22PHU625A

PSG COLLEGE OF ARTS & SCIENCE
(AUTONOMOUS)

BSc DEGREE EXAMINATION DECEMBER 2025
(Sixth Semester)

Branch – **PHYSICS**

MAJOR ELECTIVE COURSE – 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 major cause of the 1970s oil shock was related to:
   (i)Overproduction of oil (ii)Sudden reduction in oil supply
   (iii)Discovery of new oil fields (iv)Low global demand

2. The working principle of a solar cooker is based on:
   (i) Reflection (ii) Refraction
   (iii) Greenhouse effect (iv) Conduction

3. Which of the following is not a biomass resource?
   (i) Agricultural waste (ii) Municipal waste
   (iii) Uranium (iv) Wood

4. Hot dry rock resources are associated with:
   (i) Biomass energy (ii) Geothermal energy
   (iii) Solar energy (iv) Hydroelectric energy

5. The efficiency of a fuel cell mainly depends on:
   (i) Fuel type and temperature (ii) Pressure only
   (iii) Size of the cell (iv) Colour of electrodes

SECTION - B (15 Marks)
Answer **ALL** Questions
ALL Questions Carry **EQUAL** Marks (5 x 3 = 15)

6 a) List the different forms of conventional energy.
OR
b) Explain the importance of non-conventional energy resources.

7 a) What are the advantages of solar water heaters?
OR
b) Write short notes on solar cookers and solar greenhouses.

8 a) Define biomass gasification and explain its basic process.
OR
b) List the advantages of biogas plants.

9 a) Mention the different types of geothermal resources.
OR
b) Explain the advantages and disadvantages of small hydro schemes.

10 a) Describe the properties and applications of hydrogen as an energy source.
OR
b) Write short notes on phosphoric acid fuel cells.

Cont...

SECTION -C (30 Marks)

Answer **ALL** questions

ALL questions carry **EQUAL** Marks (5 x 6 = 30)

11 a) Discuss the environmental aspects of conventional and non-conventional energy sources in India.

OR

b) Explain the world energy status and energy consumption pattern.

12 a) Describe the working principles and applications of solar industrial heating systems.

OR

b) Explain the construction and working of a solar pond used for electric power generation.

13 a) Discuss various biomass conversion technologies with neat diagrams.

OR

b) Explain the operation and parameters affecting biogas plants.

14 a) Explain the exploration and development of geothermal resources in India.

OR

b) Discuss the environmental considerations of geothermal energy.

15 a) Describe the classification and working of different types of fuel cells.

OR

b) Discuss hydrogen production, storage, and applications in energy systems.

Z-Z-Z END