BIRLA INSTITUTE OF TECHNOLOGY, MESRA, RANCHI
(MID SEMESTER EXAMINATION)

CLASS: BE   SEMESTER: VII
BRANCH: EEE/CIVIL   SESSION : MO/2018

SUBJECT : MEE2157 RENEWABLE SOURCES OF ELECTRICAL ENERGY

TIME: 1.5 HOURS   FULL MARKS: 25

INSTRUCTIONS:
1. The total marks of the questions are 30.
2. Candidates may attempt for all 30 marks.
3. In those cases where the marks obtained exceed 25 marks, the excess will be ignored.
4. Before attempting the question paper, be sure that you have got the correct question paper.
5. The missing data, if any, may be assumed suitably.

Q1 (a) Define Renewable sources of Energy. It is much sought after energy source why?   [2]
    (b) What is Flexibility Mechanism? Name and explain few Flexibility Mechanism.   [3]

Q2 (a) Write down the energy received by Earth from Sun? What is per Annum Energy   [2]
         requirement of the world? Is energy from Sun, enough for World's requirement?
    (b) Write down some features of Kyoto Protocol or Paris Accord.   [3]

Q3   Determine the average value of solar radiation on a horizontal surface for June 22, at   [5]
         the Latitude 10°N, if constant 'a' & 'b' are 0.3 & 0.51. Ratio of (l_{av} / l_m)=0.55. Explain
         different types of Solar Collector in Brief.

Q4 (a) Write down the components of flat plate collector.   [2]
    (b) (i) What do you mean by Tracking and Non Tracking type of Solar Collector?   [3]
         (ii) What do you mean by Line focussing & Point focussing Solar Collector?

Q5 (a) Draw Current versus voltage and power Versus Voltage characteristic of Solar PV cell.   [2]
    (b) With a block diagram explain How solar PV array can meet energy demand of stand alone   [3]
         Rural energy requirement.

Q6 (a) What is Wind power conversion system? Classify Wind turbines.   [2]
    (b) Velocity of wind is 15 m/s, Take density of wind 1.226 kg/m^3 Diameter of turbine is 120m.   [3]
         Find out (i)power in wind. (ii)maximum possible power out put considering maximum
         Efficiency.

:::::: 18/09/2018 ::::::M