21U512 (Pages: 2) Name: .....

Reg.No: .....

FIFTH SEMESTER UG DEGREE EXAMINATION, NOVEMBER 2023

(CBCSS - UG)

(Regular/Supplementary/Improvement)

CC19U PHY5 D01 / CC20U PHY5 D01 - NON-CONVENTIONAL ENERGY SOURCES

(Physics - Open Course)

(2019 Admission onwards)

Time : 2.00 Hours Maximum : 60 Marks

Credit : 3

Part A (Short answer questions)

Answer ***all*** questions. Each question carries 2 marks.

1. Describe commercial and non-commercial energy energy sources.
2. Write a note on renewable and non-renewable energy sources.
3. Define the following terms as applied to solar energy: a) Solar radian, b) Extraterrestrial radiation, c) Beam radiation, d) Diffuse radiation
4. What are the important areas of applications of solar air heaters?
5. What are the characteristics of wind?
6. What is meant by wind electricity economics?
7. Is geothermal energy renewable? Explain briefly.
8. What is thermal gradient? Explain briefly.
9. What do you mean by biofuel? Give example.
10. Define Ocean wave energy.
11. What problems are associated with wave energy?
12. How are nuclear reactors classified?

(Ceiling: 20 Marks)

Part B (Short essay questions - Paragraph)

Answer ***all*** questions. Each question carries 5 marks.

13. Write any three advantages and disadvantages of a concentrating collector over a flat plate collector.
14. What are the sources/origin of wind? Explain briefly.
15. What is meant by a wind turbine generator? Discuss the horizontal axis and vertical types of wind turbine generators.

16. What are the limitations of utilising biomass?

17. Explain briefly the densification process of biomass conversion.

18. Write a note on “Tidal power generation”.

19. Discuss the working principle behind Ocean thermal energy conversion (OTEC).

(Ceiling: 30 Marks)

Part C (Essay questions)

Answer any ***one*** question. The question carries 10 marks.

20. What is the basic working principle behind a solar cooker? Describe with a neat sketch the construction and working of a box-type solar cooker.

21. Draw a schematic diagram of a liquid-dominated 'total flow concept system' and explain it briefly.

(1 × 10 = 10 Marks)

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