

B.Tech. SEM -VI Electrical 2014 Course (CBCS) : SUMMER - 2019
SUBJECT: ELECTIVE-II: RENEWABLE ENERGY SYSTEMS

Day: Friday
Date: 31/05/2019

Time: 02.30 PM TO 05.30 PM
Max Marks: 60

S-2019-2737

N.B.:

- 1) All questions are **COMPULSORY**.
- 2) Figures to the right indicate **FULL** marks.
- 3) Use of non programmable calculator is **ALLOWED**.
- 4) Assume suitable data, if necessary.

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- Q.1** a) Explain the classification of energy sources in brief. (05)
b) Write a detailed note on global warming and climate change. (05)
- OR**
- a) Explain the concept of CDM. (05)
b) Discuss the factors favoring and against the renewable energy sources. (05)
- Q.2** a) State and brief various types of wind turbines. (05)
b) Explain how tower height affects the various parameters in WES. (05)
- OR**
- a) Explain how maximum power can be achieved by controlling speed. (05)
b) Discuss basic principle of wind energy conversion. List the types of generators used. (05)
- Q.3** a) Write a note on “solar radiation measurements”. (05)
b) Define: (05)
- | | |
|------------------------|------------------|
| i) Latitud0 | iii) Hour angle |
| ii) e angle | iv) Zenith angle |
| iii) Declination angle | |
- OR**
- a) Discuss “solar thermal energy generation”. (05)
b) Determine the local solar time and declination at a location Latitude 23 degree and 15 minutes North, Longitude 77 degree 30 minute East at 13.30 IST is June 19. Equation of time correction is given form standard table= - (1’01”). (05)
- Q.4** a) What is photovoltaic effect? Explain briefly. (05)
b) Write a short note on ‘silicon cell modules’. (05)
- OR**
- a) Discuss grid connected system sizing, design layout, costing and payback periods. (05)
b) Discuss maximum power point tracking, grid autonomy and grid integration issues. (05)
- Q.5** a) What is wave energy? Describe the construction, working and limitations of float wave–power machine. (05)
b) What are the components of cell? Describe working theory of a Fuel Cell (05)
- OR**
- a) Describe briefly the various methods of producing hydrogen. (05)
b) Explain with a schematic diagram the Anaerobic digestion system. (05)
- Q.6** a) What do you mean by energy storage? Describe Battery maintenance and management. (05)
b) Discuss the Role of energy storage in modern Indian grid. (05)
- OR**
- a) Give the comparison between battery and supercapacitor. (05)
b) Explain the pumped water energy storage. (05)