

No. of Printed Pages : 4

**MRWE-001**

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

**Term-End Examination**

**June, 2026**

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

*Time : 3 Hours*

*Maximum Marks : 70*

---

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

(ii) All questions carry equal marks.

---

1. (a) Define Nanotechnology and discuss its future and challenges. 5
- (b) Describe Nano size and Nano scale with suitable examples. 5

2. (a) Differentiate between Bottom-up approach and Top-down approach. List out the various methods of Top-down and Bottom-up approach. 5
- (b) Explain the working of Scanning Electron Microscope with a suitable diagram. 5
3. (a) How do you apply or use Nano Technology in energy sector ? Explain in brief. 5
- (b) What is Nanomachine ? Discuss its various applications. 5
4. (a) What is Energy Conversion Process ? Explain single-stage and multistage energy conversion process. 5
- (b) What is sputtering ? Explain the process of sputtering with the help of a suitable diagram. 5

5. (a) How does the Nano Technology play an important role in sustainable energy ? Explain in brief. 5
- (b) Define Nano Electro-Mechanical Systems (NEMS) ? List out its various benefits. 5
6. (a) What is Green house effect ? Write step-by-step procedure to design solar green housing. 5
- (b) Discuss the criteria for selection of fuel cell in energy application. 5
7. (a) How are the various environmental factors monitored using sensors ? 5
- (b) How is the waste treated using Nano scale Biopolymers ? Explain in brief. 5
8. (a) What is Remediation ? How is remediation process applied in environment ? 5

- (b) How is the pollution reduced by using Nano Technology and Nano Materials ?  
Explain in brief. 5

9. Write short notes on any *two* of the following :

5+5

- (a) Nano bot
- (b) Drinking Water Treatment
- (c) Nanocomposite Materials
- (d) Carbon Nano Tubes

× × × × ×