Code No: 138GW **R16**

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
B. Tech IV Year II Semester Examinations, September - 2020
RENEWABLE ENERGY SOURCES
(Common to CE, ME, ECE, MIE)

Time: 2 Hours **Max. Marks: 75**

Answer any Five Questions
All Questions Carry Equal Marks
- - -

1.a) "Renewable energy options will mitigate global warming". Justify the statement in brief.
b) Briefly explain the global and Indian energy scenario. [8+7]

2.a) Differentiate renewable and non renewable energy sources and state their relative merits and demerits.
b) What are sustainable developments and what are the ways of achieving sustainable development? [7+8]

3.a) Define solar constant. What are the reasons for variation in solar radiation reaching the earth and that received outside the earth atmosphere?
b) Explain the working of pyranometer with the help of a neat sketch. [8+7]

4.a) Define beam, diffused and global radiation. Define what is Solar constant and Differentiate Extra terrestrial and terrestrial radiation.
b) With the help of schematic diagram, explain the working of solar pond electric power plant. [8+7]

5.a) Compare horizontal and vertical axis windmills and briefly list of various types of rotar systems.
b) What is Betz limit and show that a wind turbine cannot extract more than 59.3% wind energy? [8+7]

6.a) Briefly discuss the criteria involved in the selection of site for wind turbine installation.
b) What do you understand by demand side management and what is energy wheeling?[7+8]

7.a) Explain in brief about different biomass resources.
b) Classify biogas plants and discuss the parameters that affect the performance of biogas digester. [7+8]

8.a) Describe the construction and working of any one type of wave energy conversion machine.
b) Show that wave power is directly proportional to the square of amplitude and inversely proportion to the period of wave. [7+8]

---ooOoo---