16/12/2015

DOON UNIVERSITY, DEHRADUN

Semester Final Examination, First Semester, 2015

School of Environment & Natural Resources

M.Sc. (Natural Resource Management)

Course: ENR – 512: Energy Resources and their Management

MM: 50 Duration: 3 Hours

Note: Attempt all questions

Q1: Define any five. **(2x5= 10)**

a) Declination angle
b) Zenith angle
c) Solar Azimuth angle
d) Fin Efficiency
e) Solar constant
f) Air Mass
g) OTEC
h) Geothermal Power

Q2: Attempt any five questions. **(5x5=25)**

a) How direct solar radiation is measurement. Discuss the principle and working of the instrument used.
b) Discuss various components of a solar flat plate collector.
c) Why hydro power is preferred over thermal power?
d) How the use of renewable energy can support the climate change concerns?
e) How Tides are generated? Explain the Environmental Impacts of Tidal Energy.
f) Write short note on Trans- esterification and pyrolysis process.

Q3: Attempt any two questions. **(7.5x2=15)**

(a) Define Solidity, nacelle, power coefficient, cut-in, cut-out and design speed of a wind machine.
(b) Make a diagram of a wind generator and discuss its important components with significance.
(c) Draw a diagram of a hydro power plant. Define catchment area, dam, penstock, tailrace and turbines of a hydropower plant.
(d) Explain the types of Geothermal Power Conversion System with the help of flow diagram.