

Roll No .....

**ME-7005(2) (CBGS)****B.E. VII Semester**

Examination, November 2019

**Choice Based Grading System (CBGS)****Power Technology****Time : Three Hours****Maximum Marks : 70**

- Note:** i) Attempt any five questions.  
ii) All questions carry equal marks.

1. a) Define chain reaction. List out advantages and disadvantages of Nuclear Power Station.  
b) What are the reasons for using cadmium as a control rod in nuclear reactor? Suggest other suitable materials for control rod and moderator.
2. a) Write short notes on the following:
  - i) Carbon dating
  - ii) Large Hadron Collider (LHC)
  - iii) Biological effects of radiation
  - iv) Nuclear waste disposalb) Explain the International Thermonuclear Experimental Reactor (ITER) in detail.
3. a) Define the following terms related to solar radiation.
  - i) Diffuse radiation
  - ii) Beam radiation
  - iii) Insolation
  - iv) Solar Constant

- b) Describe in brief, solar thermal energy storage and utilisation.
4. a) Explain the working of solar pond and solar water heaters.  
b) What is the basic principle of wind energy conversion? Describe basic concept of aerodynamics.
5. a) Describe different types of wind turbines on the basis of axis of rotation with the help of neat sketch.  
b) Explain the wind machine classifications and applications.
6. a) List and explain the main constituents of biomass materials.  
b) State various routes of biomass energy conversion to other form of energy.
7. a) Explain biomass general chemical thermodynamics and combustion.  
b) What is hydrogen energy? How hydrogen as an energy source can be stored in different ways?
8. a) What are the different methods for production of Hydrogen?  
b) Explain the working of a fuel cell and list the different types of fuel cells with brief explanation of each type.

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