

(6 pages)

Reg. No. :

Code No. : 10315 E Sub. Code : AEPH 61

B.Sc. (CBCS) DEGREE EXAMINATION, APRIL 2023.

Sixth Semester

Physics — Major Elective

ENERGY PHYSICS

(For those who joined in July 2020 onwards)

Time : Three hours

Maximum : 75 marks

PART A — ($10 \times 1 = 10$ marks)

Answer ALL questions.

Choose the correct answer

1. World Energy Needs are rising due to
 - (a) deforestation
 - (b) increasing population and Industrialization
 - (c) inflation
 - (d) natural calamities
2. Which among the following causes environmental pollution?
 - (a) Biomass
 - (b) Solar energy
 - (c) Coal
 - (d) Wind

3. In what form is solar energy is radiated from the sun?

- (a) Ultraviolet Radiation
- (b) Infrared radiation
- (c) Electromagnetic waves
- (d) Transverse waves

4. The scattered solar radiation is called _____

- (a) Direct Radiation
- (b) Beam Radiation
- (c) Diffuse radiation
- (d) Infrared Radiation

5. A solar cell is a _____

- (a) P-type semiconductor
- (b) N-type semiconductor
- (c) Intrinsic semiconductor
- (d) P-N Junction

6. The electrical characteristics of a solar cell

- (a) Voltage
- (b) Resistance
- (c) Current
- (d) All the above

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7. The component of biogas is _____
- (a) Uranium (b) Thorium
(c) Methane (d) Hydrochloric acid
8. Biomass is used in the production of
- (a) fibres
(b) chemicals
(c) transportation fuels
(d) biochemicals
9. Wind turbines convert wind energy to _____
- (a) mechanical energy
(b) electrical energy
(c) heat energy
(d) solar energy
10. A fuel cell is used to convert chemical energy into _____
- (a) Mechanical energy (b) Solar energy
(c) Electrical energy (d) Potential energy

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PART B — (5 × 5 = 25 marks)

Answer ALL questions, choosing either (a) or (b).

Each answer should not exceed 250 words.

11. (a) Explain various forms of Energy.
Or
(b) Outline applications of Coal.
12. (a) Write short materials for flat plate collector.
Or
(b) Write Short note on solar cooker.
13. (a) Write Short note Basic Solar Cell.
Or
(b) Outline Theory of PV Powered Fan System.
14. (a) Describe working of Biogas Plant.
Or
(b) Write Advantages and disadvantages of Biological Conversion of Solar Energy.
15. (a) Write short note Wind Energy Collector.
Or
(b) Describe Working and Application of Fuel Cell.

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PART C — (5 × 8 = 40 marks)

Answer ALL questions, choosing either (a) or (b).

Each answer should not exceed 600 words.

16. (a) Explain non conventional energy sources and environment.

Or

- (b) Compare Coal Oil and Natural Gas.

17. (a) With relevant Theory, Explain the Working of Flat Plate Collector.

Or

- (b) Outline Merits and Demerits of Solar Energy.

18. (a) Explain Basic Photo Voltaic System for Power Generation.

Or

- (b) Outline Advantages and Disadvantage of Solar Photo voltaic System.

19. (a) What is biomass conversion? Discuss its Advantages and Disadvantages as energy source.

Or

- (b) Explain the working of a downdraft gasifier with a neat diagram.

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20. (a) Define Ocean thermal energy conversion. Explain principles of Ocean thermal energy conversion.

Or

- (b) Outline advantages and limitations of Tidal Power Generation.
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