

**FIFTH SEMESTER UG DEGREE EXAMINATION, NOVEMBER 2022****(Regular/Improvement/Supplementary)****PHYSICS (OPEN COURSE)****GPHY5D01T: NON CONVENTIONAL ENERGY SOURCES****Time: 2 Hours****Maximum Marks: 60****SECTION A: Answer the following questions. Each carries 2 marks.****(Ceiling 20 Marks)**

1. Differentiate between renewable and non-renewable energy
2. List any two methods of energy storage.
3. What is the use of a solar green house?
4. Distinguish between direct and diffused component of solar radiation.
5. What are the causes for local winds?
6. List the four advantages of wind energy conversion.
7. Draw the schematic of a wind mill indicating the major parts.
8. How is thermoelectric energy created?
9. What are the main benefits of hydrogen fuel cells?
10. What are the two methods for ocean thermal electric power generation?
11. Write down the advantages and disadvantages of biogas technology.
12. What are the major components of tidal power plant?

**SECTION B: Answer the following questions. Each carries 5 marks.****(Ceiling 30 Marks)**

13. Give any two direct applications of wind energy.
14. Discuss the horizontal and vertical axes wind turbine generators.
15. What are the factors that determine the output from a wind energy converter?
16. Explain the source of waves. Discuss the methods to convert wave energy to mechanical energy.
17. Write down the advantages and disadvantages of tidal energy.
18. Describe the closed type OTEC system.
19. Explain how biogas is produced by anaerobic digestion.

**SECTION C: Answer any *one* question. Each carries 10 marks.**

20. Describe the construction and working of a box type solar cooker and solar furnace. Discuss its advantages and disadvantages.
21. Explain the different geothermal energy sources. What are the advantages and disadvantages of geothermal energy over other forms of energy? Discuss the applications of geothermal energy.

**(1 × 10 = 10 Marks)**