Roll No.						

Total No. of Pages : 02

Total No. of Questions : 11

M.Sc. (Physics) (Sem.-3) SCIENCE OF RENEWABLE SOURCE OF ENERGY Subject Code : MSPH-539-18 M.Code : 76758 Date of Examination : 06-01-2023

Time: 3 Hrs.

Max. Marks : 70

INSTRUCTIONS TO CANDIDATES :

- 1. SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.
- 2. SECTION-B contains SEVEN questions carrying FIVE marks each and students have to attempt any SIX questions.
- 3. SECTION-C contains THREE questions carrying TEN marks each and students have to attempt any TWO questions.

SECTION-A

- 1. Write briefly :
 - a) What are renewable and non-renewable sources of energy?
 - b) What do you mean by reserves of energy?
 - c) Define efficiency of solar cell.
 - d) What is the working principle of solar photovoltaic cell?
 - e) Write a short note on tandem solar cell.
 - f) What do you mean by solar hydrogen?
 - g) Write a short note on fuel cell.
 - h) Briefly explain the safety factors for the hydrogen to be used as a fuel.
 - i) Define the term 'bio-diesel'.
 - j) Define the power coefficient for wind turbine.

SECTION-B

- 2. What are the reserves of energy sources in India? What is the need of alternate energy sources?
- 3. Discuss the various performance characteristics of a solar cell.
- 4. Explain about the solar radiation outside the earth's atmosphere and on the earth's surface.
- 5. Distinguish between photo electrolysis and photocatalytic processes.
- 6. Discuss the advantages and disadvantages of hydrogen as a fuel.
- 7. Discuss the principle and working of Ocean Thermal Energy Conversion (OTEC).
- 8. Describe the production technique for bio-gas and biofuel.

SECTION-C

- 9. Describe concisely the working of various types of solar cells with their efficiency values.
- 10. Describe the structural and electronic characteristics of hydrogen storage materials. Explain with examples in detail.
- 11. Define the power coefficient for wind turbine. Describe the classification and descriptions of wind machines.

NOTE : Disclosure of Identity by writing Mobile No. or Making of passing request on any page of Answer Sheet will lead to UMC against the Student.