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Question Paper Code	12579
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B.E. / B.Tech. - DEGREE EXAMINATIONS, APRIL / MAY 2024

Seventh Semester

Artificial Intelligence and Data Science

20ECO907 - INDUSTRIAL NANOTECHNOLOGY

Regulations - 2020

Duration: 3 Hours

Max. Marks: 100

PART - A (10 × 2 = 20 Marks)

Answer ALL Questions

	Marks	K- Level	CO
1. List out few advantages of Nano electronic devices.	2	K1	CO1
2. Write different modes of classification of Nanomaterials.	2	K1	CO1
3. What is the need for Armour protection?	2	K1	CO2
4. How is nanotechnology used for biological purposes?	2	K2	CO3
5. What is meant by precision farming in Nanotechnology?	2	K1	CO3
6. What are the classifications of nano fertilizers?	2	K1	CO3
7. List the benefits of nano packaging.	2	K1	CO4
8. How is nanotechnology used for security purpose?	2	K2	CO4
9. What are the toxic effects of nanotechnology?	2	K1	CO5
10. What are the three main components of occupational hygiene?	2	K1	CO6

PART - B (5 × 13 = 65 Marks)

Answer ALL Questions

11. a) Discuss in detail about Nanosensors and actuators.	13	K2	CO1
OR			
b) Explain in detail about IR blocking filters in nanotechnology.	13	K2	CO1
12. a) Briefly explain about Military applications of Nanotechnology.	13	K2	CO2
OR			
b) Describe in detail about how small satellites and space launchers used in Nanotechnology.	13	K2	CO2
13. a) Explain in detail about the concepts of Smart delivery system.	13	K2	CO3
OR			
b) Discuss in detail about Nanotechnology applications in Agriculture.	13	K2	CO3
14. a) Briefly describe about Food processing and food safety in Nanotechnology.	13	K2	CO4

OR

K1 – Remember; K2 – Understand; K3 – Apply; K4 – Analyze; K5 – Evaluate; K6 – Create

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b) Explain how Electrochemical sensors are used for food analysis and contaminant detection. 13 K2 CO4

15. a) Explain in detail about Drinking water and Air/Gas purifications methods. 13 K2 CO5

OR

b) Describe how nanomaterials are used for elimination of pollutants. 13 K2 CO5

PART - C (1 × 15 = 15 Marks)

16. a) Give the detailed description on skin exposure to nanoparticles. 15 K2 CO6

OR

b) Explain in detail about the impact of CNTs on respiratory systems. 15 K2 CO6