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NPTEL

reviewer1@nptel.iitm.ac.in ▼

Courses » Phase Diagrams in Materials Science and Engineering

Announcements Course Ask a Question Progress Mentor

Unit 7 - Week 6

Course outline

How to access the portal

Week 1

Week 2

Week 3

Week 4

Week 5

Week 6

● Lecture 22 :
Quasichemical theory-I

● Lecture 23 :
Quasichemical theory-II

● Lecture 24 :
Quasichemical Theory_Free Energy Formalism

● Lecture 25 :
Solid State Reaction

○ Quiz : Week 6 Assignment 6

Week 7

Week 8

Week 9

Week 10

Week 11

Week 12

Week 13

Week 6 Assignment 6

The due date for submitting this assignment has passed. **Due on 2016-03-04, 23:55 IST.**

Submitted assignment

1) Forming stable solid solution between two elements A and B. The driving force to form stable solution is ? **2 points**

- Entropy
- Configurational Entropy
- Free energy
- None

No, the answer is incorrect.

Score: 0

Accepted Answers:

Configurational Entropy

2) The statement "**The configurational entropy of solution of B in A is always higher than that of pure A or pure B**" **2 points**

- True
- False
- Partially True
- Cannot Say

No, the answer is incorrect.

Score: 0

Accepted Answers:

True

3) For ideal solution- **2 points**

- $\Delta G_{mix} = 0$
- $\Delta H_{mix} = 0$
- both above
- none

No, the answer is incorrect.

Score: 0

Accepted Answers:

$\Delta H_{mix} = 0$

4) The Statement is "**Entropy has one contribution in a solution. configurational entropy (Sconf) is on account of number of ways in which the atoms can be arranged on the lattice sites**" **2 points**

Assignment Solutions

- True
- False
- Cannot Say
- None

No, the answer is incorrect.

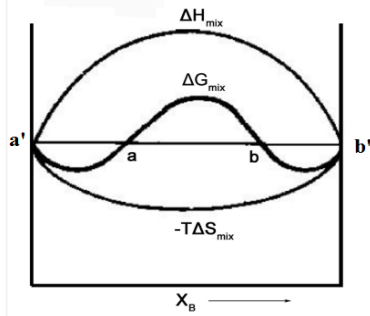
Score: 0

Accepted Answers:

False

5) Find out the region where solution formation is impossible-

2 points



- a' to a
- a to b
- b to b'
- a' to b'

No, the answer is incorrect.

Score: 0

Accepted Answers:

a to b

6) Find out the corresponding plot for following condition-

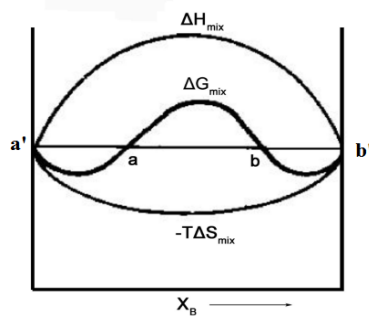
2 points

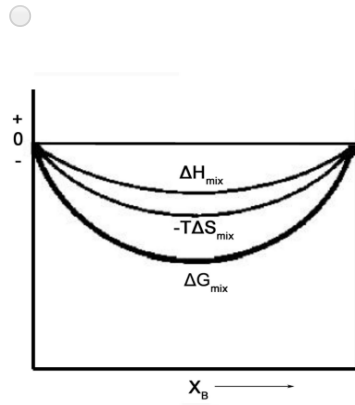
$c < 0$, Low T

where,

$$c = N_a Z \left[E_{AB} - \frac{1}{2}(E_{AA} + E_{BB}) \right]$$

-



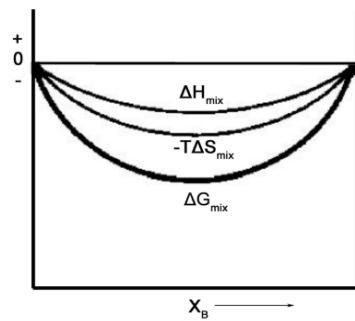


- Both above
 None

No, the answer is incorrect.

Score: 0

Accepted Answers:



7) Eutectoid Reaction is ?

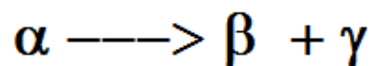
2 points

- $\alpha \longrightarrow \beta + \gamma$
- $\beta + L \xrightarrow{\text{cooling}} \gamma$
- $\alpha + \beta \longrightarrow \gamma$
- None

No, the answer is incorrect.

Score: 0

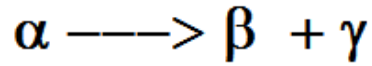
Accepted Answers:



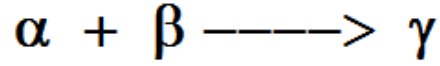
8) Peritectoid reaction is ?

2 points

- $\gamma \xrightarrow{\text{heating}} \beta + L$
- $\alpha + \beta \longrightarrow \gamma$



All Above

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

9) The Statement **"When two metals are mixed together they form an alloy if one metal is soluble in the other one in solid state. Therefore, an alloy is a solid solution of two or more metals"** **2 points**



False



True



Partially True



Cannot Say

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

10) The statement **"If $\Delta H_{mix} > 0$, formation of like bonds (A-A or B-B) is preferred in a solid solution between metals A and B. This known as clustering"** **2 points**



True



False



Cannot say



None

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