MAULANA ABUL KALAM AZAD UNIVERSITY OF TECHNOLOGY, WEST BENGAL

Paper Code : EC802C RENEWABLE ENERGY (EE)

UPID : 008035

Time Allotted : 3 Hours *Full Marks :70*

The Figures in the margin indicate full marks.
Candidate are required to give their answers in their own words as far as practicable

Group-A (Very Short Answer Type Question)

1. Answer any ten of the following : [1 x 10 = 10]

(I) Storage of biomass energy is
a)Very difficult
b)inbuilt feature
c)Expensive
d)impossible

(II) What are the 5 types of biofuel?

(III) Wave energy is basically harnessed in the form of
a)Chemical Energy
b) Thermal Energy
c) Mechanical Energy
d)Electrical Energy

(IV) Where is the world's first geothermal electric power plant located?

(V) What is the efficiency of a fuel cell?

(VI) What is the production of fuel from jatropha per hectare land ?

(VII) What is the range lies in the Power coefficient for a good wind turbine?

(VIII) An induction generator controller (IGC), controls
a) Only the voltage and not the frequency
b) Only the frequency not the voltage
c) Both the voltage as well as the frequency
d) The power input to the generator

(IX) The percentage of ethanol in blended petrol is
a) 20%
b) 30%
c) 4%
d) 50%

(X) What is the nature of jatropha oil?

(XI) What is the standard value of solar constant?

(XII) Photovoltaic cell is basically a
a) p-n junction
b) photo transistor
c) Amorphous p-n junction
d) None of these

Group-B (Short Answer Type Question)

Answer any three of the following : [5 x 3 = 15]

2. What are the merits and demerits of geothermal energy? [5]
3. Explain the major application of wind power. [5]
4. Describe the basic principle of operation of a MHD generation [5]
5. What is the present status of development of biomass energy resources of India. [5]
6. Explain Speed Control Strategies for wind turbine [5]

Group-C (Long Answer Type Question)

Answer any three of the following : [15 x 3 = 45]

7. (a) Discuss the classification of wind turbines on the basis of axis of rotation. [8]
   (b) What are the different rotors used in wind turbines? [7]
8. (a) a) What are tidal waves? How can power be produced in a single basin tidal system? [8]
   (b) b) Explain the working of the double basin tidal system. [7]
9. With the help of block diagrams explain the operation of standalone and grid interactive SPV systems. [15]
10. (a) With the help of a schematic diagram explaining the working of solar water heating systems. [7]
    (b) Draw a schematic diagram of a solar pond based electric power plant with cooling tower and explain its working. [8]
11. (a) With the help of a neat diagram explaining the layout of a typical micro hydro plant. [7]
    (b) Explain the various types of turbines considered for use in micro hydro resources. [8]

*** END OF PAPER ***