

B. Voc. DEGREE EXAMINATION, APRIL 2023
SUSTAINABLE ENERGY MANAGEMENT
SECOND SEMESTER

COURSE : MAJOR CORE

PAPER : ENERGY CONVERSION TECHNIQUES (THEORY)

TIME : 6 HOURS

MAX. MARKS : 100

(Theory: 50 marks +Practical: 50 marks)

SECTION – A

ANSWER ALL QUESTIONS

(20X1 = 20)

I. CHOOSE THE CORRECT ANSWER

1. Aprocess is one in which the system and its environment cannot return together to exactly the states that they were in.
a) Reversible b) irreversible c) Isothermal d) Adiabatic
2. is used as incinerators to burn down waste.
a) Mechanical energy b) Nuclear energy c) Electrical energy d) Thermal energy
3. A battery is an electrochemical cell that converts _____ into electrical energy.
a) Thermal energy b) Nuclear energy c) Mechanical energy d) Chemical energy
4. _____ are vessels or tanks in which whole cells or cell-free enzymes transform raw materials into biochemical products and/or less undesirable by-products..
a) agitator b) rotator c) bio reactor d) moderator
5. A solar water pump is an application of technology which converts solar energy into electricity to run the pumping system
a) Photovoltaic b) photoconductive
c) photodetector d) photomultiplier

II. FILL IN THE BLANKS

6. Examples ofsources of energy include oil, natural gas, coal, and electricity.
7. _____ is a semiconductor used in the thermoelectric refrigeration system.
8. A _____ is a battery-powered telemetry instrument that measures the atmospheric pressure.
9. Boiling water on a stove is an example of energy.
10. The solar water pumping system uses _____ energy to pump water.

III. STATE WHETHER TRUE OR FALSE

11. Energy conversion is effective in saving electricity.
12. Peltier module is used in thermoelectric refrigeration.
13. Photocatalysis is the conversion of heat to light energy.
14. Flywheel is an effective mechanical energy storage system.
15. Primary batteries are rechargeable.

IV. ANSWER IN A SENTENCE

16. Peltier effect.
17. Dye sensitized solar cell
18. Pseudocapacitor.
19. Nernst effect.
20. Chemical energy.

SECTION – B**Answer any SIX questions:****(6X3= 18)**

21. List out conventional energy conversion techniques.
22. Discuss reversible cycle with example.
23. Discuss the components of a thermoelectric converter System.
24. Discuss ferro electric converter.
25. What are the three modes of operation in Bioreactor?
26. What is a function of a baffle in a bioreactor?
27. Discuss water splitting.
28. Write a short note on super capacitor.
29. Discuss the basic working of battery with example.
30. Explain different parts of solar water pumping system.

SECTION – C**Answer any TWO questions:****(2X6 = 12)**

31. Discuss the types of batteries and their advantages.
32. Discuss photo-bio synthesis with example.
33. Write a brief note on the storage of mechanical energy.
34. Discuss the components and working of a Solar Water heater.
