

**UNIVERSITY**

(Karunya Institute of Technology & Sciences)

(Declared as Deemed-to-be University under Sec.3 of the UGC Act, 1956)

**Reg. No.: \_\_\_\_\_\_\_\_**

**End Semester Examination – Nov / Dec – 2016**

**Subject Title: NANOTOXICOLOGY AND ETHICS Time: 3 hours**

**Subject Code: 12NT206 Maximum Marks: 100**

**Answer ALL Questions**

**PART – A (10X1=10 MARKS)**

1. Mention any one technique to measure the size of nanoparticles.

2. Give examples of nanotubes.

3. Give an example of zero-dimensional nanostructures.

4. Mention a technique to identify the particle size of nanomaterials.

5. Which property makes the nanoparticles highly reactive?

6. Bulk materials and nanomaterials of the same chemical composition have the same toxicity. Is this statement true or false?

7. Expand: NIOSH

8. What is PMMA?

9. What is micro-needling?

10. What are core–shell nanocrystals?

**PART – B (5 X 3= 15 MARKS)**

11. Define: Sustainable nanotechnology.

12. What are mesostructures?

13. Define: ultrafine particles. Give examples.

14. What are meta-ethics and normative ethics?

15. Mention any three nanotechnology products in the market.

**PART – C (5 X 15= 75 MARKS)**

16. Give a detailed account of the toxicity of carbon nanomaterials.

(OR)

17. Elaborate the nanotoxicology challenges faced by the scientific community.

18. Explain the physicochemical determinants of particle toxicology.

(OR)

19. Comment on the relevance of drug targeting to nanotoxicology.

20. Discuss the skin penetration of nanoparticles.

(OR)

21. Describe the behavior of nanoparticles at the placental barrier.

22. Explain the role of scientists as moral agents in the age of nanomaterials.

(OR)

23. Explain the role of the citizen as a moral agent in the age of nanomaterials.

24. Justify the role of players, funders, and thinkers in controlling nanotechnology products and toxicity related to those.

(OR)

25. Express your views on the citizenship in the nano age.