

**M. Tech.-III (Electrical -Power System) (CBCS – 2015 Course) :**  
**WINTER - 2018**  
**SUBJECT : SELF STUDY PAPER – I SOLAR PV AND WIND ENERGY**

Day : Saturday  
Date : 08/12/2018

**W-2018-3287**

Time 11.00 AM TO 02.00 PM  
Max. Marks : 60

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**N.B.**

- 1) All questions are **COMPULSORY**.
  - 2) Figures to the right indicate **FULL** marks.
  - 3) Answers to both the section should be written in **SEPARATE** answer book.
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**SECTION – I**

**Q.1** With neat block diagram explain the functioning of solar PV system. **(10)**

**OR**

Explain in detail how solar PV tracking system works.

**Q.2** Explain the significance of  $\phi$  - F chart method in designing solar PV system. **(10)**

**OR**

Explain the modelling of PV cell with basic equations and circuit diagram.

**Q.3** Explain the Life Cycle Costing of solar energy system. **(10)**

**OR**

What is time value of money? Explain Present Value (PV), Future Value (FV) in detail.

**SECTION – II**

**Q.4** Explain impact of wind turbulence on the performance of wind turbine. **(10)**

**OR**

Derive the power equation of wind turbine.

**Q.5** What are the various instrumentations required for wind turbine generator system? **(10)**

**OR**

Compare between vertical axis and horizontal axis wind turbine with its advantages and disadvantages.

**Q.6** Describe the various components used in wind turbine technology. **(10)**

**OR**

Explain in detail the suitability of 3 blades for wind turbine applications.

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