EEE 1058

B.E. (Electronics and Communication Engineering)

Eighth Semester

EE-801: Non-Conventional Energy Sources

Time allowed: 3 Hours

Max. Marks: 50

NOTE: Attempt _five_ questions in all, including Question No. I which is compulsory and selecting two questions from each Unit.

x-x-x

I. Attempt the following:-

a) Write the limitations of conventional sources of energy?

b) Define practical MHD generators?

c) What are losses affecting flat plate collectors?

d) Define enthalpy and entropy in a fuel cell?

e) Draw a layout of tidal power cycle. (5x2)

UNIT – I

II. Explain the difference between the working principle of open and closed types of MHD power generation systems. Discuss their applications and materials required for its power generation. (10)

III. Describe with a neat sketch the construction of thermoelectric generators. Give their application and comment on its economic aspect? (10)

IV. A solar cell of $0.8 cm^2$ receives solar radiations of 2eV energy having an intensity of $0.8 mW/cm^2$. The open circuit voltage is about 0.5V/cm and the short circuit current of 8mA/cm². If the maximum current is 4 mA/cm² and efficiency is 50%, then calculate the maximum voltage and the fill factor? (10)

UNIT – II

V. Explain the working of a PEMFC. What are its electrochemical reactions and its main components? Give its advantages and disadvantages on other fuel cells also. (10)

VI. a) Explain in detail, the wind machines.
b) Give the characteristics of wind turbines and suitable wind power sites? (10)

VII. Explain the method of utilization of a double basin arrangement for tidal energy. What are the requirements for generating power from the energy of tides? Give the potential resources of tidal energy in India? (10)

x-x-x