

CATIA QUESTIONS & ANSWERS

PART DESIGN:

1. What is the difference between Pad and Rib command?

Pad is an extrusion of a flat profile in a given straight line direction.

Rib is a sweep of flat profile along a given line or curve which may not be a straight line. In addition, the orientation or the shape of the profile of a rib may be changed along the sweep of the rib.

2. Name some sketch-based features and some dress-up features.

Sketch-based feature: Pad, Pocket, Shaft, Groove, Hole, Rib, Slot, Loft, Removed Loft, and Solid Combine.

Dress-up feature: Fillet, Shell, Thick, Close, Draft, Thread, Remove Face, Replace Face.

3. What are a Partbody, Part and a Product?

A part should represent the smallest physical part that is considered as one BOM item.

A partbody is just a primitive shape used to construct a part.

A product is an Assembly of Parts.

4. What do Partbody contain? What do Open Body (Geometric Set) contain?

Part body contains sketch-based features and dress-up features and sketches.

An open body contains surfaces, wire frames and sketches.

5. We use Boolean operations between Bodies or Features?

a. Boolean is used between bodies, which have separate creation histories.

b. A feature is a step in the history of creating a partbody.

6. Can we create a negative Partbody? Give example of a negative partbody.

Yes, we can create hole, pocket, and groove or removed loft as a negative body on its own.

7. A physical part should be represented by a CATPart or a partbody? Explain why.

a. A physical part should be represented by CATPart as this will be counted as one BOM item. If partbody is used

then two physical parts, which may have different part numbers, will only be counted as one BOM item with one part number.

b. Representing physical parts by CATPart is also very important in the application of Kinematics because a joint can only be made between different parts (CATPart) and not between bodies.

c. In exploded view creation, the bodies within a CATPart cannot be exploded whereas the CATParts in a CATProduct can be exploded.

8. What is the advantage with 'solid combine' command? How to use this?

Solid combine is a one step creation of a solid feature from two profile views of the solid.

It saves creating 2 extrusion steps from each of the profile and 1 Boolean intersection step in creating the final partbody.

9. What is the difference between Pocket and Hole command?

a. Pocket is a material removal of a solid by extrusion of profile of any shape.

b. Hole is a material removal of a solid by predefined circular profile only.

10. What is the advantage of using Hole instead of circular pocket?

We can add information like thread, hole type (through, blind etc), shape (countersunk, simple etc.) to the hole, which can automatically be represented in drawing generation.

11. What are the advantages in using Power copy?

Powercopy increases productivity by duplicating a set of steps into any partbody.

Hence powercopy can be used to duplicate design features easily into parts and modifying the parameters or elements used to create the feature.

12. How to cut a partbody with a surface?

Use the solid split command.

13. Is it possible to execute a Pad command using curve as extruding direction? If not which is the command?

No, use Rib command for curved direction (or better known as guide curve).

14. What is Tri-tangent fillet?

A variable radius fillet created from and tangent to 3 adjacent surfaces with the middle surface completely removed by the fillet.

15. How many number of profiles and centre curves required for a) Rib b) Loft?

a. Rib, only one profile and one center curve

b. Loft, as many cross-section profiles as needed and curves as called guide curves that can be as many as necessary.

16. What do you mean by stiffener?

A constant thickness “wall” stretched between two or three other walls.

17. Does a thread feature visible in Part design?

No physical representation; but can be checked by the tap-thread analysis command.

18. What do you mean by User defined pattern?

Creation of a pattern of a certain feature by arbitrary points that the users create.

19. What do you mean by Power copy?

Same as 11.

20. What are different ways of instantiating a power copy?

Power copies can be instantiated from within the same CATPart (Instantiate from selection), or from another CATPart already saved (Instantiate from document) or from a Catalog with the powercopy already kept in.

21. What are surface based features in Part design?

Thick, Close, Replace Face, Remove Face.

22. Name few Boolean operations?

Add, Assemble, Union trim, Intersect, Remove, Remove Lump.

23. What is a powercopy ?

Same as in 11.

24. How do you create a design table?

Design table command.

25. What is Define in work object?

a. Set a body/geometric set so that what is created next will be added to the body or geometric set.

b. It can be used to “go-back-in-history” to a certain step that is not the latest and hence insert or modify some features at that point in history.