SCHOOL OF MECHANICAL ENGINEERING

Continuous Assessment Test – I, August-2019
B.Tech, Fall Semester-2019-20

Class Nbr. : VL2019201001110

Course Code : MEE1011

Course Name : Renewable Energy Sources

Faculty-In-Charge : Dr. A K Behura

Duration : 90 Minutes.

Max. Marks : 50

Slot : A1+TA1+V1

All Questions are compulsory

Question (5 X 10 = 50 Marks)

Q. No.

1. Write brief notes on "Energy Conservation" and "Energy efficiency" with neat sketches.

2. Find the Sun rise time and Sun Set time, day length @ VIT University on 13th August 2019. Take the latitude and longitude @ VIT is, Latitude $(\emptyset)$ = 12.98° N, Longitude = 79.133° E.

3. Determine the following angles at 3.30 pm on 10th August 2019 @ Kolkata (22°39' N, 83°14' E). Assume Tilt angle of 12.6° (towards south) (i) Hour angles (ω) (ii) Incident angle (θ) (iii) Zenith Angle (θ_z) (iv) Altitude angle (α) (v) Solar Azimuth angle (γ_s) (vi) Surface Azimuth angle (γ).

4. List out solar radiation measuring instruments and also explain the construction and working principle of solar air heater.

5. Explain the construction and working principle of Parabolic dish reflector and parabolic trough collector.