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MRWE-001

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

Term-End Examination

June, 2024

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

Time : 3 Hours

Maximum Marks : 70

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

(ii) All questions carries equal marks.

1. (a) Define Nano Technology ? List out its various advantages and limitations. 5
- (b) Differentiate between Bottom-up-approach and Top-down approach. List out the various methods of Top-down and Bottom-up approach. 5
2. (a) Explain the working of Atomic Force Microscopy (AFM) with suitable diagram. 5

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- (b) What is Nano Wire ? What are the methods of producing Nano Wire ? List out its applications. 5
3. (a) What is hydrogen storage ? How the hydrogen storage methods are classified ? List out its applications. 5
- (b) Explain the role of Nano Technology in Solar Cell and list out its applications. 5
4. (a) Explain solar power generation mechanism with a neat sketch. 5
- (b) What is greenhouse effect ? Design solar green house. 5
5. (a) How does the Nano Technology play the important role in sustainable energy ? Explain in brief. 5
- (b) What are the various techniques used in Silicon (Si) deposition ? Explain any *one* technique. 5
6. (a) Explain the working of micro fluid system with a suitable diagram. List out its applications. 5

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- (b) Discuss the criteria for the selection of fuel cell in energy application. 5
7. (a) Explain the working of NP-based electrochemical sensor. 5
- (b) How using heavy metal are nano scale biopolymer separated ? Explain in brief. 5
8. (a) What is Nano sensor ? How are Nano sensor designed ? Explain in brief ? 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 :
2×5=10
- (a) LED
- (b) Spluttering process
- (c) Drinking water treatment
- (d) Magnetic nanoparticles