

**M. ARCH. SEM-III (SUSTAINABLE ARCHITECTURE) (2014  
COURSE) (CBCS) : WINTER - 2017  
SUBJECT: CLEAN TECHNOLOGIES**

Day : **Monday**  
Date : **06/11/2017**

**W-2017-3265**

Time: **10.00 A.M. TO 12.00 NOON**  
Max Marks: 60

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**N.B**

- 1) Solve any **THREE** questions from each section
  - 2) Answers to two sections should be written in separate **ANSWER BOOKS**.
  - 3) All questions carry **10 Marks**
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**SECTION - I**

- Q.1** Define/ Explain (10)
- a) Enlist types of wind mills
  - b) Solar insolation and solar constant
  - c) Enlist types of batteries for energy
  - d) Load factor for energy conversion
  - e) Discuss Hydro power
- Q.2** Write short notes (10)
- a) Types of collectors for solar hot water systems its types and part with sketches
  - b) Energy from biomass.
- Q.3** Describe the following (10)
- a) Describe and differentiate Renewable and non-renewable energy.
  - b) Advantages and limitations for wind power.
- Q.4** Explain geothermal energy and different loop typologies. (10)
- Q.5** Describe scenario of Hydropower in India. (10)

**SECTION - II**

- Q.6** Define/ Explain (10)
- a) Biomass Co-generation in industries
  - b) Basic operation of solar PV cell with sketch
  - c) Fuel cell and its applications
  - d) Enlist various types of Renewable energy sources
  - e) Jawaharlal Nehru National Solar Mission
- Q.7** Write short note on (10)
- a) Ocean thermal energy
  - b) Merits and Demerits of biodiesel in comparison to petrol.
- Q.8** Describe the following (10)
- a) Write a note on environmental issues related to different renewable energy sources.
  - b) Enlist various types of solar PV cells and discuss their merits and demerits.
- Q.9** Elaborate on need for promoting rapid growth of new and renewable energy sector in India. (10)
- Q.10** Describe energy generation with municipal solid and liquid waste. (10)

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