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MRWE-001

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

Term-End Examination

December, 2025

**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) What do you understand by Nano-technology ? List out its various advantages and limitations. 5

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- (b) What is synthesis of nanomaterials ?
Discuss the various properties of
nanomaterials. 5
2. (a) What are the nanomanufacturing
methods ? Explain any *one* method in
brief. 5
- (b) Differentiate between SEM and TEM. 5
3. (a) What is Battery ? How is nano-
technology applied in battery ? List out
the applications of battery. 5
- (b) What is nanowire ? What are the
methods of producing nanowire ? List
out its applications. 5
4. (a) Explain the role of nano-technology in
solar cell and list its applications. 5
- (b) Explain solar power generation
mechanism with a neat sketch. 5
5. (a) What is Electronic Nose ? List out its
applications. 5

- (b) Describe the integration and performance of micro-fuel cell system. 5
6. (a) Explain the working of hydrogen storage system with suitable diagram. 5
- (b) What are the various techniques used in Silicon (Si) deposition ? Explain any *one* technique. 5
7. (a) Explain the working of micro-fluid system with a suitable diagram. List out its applications. 5
- (b) Explain the working of NP-based electrochemical sensor. 5
8. (a) What is Nanosensor ? How the Nanosensors are used to monitor the various environmental factors ? 5
- (b) How is the environment monitored and purified through small water particles ? Explain in brief. 5

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

- (a) Top-down Approach
- (b) NEMS
- (c) Green House Effect
- (d) Pollution Abatement

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