# Assignment 6

1) When the two phases have completely two different crystal structure and the their lattice parameter is differently oriented , the precipitate said to be *1 point*

- Coherent interfaces
- Incoherent interfaces
- Semi coherent interfaces
- Coherent and semi-coherent interfaces

**Accepted Answers:**
*Incoherent interfaces*

2) For zone misfit higher than 5% *1 point*

- Higher effect on interfacial energy than strain energy
- Lower effect on strain energy than interfacial energy
- Effect of interfacial energy and strain energy are same
- Higher effect on strain energy than interfacial energy

**Accepted Answers:**
*Higher effect on strain energy than interfacial energy*

3) For zone misfit 3.5% in Aluminum based alloy Al-Zn alloy , what will be the preferable zone shape- *1 point*

- Disc
- Polyhedral
- Sphere
- Needle

**Accepted Answers:**
*Sphere*

4) Higher the extent of undercooling *1 point*
a-Rate of growth will be high
b-Rate of growth will be low
c-Rate of nucleation will be high
d-Rate of nucleation will be low

Which one is correct statements for the above question

- a,b
- c,d
- a,d
- b,c

**Accepted Answers:**
*b,c*

5) For pure metals growth occurs at a rate controlled by _____ whereas alloy solidification is controlled by _____ ***1 point***

- Solute diffusion, heat conduction diffusion
- Heat conduction diffusion, Solute diffusion
- Heat convection diffusion, Heat radiation diffusion
- Solute diffusion , Heat convection diffusion

**Accepted Answers:**
*Heat conduction diffusion, Solute diffusion*

6) The activation energy barrier against heterogeneous nucleation is ____ than homogeneous nucleation ***1 point***

- Equal
- Larger
- Smaller
- Extremely high

**Accepted Answers:**
*Smaller*

7) Rough interfaces migrates by _____ growth while flat interfaces migrate by ____ growth ***1 point***

- Lateral , continuous
- Radial, discontinuous
- Lateral , radial
- Continuous, lateral

**Accepted Answers:**
*Continuous, lateral*

8) Odd one out for lateral growth ways ***1 point***

- Twin boundaries
- Spiral growth
- No surface nucleation
- Repeated surface nucleation

**Accepted Answers:**
*No surface nucleation*

9) When solid grows into a supersaturated liquid, ***1 point***

- a planer S/L interfaces is stable

- a planer S/S interfaces is stable
- a planer L/L interfaces is stable
- a planer S/L interfaces is unstable

**Accepted Answers:**
*a planer S/L interfaces is stable*

10) which system does not form dendrites structure at room temperature ***1 point***

- Cu-Sn alloy
- Al-Cu alloy
- Fe-2wt%Fe3C alloy
- Pb-Sn alloy

**Accepted Answers:**
*Fe-2wt%Fe3C alloy*