

PSG COLLEGE OF ARTS & SCIENCE
(AUTONOMOUS)

BSc DEGREE EXAMINATION DECEMBER 2024
(Sixth Semester)

Branch – PHYSICS

DISCIPLINE SPECIFIC ELECTIVE – II : ALTERNATE ENERGY RESOURCES

Time: Three Hours

Maximum: 50 Marks

SECTION-A (5 Marks)

Answer ALL questions

ALL questions carry EQUAL marks

(5 x 1 = 5)

- 1 The Oil Crisis has been started in the year
(i) 1963 (ii) 1973
(iii) 1983 (iv) 1993
- 2 Which of the following is not a performance indices of Solar Collectors?
(i) Collector Efficiency (ii) Concentration Ratio
(iii) Temperature Range (iv) Area of the Collector
- 3 Which of the following is a common source for producing biofuels?
(i) Plastic (ii) Coal
(iii) Corn (iv) Glass
- 4 Which of the following country has the greatest geothermal energy production?
(i) United States of America (ii) Italy
(iii) Japan (iv) China
- 5 What is the primary function of a fuel cell?
(i) to store electrical energy
(ii) to generate heat through combustion
(iii) to store mechanical energy
(iv) to convert chemical energy directly into electrical energy

SECTION - B (15 Marks)

Answer ALL Questions

ALL Questions Carry EQUAL Marks

(5 x 3 = 15)

- 6 a Describe the advantages and disadvantages of Conventional Energy sources.
OR
b Explain the Energy Scenario of Conventional and Non-Conventional Energy Sources in India.
- 7 a Explain the construction and working of a Solar Water Heater.
OR
b Discuss in detail about the Solar desalination process.
- 8 a Write a brief note on Biofuels.
OR
b Describe the mechanism of biomass gasification.

Cont...

- 9 a How the Geothermal Fields are classified based on temperature?
OR
b Brief about the process of exploration and development of Geothermal Energy in India.
- 10 a Explain in detail about the process of Hydrogen storage.
OR
b Derive the expression for the efficiency of a Fuel cell.

SECTION -C (30 Marks)

Answer ALL questions

ALL questions carry EQUAL Marks

(5 x 6 = 30)

- 11 a Discuss in detail about the different energy sources and their role.
OR
b Explain briefly about the common form of Energy.
- 12 a Describe a detailed note on Solar passive heating and cooling system.
OR
b Explain the types of Solar Green House and its implications.
- 13 a Explain briefly about biomass conversion technologies.
OR
b With a neat sketch, discuss in brief about the types of biogas plants.
- 14 a Discuss in brief about the types of Hydrothermal and Geopressurized resources.
OR
b Highlight the importance and significance of Hot Dry Rocks and Magma resources.
- 15 a Describe about the methodologies of producing Hydrogen for industrial applications.
OR
b Explain the construction and working of Phosphoric Acid Fuel Cell (PAFC) and Alkaline Fuel Cell (AFC). Also mention its advantages and drawbacks.

Z-Z-Z

END