Unit 6 - week 5

Assignment-5

The due date for submitting this assignment has passed. Due on 2017-09-04, 23:59 IST.
As per our records you have not submitted this assignment.

1) Which of the following is true regarding constitutional and thermal undercooling? ***1 point***

A.Constitutional undercooling can take place even if the thermal gradient of liquid is positive
B. Thermal undercooling can take place only if thermal gradient of liquid is negative
C. There is a critical thermal gradient only above which constitutional undercooling can take place

- All of A, B and C are true
- Only A and C are true, not B
- Only A and B are true, not C
- Only C is true

No, the answer is incorrect.
Score: 0

Accepted Answers:
Only A and B are true, not C

2) Which of the following conditions should be met for plane front stability? ***1 point***

- $(G_L)_{actual} \leq (G_L)_{critical}$
- $G_L/V \leq -m_L C_0(1-k)/(kD_L)$
- $G_L/V \leq \beta C_0$
- $VC_0 \leq$ constant

No, the answer is incorrect.
Score: 0

Accepted Answers:
$VC_0 \leq$ constant

3) Cell formation is affected by ***1 point***

A. Presence of grain boundaries
B. Crystal orientation
C. Dislocation density in the material

- Only C is true
- A is true, not B and C
- A and B are true, not C
- All A, B and C are true

No, the answer is incorrect.
Score: 0

Accepted Answers:
A and B are true, not C

week 8

4) What boundary conditions are needed for obtaining the concentration of the cell tip (C_t)? *1 point*

A. $C_L = C_0$ far away from tip
B. $dC/dx = G/m_L$ at the solid-liquid interface of the tip
C. $dC/dx = 1$ far away from the tip

- All A, B and C are needed
- Only B is needed
- A and B are needed, not C
- Only C is needed

No, the answer is incorrect.
Score: 0

Accepted Answers:
A and B are needed, not C

5) What assumptions were made for deriving the relation for cell spacing? *1 point*

A. Cells are close enough to now allow constitutional supercooling
B. Cell thickness in y direction can be neglected
C. Change of liquid composition with time is independent of distance 'y'
D. Liquid composition gets homogenized

- All A,B, C and D are true
- A, B and C are true, not D
- A and B are true, not C and D
- Only A is true

No, the answer is incorrect.
Score: 0

Accepted Answers:
A, B and C are true, not D

6) During cellular growth of a system, if 'G*V' is increased, it will lead to_____ *1 point*

- decrease in cell spacing
- increase in cell spacing
- increase in concentration of liquid between the cells
- decrease in concentration of liquid between the cells

No, the answer is incorrect.
Score: 0

Accepted Answers:
decrease in cell spacing

7) Dendritic growth depends upon *1 point*

A. Temperature gradient of the solid
B. Amount of supercooling
C. Growth rate
D. Intercellular composition

- All A, B, C and D are true
- A and B are true, not C and D
- B, C and D are true, not A
- C and D are true, not A and B

No, the answer is incorrect.
Score: 0

Accepted Answers:
B, C and D are true, not A

8) Which of the following are true regarding plane front solidification of polyphase alloys? *1 point*

A. Temperature liquid adjusts on its own
B. undercooling has two components, viz. solute diffusion and curvature effect
C. Temperature T* in liquid at interface is approximately constant
D. Solutes diffuse only through the growing interface

- A, B, C and D are true
- A, B and C are true, not D
- A and B are true, not C and D
- Only A is true

No, the answer is incorrect.
Score: 0

Accepted Answers:
A, B and C are true, not D

9) For a material with composition C_E, composite structure will be formed for: *1 point*

- Only at $G_L/V = 0$
- At all G_L/V
- $G_L/V < -m_L/D_L$
- $G_L/V > -m_L/D_L$

No, the answer is incorrect.
Score: 0

Accepted Answers:
At all G_L/V

10) Foundry fluidity is influenced by *1 point*

A. Initial metal temperature
B. Heat extracting power of the mould material
C. Kinetic energy of the metal
D. Composition of the alloy

- Only is A is true
- A and B are true, not C and D
- All A, B, C and D are true
- A and D are true, not B and C

No, the answer is incorrect.
Score: 0

Accepted Answers:
All A, B, C and D are true

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