) Non-renewable sources
d) Primary Sources
- (ii) Which non-conventional energy source has maximum power generation?
- a) Solar
b) Wind
c) Tidal
d) Nuclear
- (iii) Which of the following is a part of a general wind energy conversion system?
- a) VAWT and HAWT.
b) Differential.
c) Parallel shaft and planetary shaft.
d) Manual transmission.
- (iv) What is a planetary shaft gearbox?
- a) Input shaft and output shaft are aligned.
b) Motor shaft and the speed controller shaft are on perpendicular planes.
c) Motor shaft and the speed controller shaft are on parallel planes.
d) Input shaft and output shaft are parallel.
- (v) Which of the following best describes world energy consumption?
- a) Total energy produced and used by humanity.
b) Total energy consumed by humanity.
c) Total energy consumed by humans in the biological pyramid.
d) Total energy produced by humans in the biological pyramid.
- (vi) Power generation contains _____
- a) mechanical systems.
b) kinetic systems.
c) electromagnetic and electrical subsystems.
d) nuclear systems.
- (vii) Which of the following is NOT included in world energy consumption?
- a) Solar energy.
b) Energy from food.
c) Energy from wind.
d) Energy from fossil fuels.

- (viii) What is a fixed speed WECS?
 a) WECS operating at differential speeds. b) WECS operating at non-differential speeds.
 c) WECS operating at variable speeds. d) WECS operating at constant speed.
- (ix) Why is there a demand for renewable sources of energy?
 a) Because they emit greenhouse gases. b) Because of low or zero carbon footprint.
 c) Because of the decreasing global d) Because they are more efficient.
 temperatures.
- (x) _____ is an example of storing wind energy chemically.
 a) Flywheels. b) Pumped storage.
 c) Batteries. d) Electro-hydrogen generation.
- (xi) According to EIA what is the globally projected increase in transportation energy between 2018 and 2050?
 a) Less than 10%. b) Between 10 and 20%.
 c) Greater than 100%. d) Between 30 and 50%.
- (xii) Which of the following is the most usable form of energy for future?
 a) Solar. b) Electricity.
 c) Thermal. d) Nuclear.
- (xiii) Which of the following is also called as a flash steam plant?
 a) Low temperature hydrothermal resource. b) Dry steam.
 c) Hydrogen. d) Hot water.
- (xiv) Which of the following are geothermal provinces in India?
 a) Telangana. b) Coimbatore.
 c) Manipur. d) Godavari.
- (xv) What is ocean thermal energy conversion?
 a) Harnessing the temperature differences between surface waters and deep ocean waters. b) Harnessing the temperature differences between the coastal waters and deep ocean waters.
 c) Harnessing the heat energy from the underwater volcanoes. d) Harnessing the heat energy between surface water vapour and atmospheric gases.

Group-B

(Short Answer Type Questions)

3 x 5=15

2. Describe on the oil crisi of 1973. (3)
3. Describe the disadvantages of solar energy. (3)
4. Identify the favourable sites for installing of wind turbines. (3)
5. Identify the major disadvantages of wind power. (3)
6. Evaluate the heating value of charcoal. How much is the carbon content and what are its specific applications. (3)

OR

Justify the approximate efficiency of fuel wood when used for cooking by conventional method as compare to non-conventional method. (3)

Group-C

(Long Answer Type Questions)

5 x 6=30

7. Debate on dry steam system and hot water system based on their working principal and point of applications (5)
8. Predict the advantages of Anaerobic Digestion. (5)
9. Express a relation where a horizontal surface receives no ground reflected radiation. (5)
10. Identify the basic features required in an ideal pyranometer. (5)
11. Identify the advantages of wind energy over solar energy. (5)

12. Debates on the advantages on various type of geothermal energy sources. (5)

OR

Debate on various types of geothermal energy sources and their prospects in India. (5)

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