X

Assignment 2

1) In which of the following condition, do we get phase separation ? ***1 point***

- Ω > 0, T = high
- Ω < 0, T = low
- Ω < 0, T = high
- Ω > 0, T = low

Accepted Answers:
Ω > 0, T = low

2) The structure of β' brass is ***1 point***

- FCC
- BCC
- HCP
- B2
- BCT

Accepted Answers:
B2

3) Number of octahedral and tetrahedral voids per unit cell in FCC are _____ and _____ respectively. ***1 point***

- 4,8
- 8,4
- 4,6
- 8,6
- 4,4

Accepted Answers:
4,8

4) It is difficult to make 100% pure metals because of ***1 point***

- Decrease in entropy of the system
- Decrease in Gibbs free energy of the system

- Increase in Gibbs free energy of the system
- Increase in entropy of the system
- Increase in enthalpy of the system

Accepted Answers:
Increase in Gibbs free energy of the system

5) L--- γ + Fe3C in Fe-C phase diagram is _____ ***1 point***

- Pearlite
- Bainite
- Martensite
- Ledeburite
- Austenite

Accepted Answers:
Ledeburite

6) Number of octahedral and tetrahedral voids in per unit cell BCC are _____ and _____ respectively. ***1 point***

- 12,6
- 6,12
- 4,8
- 8,4

Accepted Answers:
6,12

7) Which of the following does not have L12 structure ? ***1 point***

- Ni3Al
- Au3Cu
- Ni3Si
- β brass

Accepted Answers:
β brass

8) For quasichemical theory of solutions, ΔHmix = ***1 point***

- Ω*A*B
- 0
- -Ω*A*B
- Ω
- Ω*B

Accepted Answers:
*Ω*A*B*

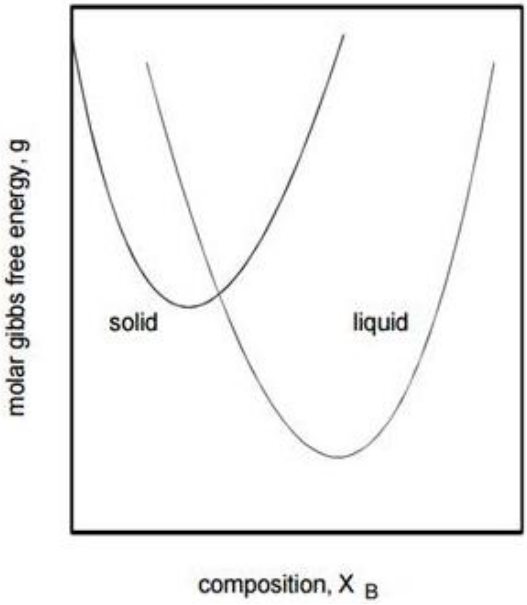
9) For 2 phases to be in equilibrium, which of the following condition must be satisfied ? ***1 point***

- $\mu_A^\alpha = \mu_A^\gamma$ and $\mu_B^\alpha = \mu_B^\gamma$
- $\mu_A^\alpha = \mu_B^\alpha$ and $\mu_A^\gamma = \mu_B^\gamma$
- $\mu_A^\alpha = \mu_B^\gamma$
- $\mu_A^\gamma = \mu_B^\alpha$

Accepted Answers:

$\mu_A^\alpha = \mu_A^\gamma$ and $\mu_B^\alpha = \mu_B^\gamma$

10) At the crossover point in the following G vs X curve, ***1 point***



- Solid is stable
- Liquid is stable
- Both are stable
- None are stable

Accepted Answers:
Both are stable

11) In Ni3Al, when Ni site is occupied by Al, it leads to _____ of order parameter. ***1 point***

- Reduction
- Increase
- No change
- Cannot be defined

Accepted Answers:
Reduction

12) The structure of AuCu is ***1 point***

- L21
- B2
- L12

- A2

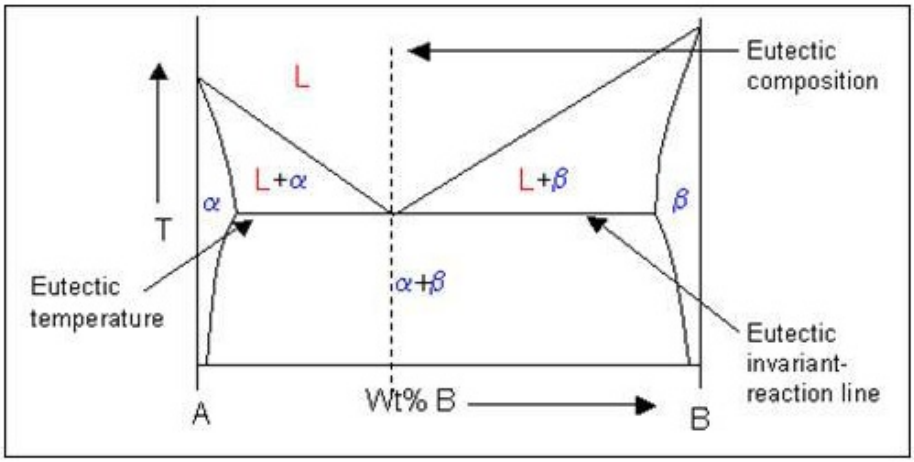
Accepted Answers:
L21

13) Free energy change for a general solution is given by **1 point**

- dG = VdT – SdP + ∑μdx
- dG = VdP – SdT + ∑μdx
- dG = TdS – VdP + ∑μdx
- None of these

Accepted Answers:
dG = VdP – SdT + ∑μdx

14) Phase α can be defined as **1 point**



- Solid solution of A solute in B
- Solid solution of B solute in A
- Solid solution of A and B in equal proportion
- None of these

Accepted Answers:
Solid solution of B solute in A

15) Equilibrium condition is given by **1 point**

- dG = 0
- dS = 0
- dH = 0
- dT = 0

Accepted Answers:
dG = 0

16) A necessary criteria for any phase transformation is _____, where G1 and G2 are free energy of initial and final states, respectively. **1 point**

- G1 – G2 < 0
- G2 – G1 < 0
- G2 – G1= 0
- None of these

Accepted Answers:
G2 – G1 < 0

17) Which of the following is not correct for ideal solutions ? ***1 point***

- ΔT = 0
- ΔHmix = 0
- ΔG = -TΔS
- ΔVmix = 0

Accepted Answers:
ΔT = 0