

EE-8401**B.E. VIII Semester**

Examination, June 2016

Renewable and Non-Conventional Energy Systems**(Elective-IV)****Time : Three Hours****Maximum Marks : 70**

Note: i) Answer five questions. In each question part A, B, C is compulsory and D part has internal choice.

ii) All parts of each questions are to be attempted at one place.

iii) All questions carry equal marks, out of which part A and B (Max.50 words) carry 2 marks, part C (Max.100 words) carry 3 marks, part D (Max.400 words) carry 7 marks.

iv) Except numericals, Derivation, Design and Drawing etc.

1. How does environment get affected by the use of the following renewable sources of energy.

a) Wind energy

b) Biomass energy

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c) Solar energy source

d) Explain briefly the following categories of energy conservation measures with example.

i) Short term measures

ii) Medium term measures and

iii) Long term measures

OR

Explain the following in brief :

i) Energy management and its objectives

ii) Electrical load management and its approaches

2. Explain the following terms used in wind energy with appropriate diagrams wherever necessary.

a) Chord line, Mean line, Camber.

b) Swept area, Solidity, Nacelle.

c) Cut in speed, cut out speed, wind rose, wind vane and yaw control.

d) Write a short notes on Wind Energy Generators (WEG).

OR

List the types of small hydro power generating plants. Also explain the working of low head small hydro project on canal.

3. a) Identify different types of solar cells based on material used for their fabrication.

b) Draw V-I characteristics of a solar cell and write the expression for maximum efficiency of a solar cell.

c) Discuss the reasons for low efficiency of a solar cell.

d) What is "Biomass"? Discuss briefly four types of biomass conversion technologies.

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OR

Discuss at least four applications of stand alone type of PV system.

4. a) Identify six wave power zones in India giving brief justification.

b) List various Geothermal resources.

c) What is Fuel cell? Give its types.

d) With the help of a neat sketch explain "Geothermal field".

OR

Explain the basic working principle if a Ocean Thermal Energy Conversion (OTEC) based temperature difference with a neat graph.

5. a) Write five names of instruments used for Energy audit, give their use also.

b) Write the uses of power analyzer.

c) What is the principle on which VFD works?

d) Explain briefly various factors affecting energy efficiency of electric motors.

OR

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What are the purpose of conducting detailed energy audit? Discuss stepwise activities and information collected in this type of energy audit.