

M.Tech. Mechanical Engineering Design CBCS Pattern Semester-III  
**MED32(C) - Open Elective - Renewable Energy Technology**

P. Pages : 1

GUG/W/23/14205

Time : Three Hours



Max. Marks : 70

- Notes :
1. All questions carry equal marks.
  2. Due credit will be given to neatness and adequate dimensions.
  3. Assume suitable data wherever necessary.
  4. Diagrams and Chemical equation should be given wherever necessary.
  5. Illustrate your answers wherever necessary with the help of neat sketches.
  6. Solve **any five** questions.

1. a) Describe the future of non-conventional energy sources in India. 7  
b) Describe the today's energy position in India. 7
2. a) Discuss briefly 8  
i) Thermal chemical storage  
ii) Electrical storage  
b) Explain the factors affecting the performance of a flat plate collector. 6
3. a) Explain the devices used for measuring the solar radiation. 9  
b) State the advantages, disadvantages and applications of solar energy. 5
4. a) Explain conventional solar air heater. List the advantages and disadvantages of solar air heater. 8  
b) How are solar collectors classified? Explain any two concentrating collectors. 6
5. a) What is photovoltaic cell? Explain briefly with neat sketch a silicon photovoltaic cell. 7  
b) Explain the working principle of photovoltaic conversion with a neat diagram. 7
6. a) State the basic components of wind energy conversion system. List advantages and disadvantages. 8  
b) Compare vertical axis and horizontal axis wind machines. 6
7. a) What are the biomass resources? State the limitations of utilizing biomass. 7  
b) Explain ocean energy sources. 7
8. Write short note on **any two**. 14  
i) Overview of solar economics.  
ii) Clean development mechanism.  
iii) Components of nuclear reactor.  
iv) Advantages and applications of biogas.

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