Week-03: Assignment-03

The due date for submitting this assignment has passed.

As per our records you have not submitted this assignment.

Due on 2021-08-25, 23:59 IST.

1) Surface energy arises due to   *1 point*
- ○ Crystallographic orientation
- ○ Impurity segregation
- ○ Unsaturated or broken bonds
- ○ All of above

No, the answer is incorrect.
Score: 0
Accepted Answers:
Unsaturated or broken bonds

2) Which factor determines the shape of nanomaterials?   *1 point*
- ○ Surface energy
- ○ Lattice parameter
- ○ Anisotropy constant
- ○ Diffusion coefficient

No, the answer is incorrect.
Score: 0
Accepted Answers:
Surface energy

3) Nanoparticles exhibit a high tendency to sintering, even at room temperature, due to   *1 point*
- ○ Surface tension
- ○ Gibbs free energy
- ○ Curvature of nanoparticles
- ○ None of above

No, the answer is incorrect.
Score: 0
Accepted Answers:
Curvature of nanoparticles

4) Number of broken bonds per surface unit depends on the   *1 point*
- ○ Crystallographichic orientation
- ○ Lattice parameter
- ○ Particle size
- ○ None of above

No, the answer is incorrect.
Score: 0
Accepted Answers:
Crystallographichic orientation

5) For FCC metals, the surface energy (γ) of different atomic planes in the order of   *1 point*
- ○ $\gamma\{111\}< \gamma\{100\}< \gamma\{110\}$
- ○ $\gamma\{111\}> \gamma\{100\}>\gamma\{110\}$
- ○ $\gamma\{111\}<\gamma\{100\}= \gamma\{110\}$
- ○ $\gamma\{111\}> \gamma\{100\}=\gamma\{110\}$

No, the answer is incorrect.
Score: 0
Accepted Answers:
$\gamma\{111\}< \gamma\{100\}< \gamma\{110\}$

6) Surface-to-volume ratio of the cylinder with radius r and height H is   *1 point*
- ○ 2/r
- ○ 3/r
- ○ 4/r
- ○ 6/r

No, the answer is incorrect.
Score: 0
Accepted Answers:
2/r

7) The surface area to volume ratio of a cube with an edge side of 1 nm is R1 change to R2 of the cube with a side of 10 nm. Then R2= …R1   *1 point*
- ○ 1/3
- ○ 1/10
- ○ 5
- ○ 3

No, the answer is incorrect.
Score: 0
Accepted Answers:
1/10

8) If a spherical particle with a radius of 10 µm disintegrates into a group of particles with a radius of 10 nm where the total volume remains constant. The increase in surface area by a factor   *1 point*
- ○ 100
- ○ 1000
- ○ 100000
- ○ 1000000

No, the answer is incorrect.
Score: 0
Accepted Answers:
1000

9) What is total number of nanosized particles can be generated if the spherical particle with a radius of 10 µm disintegrates into 10 nm size of nanoparticles ?   *1 point*
- ○ 1 billion
- ○ 1 million
- ○ 1000
- ○ 100

No, the answer is incorrect.
Score: 0
Accepted Answers:
1 billion

10) Number of broken bonds per atom in an FCC crystal on the (100) plane   *1 point*
- ○ 1.5
- ○ 2
- ○ 8
- ○ 12

No, the answer is incorrect.
Score: 0
Accepted Answers:
2