

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

Time : Three Hours



**GUG/S/23/14205**

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. Solve **any five** questions.
  5. Illustrate your answers wherever necessary with the help of neat sketches.
  6. Diagrams and Chemical equation should be given wherever necessary.

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|----|------|--|----|
| 1. | a)   | Explain in brief Indian Energy Scenario?   | 7  |
|    | b)   | Write short note on Clean Development Mechanism (CDM).                                     | 7  |
| 2. | a)   | Define the following terms-  | 8  |
|    | i)   | Solar radiation  |    |
|    | ii)  | Thermal collection   |    |
|    | iii) | Solar radiation geometry   |    |
|    | iv)  | Measuring solar radiation  |    |
|    | b)   | Why solar radiation occurs the earth's surface   | 6  |
| 3. | a)   | Discuss the method of solar radiative properties and Characteristics of materials.         | 7  |
|    | b)   | Explain solar air heaters use in method of solar Energy.                                   | 7  |
| 4. | a)   | Write short note on photovoltaic conversion in Renewable energy systems.                   | 7  |
|    | b)   | Write performance of characteristics in photovoltaic Conversion?                           | 7  |
| 5. | a)   | Explain MHD power generation with neat diagram?  | 7  |
|    | b)   | Define the following term-   | 7  |
|    | i)   | Oceans energy  |    |
|    | ii)  | Nuclear energy   |    |
|    | iii) | Wind energy  |    |
| 6. | a)   | Write down the economic analysis of overview of Solar economic of renewable energy system? | 8  |
|    | b)   | Explain cost benefit analysis and its optimization system?                                 | 6  |
| 7. | a)   | explain world's production and reserves of commercial Energy sources?                      | 8  |
|    | b)   | Discuss the solar radiation outside the earth's atmosphere.                                | 6  |
| 8. |      | Write short notes <b>any three</b> .   | 14 |
|    | i)   | Energy alternatives  |    |
|    | ii)  | Solar collection and conversion  |    |
|    | iii) | Concentrating collectors   |    |
|    | iv)  | Photovoltaic conversion  |    |
|    | v)   | Hydropower renewable energy sources.   |    |

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