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MRWE-001

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

Term-End Examination

June, 2025

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

Time : 3 Hours

Maximum Marks : 70

Note : Answer any **seven** questions. All
questions carry equal marks.

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1. (a) Define Nanotechnology and discuss its
future and challenges. 5
 - (b) Discuss the various tools and
techniques used for synthesizing of
nanomaterials. 5

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2. (a) What are the Nano manufacturing methods ? Explain any *one* method. 5
- (b) Explain the working of scanning electron microscope with a suitable diagram. 5
3. (a) What is a Battery ? How is nanotechnology applied in a Battery ? List out the applications of battery. 5
- (b) What is a Nanomachine ? Discuss its various applications. 5
4. (a) How do you apply (or) use nanotechnology into energy sector ? Explain in brief. 5
- (b) What is sputtering ? Explain the process of sputtering with a suitable diagram. 5
5. (a) Describe the integration and performance of micro-fuel cell system. 5

- (b) What is green house effect ? Explain in brief various steps to design solar green house. 5
6. (a) Explain the working of NP-based optical sensors. 5
- (b) What is the purpose of solar energy storage system ? Write the types and relative advantages of solar energy storage system. 5
7. (a) How is the pollution reduced by using Nanotechnology and Nanomaterials ? Explain in brief. 5
- (b) How Green Nanotechnology could be developed ? Explain in detail. 5
8. (a) How do you monitor the various environmental factors by using sensors ? Explain briefly. 5
- (b) How do you prevent the pollution by using Nanotechnology ? Explain with suitable examples. 5

9. Write short notes on any *two* of the following : 5+5

- (a) Nano-Micro Silicon (Si) composite structure
- (b) Nanosensor
- (c) Green nanomaterials
- (d) Remediation process

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