Exam. Code: 0943
Sub. Code: 7070

1129

B.E. (Mechanical Engineering)
Seventh Semester
Elective – I
MEC-705 (c): Renewable 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) What is pyrolysis in biofuels?

b) DRAW the neat sketch of solar furnace.

c) Relate solar thermal system with respect to space heating.

d) Write one combustion characteristic of biofuels.

e) Classify biomass plant. Write names only.

f) Write two uses of OTEC system.

g) What are two main applications of wind energy?

h) Define tidal head and duration.

i) What is the nature of geothermal resources?

j) List the advantages of renewable energy resources. (10x1)

UNIT – I

II. Describe the pumping and direct heating application of wind power. (10)

III. Compare the working and construction features of fixed bed gasifiers and fluidized bed gasifiers. (10)

IV. Draw neat sketch of domestic biogas plant, and explain it. (6,4)

UNIT – II

V. a) Explain thermochemical and bio chemical conversions technology for biomass.
b) Explain the different types of bio fuels. (6,4)

P.T.O.

VI. a) Calculate the angle made by beam radiation with the normal to flat collector, pointing due south location in New Delhi (28° 38' N, 77° 17' E) at 9:00 hour, solar time on December 1. The collector is tilted at angle of 36° with the horizontal.

b) What are the main advantages of flat plate solar system? (6,4)

VII. What is the source of tidal energy? What is the minimum tidal range required for practical tidal plant? What are the main hurdles in the development of tidal energy? (10)

x-x-x