R18 Regulation *Subject code: 20BAA*

TKR COLLEGE OF ENGINEERING AND TECHNOLOGY

(Autonomous, Accredited by NAAC with 'A' Grade)

B.Tech VIII Semester Regular Examinations, June 2022

SOLAR ENERGY APPLIANCES

(Civil Engineering)

Maximum Marks: 70 Date:20.06.2022 Duration: 3 hours

Note: 1.This question paper contains two parts A and B.
2. Part A is compulsory which carries 20 marks. Answer all questions in Part A.
3. Part B consists of 5 Units. Answer any one full question from each unit which carries 10M.
4. Each question carries 10 marks and may have a, b, c, d as sub questions.

Part-A

All the following questions carry equal marks (10x2M=20 Marks)

1 List the characteristics of a solar PV cell.
2 What is a solar lantern?
3 List the parts of a parabolic solar cooker.
4 Mention the advantages of solar cookers.
5 What is the need for solar dryer?
6 Mention the limitations of solar drying.
7 Give the necessity of solar desalination.
8 What is solar disinfection?
9 What is the use of heliostat?
10 What is a solar furnace?

Part-B

Answer All the following questions. (5X10M=50Marks)

11 Explain in detail with a neat sketch of solar home lightings. 10

OR

12 Discuss the environmental and financial issues in rural electrification using solar power. 10
13 Explain the construction and working of any two types of solar cooker. 10

OR

14 Give a detailed account of performance testing of solar cooker and its feasibility for domestic applications in India. 10
15 Explain the Forced circulation type dryer with a neat sketch. List its merits and limitations. 10

OR

16 (a) What are the advantages of solar dryers over traditional open sun drying? 4
(b) Explain the working of a mixed mode type solar dryer. 6
17 Explain the following: 10
(a) Conventional versus solar desalination. (b) Basics of solar still.

OR

18 Explain how a solar disinfection works and list out its merits and demerits. 10
19 Describe the components of a multiple heliostat solar furnace with a schematic layout. Mention its applications and limitations. 10

OR

20 Explain the design of a single concentrator solar furnace for a small heat treatment plant. 10