Unit 5 - Week 3 - Gating Systems and Rate of solidification

Assignment 3

The due date for submitting this assignment has passed.
As per our records you have not submitted this assignment.

Due on 2020-02-19, 23:59 IST.

Assignment 3

1) In which of the following type of gating, mold is filled from bottom to top? *1 point*

- Inclined gating
- Vertical gating
- Bottom gating
- None of the above.

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

2) The height of the down sprue is 100 mm, and its cross-sectional area at the base is 300 mm^2. The cross-sectional area of the horizontal runner is also 300 mm^2. Assuming no losses, calculate the time (in seconds) required to fill a mold cavity of 3×10^5 mm^3 volume in casting. (Consider g=10 m/s^2) *1 point*

- 1.5 s
- 0.71 s
- 3.2 s
- 0.14 s

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

3) Which of the following is not true with respect to the aspiration effect? *1 point*

- It is produced when there is a sudden change in the flow direction.
- It is produced when pressure falls below atmospheric pressure.
- It is produced when gases enter the molten metal stream.
- All of the statements are true.

No, the answer is incorrect.
Score: 0
Accepted Answers:
All of the statements are true.

4) Which of the following is not the correct match of gating components and their function? *1 point*

- Pouring basin→ Increases eroding force.
- Splash core→ Reduces eroding force.
- Strainer→ Removes the dross.
- Skim bob→ Prevents heavier and lighter impurities from entering the mold.

No, the answer is incorrect.
Score: 0
Accepted Answers:
Pouring basin→ Increases eroding force.

5) Sprue design is made tapered instead of straight _____. *1 point*

- To have smoothness in the metal flow.
- To maintain the pressure balance.
- To avoid the erosion of mold sand.
- To allow easy flow of molten metal.

No, the answer is incorrect.
Score: 0
Accepted Answers:
To maintain the pressure balance.

6) What among the following can be the most appropriate reason for the velocity of a fluid in contact with any solid surface to be zero? *1 point*

- No-slip condition.
- Cohesive forces in the fluid particles.
- Low velocity of the fluid.
- High intermolecular forces between the fluid particles.

No, the answer is incorrect.
Score: 0
Accepted Answers:
No-slip condition.

7) Which of the following gating designs is used to avoid the splashing of the molten metal in the mold? *1 point*

- Vertical gating.
- Horizontal gating.
- Inclined gating.
- Bottom gating.

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

8) Solidification plays an important role in deciding which of the following characteristics of the casting. *1 point*

- Crystal structure.
- Alloy composition.
- Concentration gradient of the various components.
- All of the above.

No, the answer is incorrect.
Score: 0
Accepted Answers:
All of the above.

9) The degree of super-cooling necessary is reduced by the presence of _____. *1 point*

- Surface that serves as initial nuclei for crystal growth.
- Type of crystal structure.
- Number of components of the casting.
- None of the above.

No, the answer is incorrect.
Score: 0
Accepted Answers:
Surface that serves as initial nuclei for crystal growth.

10) The direction of crystal growth in an alloy is most dependent on which of the following factor? *1 point*

- Atmospheric temperature.
- Thermal gradient within the mold.
- Atmospheric pressure.
- Room temperature.

No, the answer is incorrect.
Score: 0
Accepted Answers:
Thermal gradient within the mold.