(6 pages) **Reg. No. :** .....

Code No. : 20055 E **Sub. Code : CEPH 61**

B.Sc. (CBCS) DEGREE EXAMINATION,
NOVEMBER 2025

Sixth Semester

Physics

Major Elective – ENERGY PHYSICS

(For those who joined in July 2021 and 2022 only)

Time : Three hours Maximum : 75 marks

PART A — (10 × 1 = 10 marks)

Answer ALL questions.

Choose the correct answer :

1. Which among the following is not a renewable source of energy?
   (a) Biomass energy
   (b) Solar energy
   (c) Hydro power
   (d) Geothermal energy

2. Most of the renewable energy sources are
   (a) Location specific
   (b) Universally available
   (c) Highly efficient
   (d) Polluting

3. The rate of solar energy reacting the earth's surface.
   (a) 1026 W (b) 1016 W
   (c) 865 W (d) 1020 W

4. Direct solar energy is used for
   (a) Water heating (b) Distillation
   (c) Drying (d) All of the above

5. Voltage of solar cells is
   (a) 0.5 to 1V (b) 1 to 2V
   (c) 2 to 3V (d) 4 to 5V

6. What type of material is most commonly used in solar PV cells.
   (a) Copper (b) Aluminium
   (c) Silicon (d) Gold

7. The main component of biogas.

(a) Hydrogen (b) Carbondioxide

(c) Methane (d) Oxygen

8. Biomass is useful to produce

(a) Chemicals

(b) Fibers

(c) Biochemicals

(d) Transportation fuels

9. Wind turbines are controlled by

(a) Built in computer

(b) Operator

(c) Electricity board

(d) Wind power plant

10. Which of the following has the lowest efficiency?

(a) Solar energy

(b) Wind energy

(c) Wave energy

(d) OTEC

PART B — (5 × 5 = 25 marks)

Answer ALL questions, choosing either (a) or (b).
Each answer should not exceed 250 words.

11. (a) Write a short note on non conventional energy resource.

Or

(b) Compare the coal oil and natural gas.

12. (a) Describe the construction and working of solar water heater.

Or

(b) Discuss briefly about solar cooker.

13. (a) Describe the theory of solar cell.

Or

(b) Explain PV powered fan and its applications.

14. (a) Write the advantages and disadvantages of biogas from plant waste.

Or

(b) Explain thermal gasification of biomass.

15. (a) Describe the performance and limitations of tidal wave.

Or

(b) Write the advantages of battery for bulk energy storage.

PART C — (5 × 8 = 40 marks)

Answer ALL questions, choosing either (a) or (b)
Each answer should not exceed 600 words.

16. (a) Explain any four sources of non-conventional energy sources.

Or

(b) Discuss the trends in consumption of commercial resources.

17. (a) With the relevant theory explain the working of flat plate collectors.

Or

(b) Describe solar space cooling and solar ponds.

18. (a) Explain basic photovoltaic system for power generation.

Or

(b) Explain types of solar cells.

19. (a) Explain the conversion theory of biomass.

Or

(b) Outline the factors affecting bio-digestion.

20. (a) Discuss the theory of Ocean thermal energy conversion.

Or

(b) Describe the principle of working of tidal wave.

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