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Courses » Phase Diagrams in Materials Science and Engineering

Announcements Course Ask a Question Progress Mentor

Unit 6 - Week 5

Course outline

How to access the portal

Week 1

Week 2

Week 3

Week 4

Week 5

- Lecture 18 : Intermediate Phases
- Lecture 19 : Introduction to Monotectic Phase Diagram
- Lecture 20 : Microstructural Evolution of Monotectic Phase Diagram
- Lecture 21 : Free Energy Composition diagrams for Monotectic systems and Syntactic phase diagram

○ Quiz : Week 5 Assignment 5

Week 6

Week 7

Week 8

Week 9

Week 10

Week 11

Week 5 Assignment 5

The due date for submitting this assignment has passed. **Due on 2016-02-23, 23:55 IST.**

Submitted assignment

1) At what temperature does water and kerosene mix? 2 points

- They do not mix at any temperature
- 20C
- 30C
- 40C

No, the answer is incorrect.

Score: 0

Accepted Answers:

40C

2) Every monotectic reaction is followed by a ---- or ---- reaction. 2 points

- Eutectic, Syntactic
- Eutectic, Peritectic
- Syntactic, Peritectic
- None of the above

No, the answer is incorrect.

Score: 0

Accepted Answers:

Eutectic, Peritectic

3) The monotectic reaction is given by -----, where L stands for liquid and α , b are solid phases 2 points

- $\alpha + b \rightleftharpoons L$
- $L + \alpha \rightleftharpoons b$
- $L_1 + L_2 \rightleftharpoons b$
- $L_1 \rightleftharpoons b + L_2$

No, the answer is incorrect.

Score: 0

Accepted Answers:

$L_1 \rightleftharpoons b + L_2$

4) The intermediate phases obtained by peritectic and syntectic reactions belong to the congruently melting category 2 points

- True

Week 12

Week 13

Assignment
Solutions

- False
 Can't Say

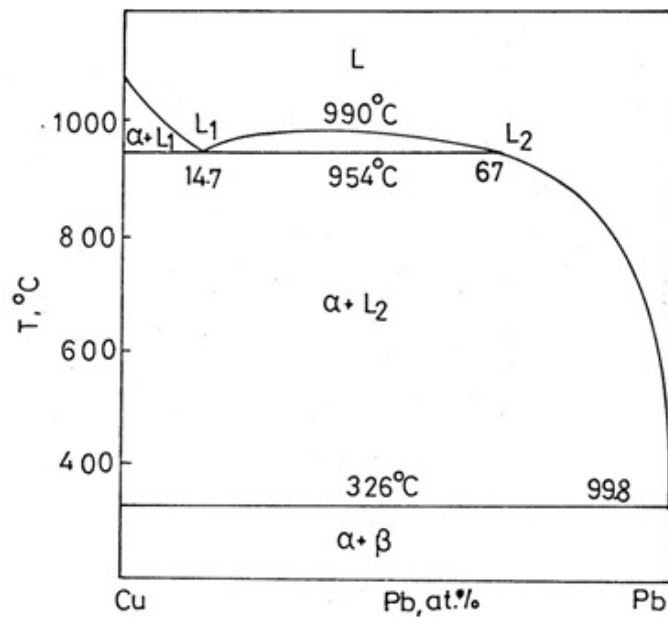
No, the answer is incorrect.**Score: 0****Accepted Answers:***True*

5) Which of the following is an example of β -brass and γ -brass electron compound **2 points**

- CuAl_2
 Cu_9Al_4
 Cu_2Al
 Cu_3Al

No, the answer is incorrect.**Score: 0****Accepted Answers:** *Cu_9Al_4* *Cu_3Al*

6) A hypomonotectic alloy of composition Cu-9 at% Pb is allowed to cool **2 points**
 under equilibrium. Calculate the amount of the primary α just above 954°C .



- 38.7% α
 39.4% α
 37.6% α
 40.2% α

No, the answer is incorrect.**Score: 0****Accepted Answers:***38.7% α*

7) In Question 6, What is the relative amount of monotectic α formed in this **2 points**
 alloy just below 954°C ?

- 68.5% α
 86.5% α
 38.7% α
 47.8% α

No, the answer is incorrect.

Score: 0

Accepted Answers:

47.8% a

1.8) Intermediate phases occur _____ the phase diagram and are separated by _____ phase fields **2 points**

- inside, two
- outside, two
- inside, three
- outside, three

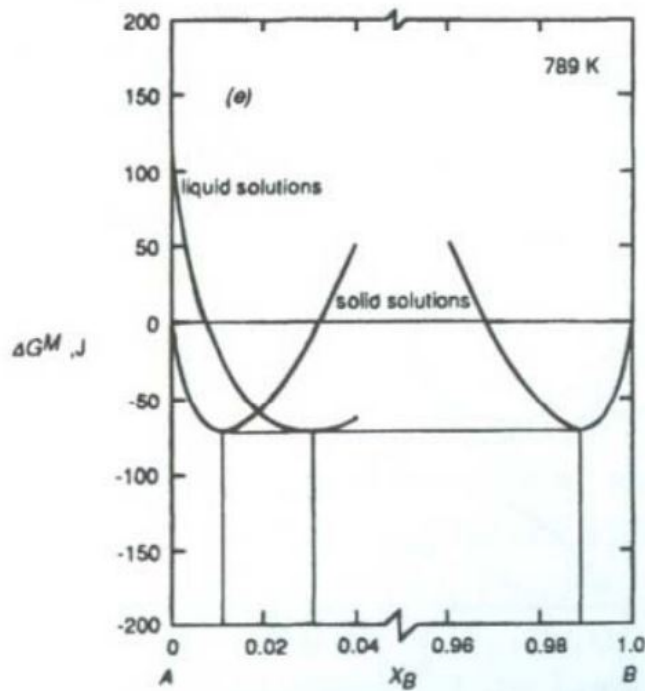
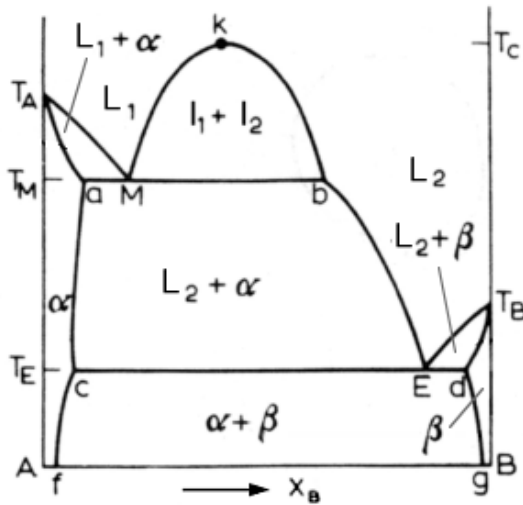
No, the answer is incorrect.

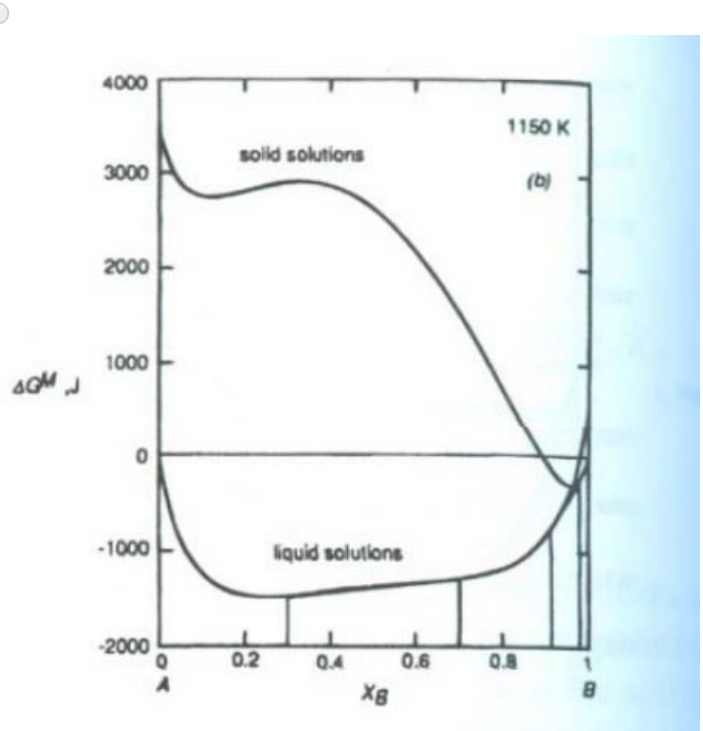
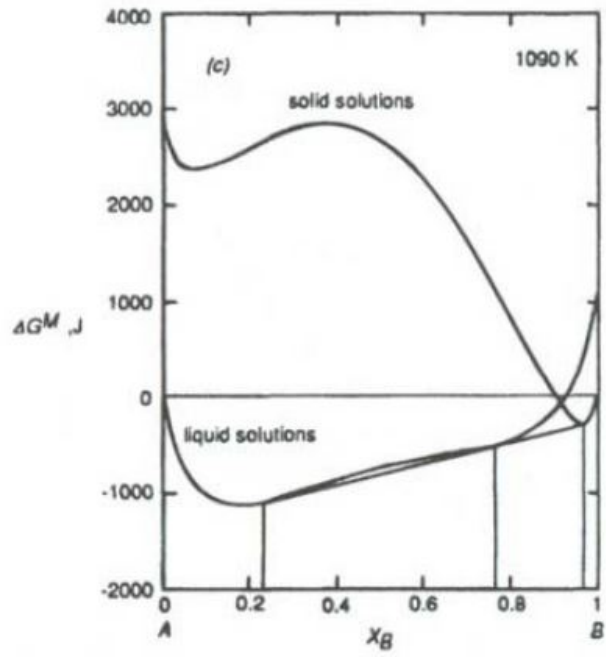
Score: 0

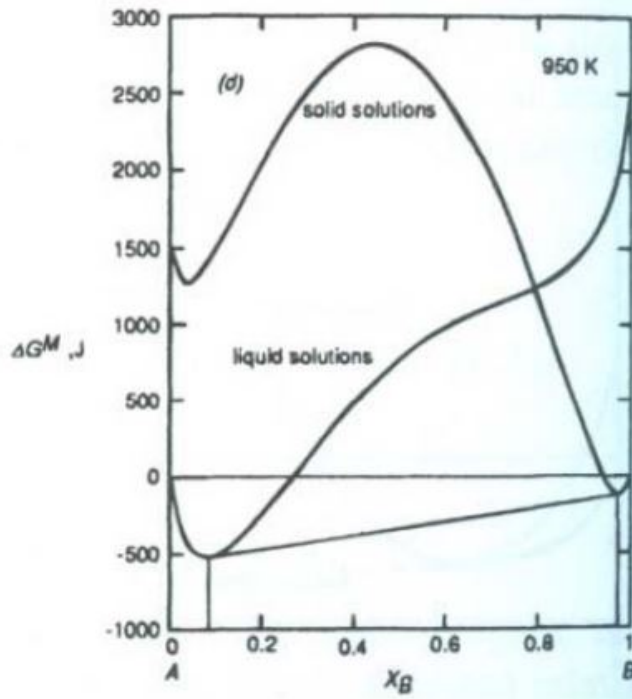
Accepted Answers:

inside, two

9) What will be the free-energy vs composition diagram at T_e for the following phase diagram. **2 points**



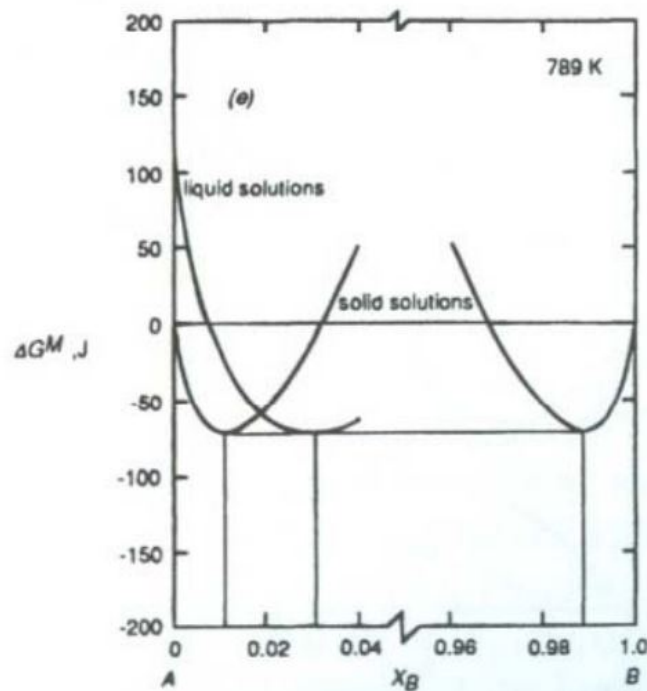




No, the answer is incorrect.

Score: 0

Accepted Answers:



10) When a monotectic alloy is rapidly cooled, it forms _____

2 points

- A compact solid
- Solid bubbles
- Emulsion
- It can form anything. It depends on temperature and pressure.

No, the answer is incorrect.

Score: 0

Accepted Answers:

Emulsion

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