

PSG COLLEGE OF ARTS & SCIENCE
(AUTONOMOUS)

MSc DEGREE EXAMINATION MAY 2023
(Fourth Semester)

Branch – PHYSICS

DISCIPLINE SPECIFIC ELECTIVE - II : APPLIED SOLAR ENERGY

Time: Three Hours

Maximum: 50 Marks

SECTION-A (5 Marks)

Answer ALL questions

ALL questions carry EQUAL marks

(5 x 1 = 5)

- 1 Which Meter is used to measure the Beam Radiations _____.
(i) Pyrheliometer (ii) Sunshine Recorder
(iii) Anemometer (iv) All of the above
- 2 In which collector the efficiency is maximum _____.
(i) Flat Plate (ii) Line Focusing
(iii) Evacuated Tube (iv) Paraboloid Dish
- 3 Which of the following houses the process of solar distillation?
(i) Solar thermo-mechanical system (ii) Solar still
(iii) Photovoltaics (iv) Heat engines
- 4 The photovoltaics is divided in to _____.
(i) Crystalline (ii) Thin films
(iii) Both (i) and (ii) (iv) None of the above
- 5 The solar cookers utilizes the _____ energy to cook food.
(i) Infrared rays (ii) Ultraviolet rays
(iii) Gamma rays (iv) None of the above

SECTION - B (15 Marks)

Answer ALL Questions

ALL Questions Carry EQUAL Marks

(5 x 3 = 15)

- 6 a Give the pictorial representation of classification of energy resources.
OR
b State the principle of pyranometer.
- 7 a What is FPC and give its significance.
OR
b Classify solar water heaters and explain.
- 8 a What is basin type solar still and draw its diagram?
OR
b Explain in a few words about solar disc and discuss theoretical solar images.
- 9 a State the heating process of agricultural products.
OR
b Write the principle of photovoltaic devices.
- 10 a State and explain solar pumping.
OR
b Define solar passive space heating.

Cont...

SECTION -C (30 Marks)

Answer ALL questions

ALL questions carry EQUAL Marks

(5 x 6= 30)

- 11 a Describe the structure of the sun with a neat diagram.
OR
b With a neat sketch, explain the principle and construction of pyrheliometer.
- 12 a State the principle and explain the installation of solar water heater.
OR
b Write a short note on (i) Thermal losses of FPC (ii) Selection of materials of FPC.
- 13 a Explain the construction and working of solar concentrators and receivers with a neat diagram.
OR
b Outline the theory sun tracking system with a neat sketch.
- 14 a Describe the drying process and types of drier used in agricultural products.
OR
b Elucidate the construction of $\text{Cu}_2\text{S}/\text{CdS}$ solar cells.
- 15 a Explain the principle and construction of box type solar cooker with a neat diagram.
OR
b Write a short note on (i) space cooling (ii) solar green house.

Z-Z-Z

END