TDC (CBCS) Even Semester Exam., 2023

PHYSICS

(6th Semester)

Course No. : PHSSEC-601T

(Renewable Energy and Energy of Harvesting)

Full Marks : 50
Pass Marks : 20

Time : 3 hours

The figures in the margin indicate full marks for the questions

SECTION—A

Answer any *fifteen* of the following questions : 1×15=15

1. Why is fossil fuel better than nuclear energy?

2. What are the benefits of renewable energy?

3. What do you mean by wind energy?

4. Is hydroelectricity renewable?

5. Where is India's largest solar pond located?

6. Is solar water heater better than electric geyser?

7. Which mirror is used in solar cooker?

8. What is the basic principle of solar PV system?

9. Can solar and wind work together?

10. Who is the largest producer of tidal energy in India?

11. What is a grid interface?

12. What do you mean by power electronics?

13. Where are geothermal plants located in India?

14. What is hydroelectric power?

15. Which is India's biggest hydropower project?

16. What is meant by piezoelectric energy harvesting?

17. State the SI unit of generator efficiency.

18. Which material is used for carbon capture?

19. Give the symbol of cell and battery.

20. What is the power consumption of 1 kW?

SECTION—B

Answer any *five* of the following questions : 2×5=10

21. What is the basic difference between nuclear energy and fossil fuel?

22. How does ocean thermal energy work?

23. What is solar cooker and how does it work?

24. State the difference between electric water heaters and solar water heaters.

25. What are the three different types of tides? Write their characteristics.

26. Why is statistics important in web development?

27. How do thermal and hydropower plants affect our environment?

28. What are the applications of piezoelectric energy harvesting?

29. Why are physical models used?

30. What is the difference between a cell and a battery?

SECTION—C

Answer any *five* of the following questions : 5×5=25

31. What is biomass conversion? State the differences between chemical conversion and biochemical conversion of biomass.

32. What are the advantages and disadvantages of non-conventional energy sources? State the limitations of non-conventional energy sources.

33. Are solar ponds feasible for residential use? How does heat from a solar pond turn into electricity? State environmental benefits of solar pond.

34. What is meant by solar greenhouse? How is a solar greenhouse constructed? What are the benefits of solar greenhouse?

35. What is the ocean energy? What is the main source of ocean energy? How does ocean energy work?

36. How do wind turbines work? State the types of wind turbines and also give the applications of wind turbines.

37. What is geothermal energy and how does it work? State the benefits of geothermal energy. Why is geothermal energy important?

38. What is the piezoelectric effect and how does piezoelectricity work to make crystals to conduct electric current? State the benefits of piezoelectricity.

39. What are the technologies for carbon capture? How does carbon capture technology work? State the disadvantages of carbon capture.

40. What is electromagnetic harvesting? Give an example of electromagnetic energy harvesting. How is electromagnetic energy harvested?

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