

No. of Printed Pages : 3

**MRWE-001**

**MASTER OF SCIENCE (RENEWABLE  
ENERGY AND ENVIRONMENT)**

**Term-End Examination**

**June, 2023**

**MRWE-001 : NANOTECHNOLOGY IN ENERGY  
AND ENVIRONMENT**

*Time : 3 Hours*

*Maximum Marks : 70*

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**Note :** (i) Answer any **seven** questions.

(ii) All questions carry equal marks.

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1. (a) What is Nanotechnology ? Explain the basic concept of Nano Technology with suitable illustration. 5
- (b) Describe Nano size and Nano scale with suitable examples. 5
2. (a) What are the Nano Manufacturing Methods ? Explain any *one* method. 5
- (b) Differentiate between SEM and TEM. 5

**P. T. O.**

3. (a) What is Nano bot ? List out the various applications of Nano bot. 5
- (b) How do you apply or use Nano Technology in to Energy Sector ? Explain in brief. 5
4. (a) What is Energy conversion process ? Explain single stage and multistage energy conversion process. 5
- (b) Explain briefly how Nano-technology could be applied in Solar Energy. 5
5. (a) Describe the integration and performance of Micro-Fuel cell system. 5
- (b) Define Nano Electro-Mechanical Systems (NEMS) ? List out its various benefits. 5
6. (a) Explain the working of Hydrogen storage system with suitable diagram. 5
- (b) What is Green house effect ? Write the various steps to design Solar Green Housing. Explain in brief. 5
7. (a) Explain the working of NP-based optical sensors. 5
- (b) How the waste is treated using Nano scale Biopolymers ? Explain in brief. 5

[ 3 ]

8. (a) How Green Nano Technology could be developed ? Explain with step by step procedure. 5
- (b) Discuss the various applications of Nano Technology in Environment. 5
9. Write short notes on any *two* of the following :  
2×5=10
- (a) Nano Materials
  - (b) Carbon Nano Tubes
  - (c) Pollution Abatement
  - (d) Remediation Process