Assignment 7

.

1) Both nucleation and growth require change in free energy to be _____.　　　*1 point*

- ○ –ve
- ○ zero
- ○ +ve
- ○ Any

Accepted Answers:
–ve

2) During homogeneous nucleation, critical size of a particle _____ with increase in under-　　　*1 point*
cooling.

- ○ Increasing
- ○ Decreasing
- ○ Won't change
- ○ Not releated

Accepted Answers:
Decreasing

3) Not a typical site for nucleation during solid state transformation　　　*1 point*

- ○ Container wall
- ○ Grain boundaries
- ○ Stacking faults
- ○ Dislocations

Accepted Answers:
Container wall

4) Growth occurs by　　　*1 point*

- ○ Diffusion controlled individual movement of atoms
- ○ Diffusion-less collective movement of atoms
- ○ Both
- ○ None

Accepted Answers:
Both

5) Constitutional undercooling arises when   *1 point*

○ Temperature gradient is less than critical gradient
○ Temperature gradient is higher than critical gradient
○ Temperature gradient is equal to critical gradient
○ No relation between them

Accepted Answers:
Temperature gradient is less than critical gradient

6) Cell and dendrite arm spacing both decreases with increasing cooling rate   *1 point*

○ High time for the lateral diffusion
○ Less time for lateral diffusion
○ Does not depend on diffusion
○ Temperature gradient

Accepted Answers:
Less time for lateral diffusion

7) Sequence of formation of three different zones in solidified alloys ingot   *1 point*

○ Columnar zone – equiaxed zone- chill zone
○ Chill zone- eqiaxed zone- columnar zone
○ Chill zone-columnar zone- equiaxed zone
○ Equiaxed zone- chill zone- columnar zone

Accepted Answers:
Chill zone-columnar zone- equiaxed zone

8) Pick the odd one in the following   *1 point*

○ Massive transformation
○ Polymorphic transformation
○ Ordering transformation
○ Martensitic transformation

Accepted Answers:
Massive transformation

9) Single component systems when different crystal structure are stable over different   *1 point*
temperature ranges are known as

○ Polymorphic transformation
○ Ordering transformation
○ Eutectoid transformation
○ Massive transformation

Accepted Answers:
Polymorphic transformation

10) Higher the undercooling,   *1 point*

○ Smaller the interplaner spacing
○ Larger the interplaner spacing
○ No effect on interplaner spacing
○
None of them

Accepted Answers:
Smaller the interplaner spacing