(i) Printed Pages : 2 Roll No. .....

(ii) Questions : 7 Sub. Code : 1 0 6 4 5

Exam. Code : 5 0 0 2

Bachelor of Arts (FYUP) 2nd Semester

(2055)

PHYSICS

Paper : Fundamentals of Solar Energy And Applications

Time Allowed : Three Hours] [Maximum Marks : 40

Note :— (1) Attempt **FIVE** questions in all, selecting **TWO** each from Unit-I and Unit-II. Unit-III is compulsory.

(2) Use of non-programmable scientific calculator is allowed.

UNIT—I

1. Describe the principle, construction, and working of Pyranometer as solar radiation measuring instrument. What are its types, applications, advantages and disadvantages ? 8

2. Explain the storage methods of solar energy. Discuss their advantages and challenges. 8

3. What are different types of radiation reaching on the surface of Earth from Sun ? Discuss the factors affecting the availability of Solar radiation on Earth's surface. How do geographical and atmospheric conditions influence it ? 8

UNIT—II

4. Explain the principle and significance of the Solar photovoltaic effect. Discuss its different types. Compare their efficiency and applications. 8

5. Discuss the role of Solar thermal collectors in harnessing Solar energy. Compare different types with examples. 8

6. Explain the principle, construction, working and applications of (a) Solar hot water systems (b) Solar distillation systems. 8

UNIT—III

7. Attempt **8** parts. Each part carries **1** mark :

(1) What is the spectral distribution of Solar radiation ?

(2) How do multi-junction Solar cells differ from conventional Solar cells ?

(3) Define photo voltaic effect.

(4) What is the difference between direct and diffuse Solar radiation ?

(5) What are the main advantages of using Solar energy ?

(6) How does a Maximum Power Point Tracker (MPPT) improve the efficiency of a PV system ?

(7) Define Solar constant.

(8) What are the ways to store Solar energy ?

(9) What is the principle of Solar home lighting system ?

(10) Discuss one major difference between a pyranometer and a pyrheliometer. $8 \times 1 = 8$