

# Assignment-03

The due date for submitting this assignment has passed.

**Due on 2023-08-16, 23:59 IST.**

As per our records you have not submitted this assignment.

**1 point**

The grid cutting method for Laminated Object Manufacturing (LOM) to remove unwanted material is applied on

- Inside of the exterior contour
- Outside of the exterior and inside of the interior contour
- Outside of the interior contour
- None of the above

No, the answer is incorrect.

Score: 0

Accepted Answers:

*Outside of the exterior and inside of the interior contour*

**1 point**

XY raster scanning is preferred for area filling toolpath strategy over X and Y raster scanning as it provides

- Homogeneous Part Properties
- It has a minimum number of lifts
- It is less time consuming
- Has non-constant stepover

No, the answer is incorrect.

Score: 0

Accepted Answers:

*Homogeneous Part Properties*

**1 point**

An accurate outer profile of a part has to be fabricated without leaving behind any internal voids. For this purpose the hybrid toolpath strategy should be \_\_\_\_\_ for the outer contour followed by \_\_\_\_\_ for the inner contour

- Contour Parallel, Zigzag
- Raster, Spiral
- Zigzag, Contour Parallel
- Hilbert, Raster

No, the answer is incorrect.

Score: 0

Accepted Answers:

*Contour Parallel, Zigzag*

**1 point**

Galvanometer can provide very high scanning speed in Vat Photopolymerization because

- The low inertia of mirrors
- Use of magnetic lens for beam deflection
- High-speed travel of the laser beam
- All of the above

No, the answer is incorrect.

Score: 0

Accepted Answers:

*The low inertia of mirrors*

**1 point**

The bottom-feeding method of recoating in Vat Photopolymerization is preferred when the build direction is

- Z Direction
- +Z Direction
- Both (a) and (b)
- Independent of build direction

No, the answer is incorrect.

Score: 0

Accepted Answers:

*-Z Direction*

**1 point**

'Zephyr' by 3D-Systems SLA uses which kind of recoating system

- Deep Dipping
- Top Feeding
- Bottom Feeding
- None of the above

No, the answer is incorrect.

Score: 0

Accepted Answers:

*Top Feeding*

**1 point**

F-theta lens in Vat-Photopolymerization is used for

- Beam Correction
- Increasing the scanning speed
- Lower the mirror inertia
- Cure the photopolymer resin

No, the answer is incorrect.

Score: 0

Accepted Answers:

*Beam Correction*

**1 point**

In the Digital Light Processing (DLP)-based Vat Photopolymerization, binder jetting, and material jetting process, the method used to scan the area inside the slicing contour is performed by

- Pixel
- Grid Cutting
- Mask
- No need for scanning

No, the answer is incorrect.

Score: 0

Accepted Answers:

*Pixel*

**1 point**

Which of the following properties of the final printed part are influenced by toolpath strategy in Additive Manufacturing

- Surface Roughness
- Dimensional Accuracy
- Part Strength
- All the above

No, the answer is incorrect.

Score: 0

Accepted Answers:

*All the above*

**1 point**

Which of the following is not the requirement for an idle toolpath

- Constant stepover
- Constant machine feed rate
- Maximum number of lift
- Quick heat dissipation

No, the answer is incorrect.

Score: 0

Accepted Answers:

*Maximum number of lift*

**1 point**

A rectangular and a square contour of dimension 6 cm×2 cm and 4 cm ×4 cm, ,respectively, are fabricated using the LOM process from a square sheet of dimension 10 cm×10 cm. Calculate the ratio

( $U_{\text{Square}}/U_{\text{Rectangle}}$ ) of the area of the unwanted material (U).

- 0.66
- 3
- 5
- 0.95

No, the answer is incorrect.

Score: 0

Accepted Answers:

0.95

**1 point**

Select the incorrect statement corresponding to Vat Photopolymerization

- The free radicals are generated from monomers upon excitation
- Reactive photoinitiators react with monomers to start a polymer chain
- Excitation of photoinitiators creates free radicals
- UV light is used for the excitation of photopolymers

No, the answer is incorrect.

Score: 0

Accepted Answers:

*The free radicals are generated from monomers upon excitation*

**1 point**

The DLP based Vat Photopolymerization

- Irradiates a complete layer in one go
- Uses a non-recyclable mask for contour generation
- Scans the contours with a focused laser beam
- Uses flying optics for contour generation

No, the answer is incorrect.

Score: 0

Accepted Answers:

*Irradiates a complete layer in one go*

**1 point**

The flying optics-based Vat photopolymerization system uses

- Mirrors to deflect the laser beam for contour scanning
- Irradiates a complete layer in one go
- Floodlight with a mask to scan a layer
- The motion of the laser source (or head) for scanning the layer contour

No, the answer is incorrect.

Score: 0

Accepted Answers:

*The motion of the laser source (or head) for scanning the layer contour*

**1 point**

The purpose of building a 'Prime Tower' in Ultimaker Cura is to

- Reduce the print temperature
- Ensure the availability of material to be extruded for a layer
- Support the overhanging features
- Prevent the unwanted motion of the part during printing

No, the answer is incorrect.

Score: 0

Accepted Answers:

*Ensure the availability of material to be extruded for a layer*

**1 point**

The 'support overhang angle' in Ultimaker Cura is the angle of inclination of the triangle normal from

- The print bed
- Neighboring triangle normal
- The build direction
- Slicing Plane

No, the answer is incorrect.

Score: 0

Accepted Answers:

*The build direction*

**1 point**

A cube (10×10×10 cm) and a cuboid (10×15×10 cm) having an infill density of 30% and 20% respectively, are fabricated using the FDM process. Calculate the ratio of the volume ( $V_{\text{Square}}/V_{\text{Rectangle}}$ ) of infill material (V)

- 0.5
- 0.75
- 5
- 1

No, the answer is incorrect.

Score: 0

Accepted Answers:

*1*

**1 point**

'Focal length' for toolpath planning in PowerMill for DED based processes can be specified through

- 'Feature construction' option in the 'additive tab'
- 'View layers option' in the 'additive tab'
- 'Calculate option' in 'toolpath tab'
- 'Entity option' in 'simulation tab'

No, the answer is incorrect.

Score: 0

Accepted Answers:

*'Feature construction' option in the 'additive tab'*

**1 point**

The size of the print bed can be specified in Inkscape through

- Print bed size cannot be specified
- Stroke and paint
- Appropriately setting the page size
- Biarc interpolation

No, the answer is incorrect.

Score: 0

Accepted Answers:

*Appropriately setting the page size*

**1 point**

The missing triangles in an STL file can be regenerated by the following command in 'DeskArtes'

- Transform
- Repair Shell
- Rotate
- Translate

No, the answer is incorrect.

Score: 0

Accepted Answers:

*Repair Shell*