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Courses » Theory of Production Processes

Announcements **Course** Ask a Question Progress Mentor

## Unit 2 - Week 1

### Course outline

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#### Week 1

- Lecture 1: Introduction to Theory and Practics of Casting
- Lecture 2: Theory of Solidification: Cooling curves
- Lecture 3: Solidification of pure metals and alloys
- Lecture 4: Factors affecting solidification process
- Lecture 5: Fluidity of liquid metals
- Quiz : Assignment 1
- Feedback Week-1
- Solution of assignment 1

#### Week 2

#### Week 3

## Assignment 1

The due date for submitting this assignment has passed. **Due on 2018-02-05, 23:59 IST.**

### Submitted assignment

1) Which of the following statement is true regarding growth process? **1 point**

- It occurs in the direction of heat transfer
- It occurs in the direction opposite to that of heat transfer
- It is followed by nucleation process
- It is not required in case of metals as they solidify at constant temperature

**No, the answer is incorrect.**

**Score: 0**

**Accepted Answers:**

*It occurs in the direction opposite to that of heat transfer*

2) Which property of a material is used for Casting it into a desired shape **1 point**

- Strength
- Fluidity
- Ductility
- Formability

**No, the answer is incorrect.**

**Score: 0**

**Accepted Answers:**

*Fluidity*

3) Width of the freeze wave lines i.e. Duration of time between start and finish of solidification lines, in case of sand mould as compared to metal mould will be **1 point**

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Week 7	<p><i>More</i></p> <p>4) The ratio of surface energy term to volume energy term for critical radius during solidification process is <span style="float: right;"><b>1 point</b></span></p> <p><input type="radio"/> -3/2</p> <p><input type="radio"/> -2/3</p> <p><input type="radio"/> -5/6</p> <p><input type="radio"/> -7/12</p> <p><b>No, the answer is incorrect.</b> <b>Score: 0</b></p> <p><b>Accepted Answers:</b> <i>-3/2</i></p> <p>5) Pure aluminium melts at 667°C. At 690°C, free energy of molten aluminium with respect to free energy of aluminium in solid state is <span style="float: right;"><b>1 point</b></span></p> <p><input type="radio"/> Larger</p> <p><input type="radio"/> Smaller</p> <p><input type="radio"/> Equal</p> <p><input type="radio"/> Can't be said</p> <p><b>No, the answer is incorrect.</b> <b>Score: 0</b></p> <p><b>Accepted Answers:</b> <i>Smaller</i></p> <p>6) Constitutional supercooling is experienced in case of <span style="float: right;"><b>1 point</b></span></p> <p><input type="radio"/> pure metals</p> <p><input type="radio"/> alloys with large freezing range</p> <p><input type="radio"/> alloys with eutectic composition</p> <p><input type="radio"/> pure metals having large melting temperature</p> <p><b>No, the answer is incorrect.</b> <b>Score: 0</b></p> <p><b>Accepted Answers:</b> <i>alloys with large freezing range</i></p> <p>7) For any transformation to take place from one phase of a material to another, free energy change <span style="float: right;"><b>1 point</b></span></p> <p><input type="radio"/> Should be positive</p> <p><input type="radio"/> Should be negative</p> <p><input type="radio"/> Should be zero</p> <p><input type="radio"/> Has no role</p> <p><b>No, the answer is incorrect.</b> <b>Score: 0</b></p> <p><b>Accepted Answers:</b> <i>Should be negative</i></p> <p>8) With increase in temperature of the molten material, the fluidity <span style="float: right;"><b>1 point</b></span></p> <p><input type="radio"/> Increases</p>
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- Decreases
- First increases then decreases
- First decreases then increases

No, the answer is incorrect.

Score: 0

Accepted Answers:

*Increases*

9) Lower value of fluidity may lead to which kind of casting defect? **1 point**

- Misrun and cold shut
- Metal penetration
- Shrinkage
- Blow holes

No, the answer is incorrect.

Score: 0

Accepted Answers:

*Misrun and cold shut*

10) Formation of dendritic structure is a characteristics of solidified structure of **1 point**

- Pure metal
- Alloys with large freezing range
- Alloys with eutectic composition
- Pure metals of large melting point

No, the answer is incorrect.

Score: 0

Accepted Answers:

*Alloys with large freezing range*

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