



3. Which instrument is used to measure beam radiation?  
(a) Pyranometer (b) Thermometer  
(c) Pyrliometer (d) Hygrometer
4. What principle does a photovoltaic (PV) cell work on?  
(a) Photoelectric effect (b) Magnetic effect  
(c) Seebeck effect (d) None of the above
5. What is the main principle behind windmills?  
(a) Thermal conduction  
(b) Conversion of kinetic to mechanical energy  
(c) Conversion of mechanical to chemical energy  
(d) Nuclear Fusion
6. Which of the following is an advantage of WECS?  
(a) Renewable and clean (b) Emits greenhouse gases  
(c) High fuel cost (d) Complex waste disposal
7. Which of the following is not a type of biomass?  
(a) Wood (b) Vegetable waste  
(c) Animal dung (d) Coal
8. Which of the following is a biomass conversion technology?  
(a) Hydropower (b) Anaerobic digestion  
(c) Nuclear fusion (d) Solar thermal
9. Which electrolyte is used in a lead-acid battery?  
(a) Potassium hydroxide (b) Sodium chloride

(c) Sulfuric acid (d) Acetic acid

10. Fuel cells convert chemical energy directly into \_\_\_\_\_

(a) Light energy (b) Electrical energy

(c) Sound energy (d) Thermal energy

**PART - B (5 X 5 = 25 Marks)**

**Answer ALL Questions choosing either (a) or (b).**

**Answer should not exceed 250 words.**

11. (a) Write short notes on conventional energy sources.

**(OR)**

(b) Discuss the advantages and limitations of renewable energy sources.

12. (a) What is a pyrhelimeter? Explain the angstrom pyrhelimeter in brief.

**(OR)**

(b) What are the main applications of a solar pond? Describe briefly.

13. (a) Discuss the advantages and disadvantages of WECS in brief.

**(OR)**

(b) Write a short note on tidal energy with a suitable diagram.

14. (a) Discuss the advantages and disadvantages of fixed dome-type plants.

**(OR)**

(b) Briefly describe (i) Khadi and Village industries Biogas plant and (ii) Ferro – cement digester Biogas plant.

15. (a) Describe the construction and working of a lead-acid battery.

**(OR)**

(b) Discuss the applications of fuel cells.

**PART – C (5 X 8 = 40 Marks)**

**Answer ALL Questions choosing either (a) or (b).**

**Answer should not exceed 500 words.**

16. (a) Write short notes on (i) Wind energy and (ii) Tidal energy.

**(OR)**

(b) Explain (i) Bio-mass and (ii) Bio-gas in detail.

17. (a) Discuss the working principle, construction and advantages of a box-type solar cooker.

**(OR)**

(b) What is a photovoltaic cell? Explain its construction and working with a neat diagram.

18. (a) Write a note on the Pumping application of wind energy.

**(OR)**

(b) What are the basic components of a Wind Energy Conversion System (WECS)? Briefly describe the function of each component.

19. (a) Describe the wet-process biomass conversion technology in brief.

**(OR)**

(b) Explain the continuous and batch-type biogas plants in detail.

20. (a) What is a fuel cell? Explain the basic working principle of a fuel cell.

**(OR)**

(b) Describe the construction and working of a nickel-cadmium battery.