

**B.TECH. SEM -VI ELECTRICAL 2014 COURSE (CBCS) :
WINTER - 2017**

SUBJECT : ELECTIVE – II : RENEWABLE ENERGY SYSTEMS

Day : **Friday** Time : **10.00 AM TO 01.00 PM**
Date : **24/11/2017** **W-2017-2205** Max. Marks : 60

N.B.:

- 1) All questions are **COMPULSORY**.
- 2) Figures to the right indicate **FULL** marks.

Q.1 Discuss the global environmental issues. **[10]**

OR

Discuss concept of carbon credits, carbon foot prints, and average carbon emissions per person by country. **[10]**

Q.2 Define the terms with neat diagram: **[10]**

- | | |
|----------------------|-----------------|
| i) Aerodynamics | vi) Pitch angle |
| ii) Air foil | vii) Hub |
| iii) Angle of attack | viii) Camber |
| iv) Leading edge | ix) Yaw control |
| v) Trailing edge | x) Drag force |

OR

Give the classification of wind mills. Describe in brief. **[10]**

Q.3 Discuss the following terms: **[10]**

- | | |
|-----------------------|--------------------------|
| i) Beam radiation | iii) Reflected radiation |
| ii) Diffuse radiation | iv) Total radiation |

OR

Write a short notes on: **[10]**

- i) Solar ponds
- ii) Types of collectors

Q.4 a) Give plant load factor and power generation for day time from 06.00a.m. To 05.00p.m. (Graphical representation) **[05]**

b) Explain solar water pumping system in detail. **[05]**

OR

a) Draw and explain PV IV – characteristics and maximum power point in characteristics. **[05]**

b) Design a roof top solar system for annual requirements of 30,000 kWh and available area 7000 sq.ft. design panel system (No. of panels and strings). **[05]**

Q.5 a) Give types of fuel cells and note on electricity from fuel cells. **[05]**

b) Explain tidal energy generation. Give any one example of working of tidal system in India. **[05]**

OR

a) How cogeneration can be done? Explain with any example. **[05]**

b) Which generating system is suitable for village of Jharkhand of population about 2000? Village is not electrified. **[05]**

Q.6 a) Write a short note on Battery storage & its maintenance. **[05]**

b) Which charge regulators can be used in solar PV system? **[05]**

OR

a) Write a note on pumped water energy storage. **[05]**

b) Which battery is preferred for solar car? Which factors to be considered, for example weight. **[05]**

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