

R.N.G.PATEL INSTITUTE OF TECHNOLOGY-RNGPIT
(An Autonomous College U/s UGC Act 1956)

B.VOC SEMESTER- I, SEMESTER END EXAMINATION – SUMMER 2025

Subject Code: 1SRE104**Date: 09-06-2025****Subject Name: INTRODUCTION TO RENEWABLE ENERGY SOURCES****Time: 11:00 AM to 01:00 PM****Total Marks: 50****Instructions**

1. It is **compulsory** for students to write **Enrolment No. /Seat No.** on the question paper.
2. Attempt all questions in the question paper.
3. The figures to the right of each question indicate full marks. Make suitable assumptions with proper justification wherever required.
4. Simple, non-programmable scientific calculators are permitted.
5. BL - Bloom's Taxonomy Levels (R-Remember, U-Understanding, A-Application, N-Analyze, E-Evaluate, C-Create), CO - Course Outcomes.

| | Marks | BL | CO |
|---|--------------|-----------|-----------|
| Q.1 Multiple-Choice Questions | [05] | | |
| (a) What is the function of a transformer in a hydropower plant? | 1 | R | 2 |
| (i) To store water | | | |
| (ii) To regulate water flow | | | |
| (iii) To convert mechanical energy to electrical energy | | | |
| (iv) To step up voltage for transmission | | | |
| (b) Which of the following is NOT a type of biomass feedstock? | 1 | U | 3 |
| (i) Agricultural residues | | | |
| (ii) Wood | | | |
| (iii) Municipal solid waste | | | |
| (iv) Solar panels | | | |
| (c) Which renewable energy technology uses mirrors to concentrate sunlight? | 1 | U | 4 |
| (i) Wind energy | | | |
| (ii) Biomass | | | |
| (iii) Geothermal | | | |
| (iv) Solar thermal | | | |
| (d) Which of the following is an emerging renewable energy technology? | 1 | R | 1 |
| (i) Coal power | | | |
| (ii) Nuclear fission | | | |
| (iii) Natural gas | | | |
| (iv) Wind energy | | | |
| (e) The Tidal energy generation generate from? | 1 | R | 1 |
| (i) Solar Radiation | | | |
| (ii) Wind flow | | | |

| | | | |
|--|-------------|---|---|
| Q.2 Attempt Any Three | [15] | | |
| (a) What is renewable energy and types of renewable energy? | 5 | R | 1 |
| (b) Write a short note on emerging trend in tidal energy. | 5 | U | 2 |
| (c) Draw and explain neat schematic arrangement of Hydro power station and discuss function of its constituents. | 5 | U | 2 |
| (d) Describe construction and working of Pyranometer. | 5 | A | 3 |
| Q.3 Attempt Any Three | [15] | | |
| (a) Differentiate between renewable energy and non-renewable energy. | 5 | R | 1 |
| (b) Comparison of Horizontal axis wind mill and Vertical axis wind mill. | 5 | A | 2 |
| (c) Describe working principle of solar cell (PV Cell). | 5 | U | 3 |
| (d) Explain the functions of the following: (i) Dam (ii) spillways (iii) surge tank (iv) draft tube. | 5 | U | 4 |
| Q.4 Attempt Any Three | [15] | | |
| (a) Define geothermal Energy. Explain the types of geothermal resources used. | 5 | R | 2 |
| (b) Explain Basic components of wind energy conversion system (WECS). | 5 | U | 3 |
| (c) Explain the emerging trend in solar thermal energy. | 5 | U | 3 |
| (d) Explain solar street light. | 5 | A | 4 |
