

Autodesk Moldflow

Introduction

Section 1

Section 1 has questions that relate to the use of Synergy, using various Autodesk Moldflow Insight flow analyses and results interpretation.

Ensure you have the answer sheet which is an excel file called BronzeA\_Answers.xlsx.

Place your answers on the Sect1\_Answers sheet.

For each question, choose the BEST answer.

Each question is worth 1 point for a total of 70 points.

No reference materials may be used during this portion of the exam.

Plan on section one taking 40-50 minutes to complete. You may have as much time as you like, but don't take

too much time, you will need it to complete section 2.

Append your name to the beginning of the answer sheet file name, such as John\_Doe\_BronzeA\_Answers.xlsx. Section 2

Section 2 is a hands-on.

You are given 5 study files to compare the results.

You are given a study file and directions for creating a feed system.

You are given several MFR files to interpret molding window and Fill + Pack analysis results.

This section is worth 205 points in total.

For this section you can use the on-line help as a reference.

Grading

There are a total of 275 possible points in this exam. To pass

this test, you must score an 80% or 220 points minimum.

Return the necessary files to Autodesk for grading. Instructions for returning the files are on page 34.

The entire test should take between 5 to 6 hours to complete. The test is limited to 6 hours.

### Section 1

1. In general, the largest component of the cycle time is:

- A. Fill time.
- B. Pack time.
- C. Cooling time.
- D. Clamp open time.

2. Due to fountain flow, the highest velocity in the cross section is located at the:

- A. Center of the cross section.
- B. Plastic/metal interface also called the mold surface.
- C. Half way between the center and plastic metal interface.

3. During filling, the maximum shear rate in the cross section is located at the:

- A. Center of the cross section.
- B. Plastic/metal interface.
- C. Molten layer/frozen layer interface.

4. Shrinkage for a fiber filled material is usually greatest:

- A. Perpendicular to the flow direction.
- B. Parallel to the flow direction.
- C. The shrinkage is uniform in all directions.

5. The flow balancing principle states:

A. There is a balance between the cavity volume and runner volume.

B. Each flow path in the model fills at the same time and

pressure.

C. The runners should be the same diameter to ensure the parts will fill equally.

6. The primary criteria to determine if maximum shear stress in a part is acceptable is the:

- A. Elastic modulus of the material.
- B. Shear modulus of the material.
- C. Shear stress limit for the material.

7. A weld line is formed when:

- A. Two flow fronts hit head on.
- B. Two flow fronts meet then flow in the same direction.
- C. When two flow fronts meet at the end of fill from two

different gates.

8. The highest shear stress in the plastic cross section is:

- A. Within the frozen layer.
- B. At the center of the cross section.
- C. At the frozen/molten interface.
- D. Could be anywhere.

9. When the cavity and core side mold temperatures are different, the plastic part will:

A. Shrink more on the cold side causing it to bow towards the cold side.

B. Shrink more on the hot side causing it to bow towards the hot side.

C. Shrink flat as mold temperature makes no difference in the shrinkage.

D. None of the above.

10. The magnitude of molecular orientation can be defined by:

A. Shear stress.

B. Shear rate.

C. Shear modulus.

11. When underflow “moves” a weld line:

A. The weld line gets weaker.

B. The weld line is eliminated.

C. The weld line can move to a structurally weak area of the part.

D. The weld line strength is not influenced by being moved.

12. Flow leaders are:

A. Local reductions in thickness from the part’s nominal wall.

B. Local increases in thickness from the part’s nominal wall.

C. Ribs designed to promote the flow.

13. Flow leaders are designed to:

A. Stiffen the part.

B. Reduce volume of the part.

C. Balance the filling pattern of the part.

14. The best plot to use to look for a constant pressure gradient for filling the part is:

A. Pressure at the injection location.

B. Pressure, plotted as a shaded image.

C. Pressure at V/P switchover, plotted as a shaded image.

15. If the clamp force exceeds the limit of the molding machine by 50% what could be done to reduce the clamp force below the limit of the molding machine:

A. Increase the melt temperature.

B. Add gates to the part.

C. Inject faster.

D. None of the above.

16. Race tracking can best be interpreted by:

A. A high pressure gradient.

- B. A narrow band of high bulk temperature.
- C. A band of high shear stress.
- D. A wide spacing of the fill time contours.

17. When interpreting molding window results, a possible interpretation of the results could be:

- A. An additional gate should be added to reduce the pressure.
- B. The packing time should be increased to 10 seconds.
- C. The pack pressure should be set to 50% of the fill pressure.
- D. None of the above.

18. Which the following statements about the Zone (molding window) 2D Slice Plot is true:

A. The cut axis for the Zone plot is moved with the Move cutting plane tool.

B. The Zone plot can be examined to find the optimum processing conditions.

C. The Zone plot indicates the recommended processing conditions.

19. When interpreting the Temperature at flow front minimum (molding window):XY plot, with injection time as

the X-axis, an optimum injection time can be found by:

A. The time that has a temperature 10°C above the melt temperature.

B. The time that has a temperature 50°C above the transition temperature.

C. The time that has a temperature equal to the melt temperature.

D. None of the above.

20. An analysis sequence that should be done before the first fill analysis includes:

A. A Material selection analysis.

B. A Molding window analysis.

C. Neither A nor B.

D. Both A & B.

21. A non-manifold edge is:

A. An edge of an element that does not touch another element edge.

B. An element edge that touches exactly two element edges.

C. An element edge that touches three or more element edges.

D. None of the above.

22. The recommended maximum aspect ratio of both midplane and Dual Domain models is:

A. 4:1.

B. 6:1.

C. 10:1.

D. 25:1.

23. For the weld line prediction algorithm, a coarse mesh has:

A. No influence on the prediction of the weld line.

B. A small influence on the prediction of the weld line.

C. A major influence on the prediction of the weld line.

24. Small radii in the corner of a rib of a midplane or Dual Domain model:

A. Has no effect on the analysis run time.

B. Should not be modeled as they add nothing to the analysis.

C. Must be modeled to get an accurate pressure drop.

25. The MOST important part geometry to model for an accurate pressure prediction is:

A. Thickness.

B. Flow Length.

C. Volume.

D. True size and shape.

E. All are critical.

26. The best way to eliminate a lot of high aspect ratio elements in a model and keep the element count low is to:

A. Have no small radii in the CAD model that is translated into Synergy.

B. Set a shorter Global edge length when meshing the part.

C. Manually remove the high aspect ratio elements with the mesh tools.

27. Autodesk Moldflow Design Link must be used to import what type of file:

A. STL.

B. IGES.

C. Step.

28. Changing the options of how an STL file is written in a CAD program:

A. Has no effect on the ability to import and mesh the CAD file.

B. Can have a significant influence on the mesh quality.

29. Mesh diagnostic plots:

A. Show problems with the mesh.

B. Highlight ways to fix errors in the mesh.

C. Always put corrected elements on a new layer.

30. A Dual Domain mesh should always be oriented:

A. So the bottom side of the element is visible.

B. So the red side of the element is visible.

C. So the top sides of the elements are visible.

D. So the mesh is consistent. It does not matter if the top or bottom side is showing.

31. A Dual Domain model must have the following

characteristics except:

- A. One connectivity region.
- B. No free edges.
- C. No manifold edges.
- D. A mesh match ratio above 85%.

32. The thickness of a Dual Domain model:

- A. Must be set by the user.
- B. Is automatically determined during import or mesh creation.
- C. On the edge is 50% of the adjacent wall thickness.
- D. Is not definable by the user.

33. Two mesh tools that are most commonly used to fix high aspect ratio problems are:

- A. Auto and Remesh area.
- B. Match nodes and Align nodes.
- C. Insert and Fill hole.
- D. Swap Edge and Merge.

34. The material database can be searched using all except the following:

- A. The manufacture's name.
- B. The Moldflow viscosity index.
- C. Cost per pound.
- D. Filler content.

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- A. Plotting viscosity data from more than one material.
- B. Sorting a search results column.
- C. Searching by a critical property such as filler.
- D. All of the above.
- E. None of the above.



36. From the list of material properties below, which property is NOT required to run a flow analysis?

- A. Melt temperature.
- B. Ejection temperature.
- C. Transition temperature.
- D. Moldflow viscosity Index.
- E. Thermal conductivity.

37. The default viscosity model for most materials in the data base is:

- A. Cross-WLF.
- B. Second order.
- C. First Order.
- D. None of the above.

38. Criteria for choosing the gate location on the part includes the following except:

- A. Balanced filling.
- B. Place gates near thin areas of the part.
- C. The machine injection pressure limit.
- D. Unidirectional fill.

39. According to the unidirectional flow principle:

A. A gate on one end of the part generally creates uniform orientation in one direction.

- B. The filling pattern should radiate out from the gate.
- C. A fan gate is needed to produce unidirectional filling.
- D. None of the above.

40. According to gate placement guidelines:

A. Adding a second gate is only done to reduce the pressure to fill.

B. Gates should be placed in thinner areas of the part to get them to fill.

C. Add a second gate to prevent over packing.

D. None of the above.

41. To fill out thinner ribs, the gate:

A. Should be placed close to the thin region.

B. Should be placed as far away as possible to the thin region.

C. Placement does not matter.

D. Placement only depends on the type of tool being designed.

42. Adding gates to a part lowers the pressure to fill by:

A. Decreasing the flow rate in an individual gate.

B. Reducing the flow length within a part.

C. Decreasing the fill time.

D. None of the above.

43. A molding window can help evaluate:

A. The number of gates needed for the part.

B. The pressure required to fill the part.

C. The wall thickness for the part.

D. All of the above.

E. None of the above.

44. Process settings for a molding window analysis include all but the following:

A. Molding machine.

B. Mold temperature.

C. Injection time.

D. Velocity/pressure switchover.

45. For the Zone (molding window) 2D slice plot, the best cut axis for determining the optimum

processing conditions is:

A. Injection time.

B. Melt temperature.

C. Mold temperature.

46. As the melt temperature increases, the optimum injection time:

A. Stays the same.

B. Increases.

C. Decreases.

D. Decreases for amorphous materials and increases for semi-crystalline materials.

47. On a Dual Domain model, edge gate with a width to thickness ratio of 3:1 must be modeled with:

A. Triangular elements.

B. Beam elements.

C. Beam or triangular elements.

D. Tetrahedral elements.

48. A valve gate is closely related to what gate type?

A. A hot drop.

B. A pin gate.

C. An edge gate.

D. A tunnel gate.

49. The primary criteria for sizing the gate is:

A. Shear stress limit.

B. Shear heat.

C. Shear rate limit.

D. Pressure drop in the gate.

50. To use the Runner System Wizard the parting plane must be the:

A. XY plane.

B. YZ plane.

C. ZX plane.

D. Any plane is OK.

以上内容仅为本文档的试下载部分，为可阅读页数的一半内容。如要下载或阅读全文，请访问：<https://d.book118.com/366002053214010234>