Birla Institute of Technology and Science, Pilani
ME F433 Solar Thermal Process Engineering
Mid Sem (Open Book)

Time: 90 minutes　　　　Weightage: 25%　　　　Date: 12 / 03 / 2022

Note: Assume suitable data wherever necessary.
Underline the answers and the assumptions you make.

Q.1 Calculate the number of daylight hours (sunshine hours) in Srinagar (34° 05′N) on 1st January and 1st July. [8]

Q.2 Institute's swimming pool remains closed during winter season. Please suggest sustainable solutions for making it operational in winter. Which one will be most efficient solution and why? Justify with neat sketch. [10]

Q.3 The differently-abled students of Amla Birla Kendra Pilani make wax candles and sell them. Suggest a cheaper and most efficient solar energy application (with neat sketch and working) to help them in making wax candles. [10]

Q.4. Akshay super market procures red chilies and need to dry it. Suggest a self-sustained solution with neat sketch such that the system does not need any external power, also it should be a fast operation. Also explain the important parameters which you will be monitoring in the proposed system and why? [7]

Q.5. Can we find beam radiation by using Pyranometers only? Justify your answer with suitable sketch. [3]

Q.6. Which kind of Solar thermal system can be installed in Shiv Ganga at Pilani campus and why? Explain with neat sketch the various ways that energy may be utilized along with advantages and limitations. [7]

Q.7. Suggest possible system(s) with neat sketch for use of solar energy to meet the cooking needs of the hostel messes. [4]

*****BEST LUCK*****