

First and last name	Note

Exam in Nanomaterials Science and Technology module

EXERCISE 1:

Fill in the blanks by choosing correct alternatives given below:

1. Nanoscience is the study of ____:

A. Phenomena at the scale of single atoms. B. Phenomena on the electron scale. C. Phenomena on the scale of 1-100 nm.

2. The quantum dots are ____ nanomaterials.

A. Zero Dimension. B. One Dimension. C. Two Dimension. D. Three Dimension

3. Nanoparticles are changed its properties due to ____

A. Size. B. Surface area. C. Area. D. Elasticity

4. As the surface area changes the ____, the materials changes.

A. Size. B. Behavior. C. Properties. D. Color.

5. The fullerene is a ____ .

A. Zigzag-type carbon nanotube. B. A carbon molecule (C60). C. Plastic explosive nanoparticles (C4).

D. Concrete nanoparticle with a compressive strength of 20 nanonewtons (C20).

6. Principal of XRD is based on ____

A. Beer-Lambert Law. B. Bragg's Law. C. Both (A) and (B). D. All of the above.

7. Nanotubes have ____ on the nanoscale.

A. Three dimensions. B. Two dimensions. C. Four dimensions. D. Six dimensions.

8. 0.1 nm means ____ Å°.

A. 100 Å° B. 10 Å° C. 1 Å° D. 0.01 Å°

EXERCISE 2:

1. Explain the following: (a) Nanomaterials, (b) Nanoscience and (c) Nanotechnology.

2. How to reduce the surface energy?

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EXERCISE 3:

1. On what basis are nanomaterial's classified?
2. A scanning electron microscopy image of dioxide titanium is shown in the figure below (image a) and calculate of average diameter (image b). What do you see? Briefly explain your observations.

