**TED (21) – 6022C** Reg.No………………

(REVISION-2021) Signature……………...

# DIPLOMA EXAMINATION IN ENGINEERING/TECHNOLOGY/ MANAGEMENT/COMMERCIAL PRACTICE, APRIL - 2025

**RENEWABLE ENERGY TECHNOLOGY**

[Maximum Marks:75] [Time: 3 Hours]

PART-A

1. **Answer *all* the following questions in one word or one sentence. Each question carries**

***‘one’* mark.**

(9 x 1 = 9 Marks)

**Module Outcome Cognitive level**

|  |  |  |  |
| --- | --- | --- | --- |
| 1. | Define Renewable Energy  | M1.01 | R |
| 2. | Write any two different renewable energy technologies | M1.02 | R |
| 3. | Write any 2 applications of solar thermal energy | M2.01 | R |
| 4. | Write the weakness of PV system | M2.03 | U |
| 5. | Write the Types of solar radiations | M3.01 | R |
| 6. | Write the Limitations wind energy | M3.03 | R |
| 7. | What are the applications of bio Energy | M3.02 | R |
| 8. | Define biomass | M4.01 | U |
| 9. | Write the applications of geothermal energy | M4.02 | R |

PART-B

1. **Answer any *eight* questions from the following. Each question carries *‘three’* marks.**

(8 x 3 = 24 Marks)

**Module Outcome Cognitive level**

|  |  |  |  |
| --- | --- | --- | --- |
| 1. | Write the difference between Renewable energy and Nonrenewable energy technologies  | M1.01 | U |
| 2. | Write the Advantages of renewable energy systems  | M1.04 | U |
| 3. | Explain the detail about geothermal energy technologies  | M1.03 | R |
| 4. | Write the difference between solar thermal system and PV system | M2.01 | U |
| 5. | Draw and Explain Photovoltaic electric conversion | M2.03 | R |
| 6. | Explain the Applications of wind energy | M3.01 | U |
| 7. | Explain the detail about site selection of wind energy  | M3.03 | U |
| 8. | Explain the applications of Bio energy | M4.04 | U |
| 9. | Write properties of solid, liquid and gaseous fuel for biomass power plants | M4.02 | U |
| 10. | Write the Advantages bio diesel  | M4.01 | R |

PART-C

Answer all questions. Each question carries *‘seven’* marks

(6 x 7 = 42 Marks)

**Module Outcome Cognitive level**

|  |  |  |  |
| --- | --- | --- | --- |
| III.IV. | Explain the detail about Environmental Aspects of Energy **OR**Explain the detail about Energy Conservation Techniques | M1.05M1.03 | UR |
| V. | With the help of neat sketch explain about solar thermal power stations  **OR**Explain the detail about any 3 PV technologies | M2.01 | U |
| VI. | M2.04 | U |
| VII. | Explain the detail about Wind Map of India and Wind Data and Energy Estimation  **OR** Draw and Explain wind mill | M3.04 | U |
| VIII. | M3.03 | U |
| IX. | A wind turbine with a blade radius of 20 meters operates in an area where the air density is 1.2 kg/m³ and the wind speed is 10 m/s. The turbine has a power coefficient ( C\_p ) of 0.4. find the actual power and power of turbine **OR** Explain the detail about Environmental Aspects of wind energy  | M3.03 | U |
| X. | M3.04 | U |
| XI. | Compare Horizontal axis wind mills vertical axis wind mills  **OR**Draw and explain floating type biogas plant  | M4.03 | U |
| XII. | M4.01 | U |
| XIII. | Explain the detail about geothermal power stations  ORWrite Advantages, limitations and applications of geothermal energy | M4.04 | U |
| XIV. | M4.05 | U |