

## EML 2322L DFM Quiz

Select the correct answer to the following questions based on the DFM information presented in class and your experience working in the lab.

### Define what is meant by the phrase *design for manufacturability* (or DFM):

consciously trying to design parts that can be manufactured for the lowest \_\_\_\_\_ while meeting the required \_\_\_\_\_ intent and \_\_\_\_\_ factors.

### Circle the answer that achieves the DFM goal of reducing part cost:

1. use larger / smaller part tolerances
2. use fewer / more finished surfaces
3. use coarser / finer surface finishes
4. use fewer / more dimension datums
5. use arbitrary / nominal feature dimensions
6. use stronger / weaker material
7. use tapped / thru-bolted clearance holes
8. use screw / bolt holes
9. use blind / thru holes
10. specify cone-bottomed / flat-bottomed holes
11. make the part larger / smaller
12. design parts for min / max raw-stock removal
13. design parts to use larger / smaller cutting tools
14. design parts to use cutting tools with larger / smaller L:D ratios
15. design parts around custom / standard cutting tool sizes
16. design parts with / without chamfers and fillets
17. avoid / use mirror image parts
18. use clearance / line fits for fasteners holes
19. always / never design OTS parts
20. specify slots or pockets with round / square corners when using traditional mfg. equipment
21. consider / ignore room for assembly tools
22. always place fastener threads in shear / tension
23. use fasteners / pins for locating parts with respect to each other
24. specify (8) 1/4-20 UNC threads in aluminum / (8) 1/4-28 UNF threads in steel / either
25. specify (8) 1/4-28 UNF threads in steel / (8) 1/4-28 UNF threads in titanium / either
26. specify (8) 1/4-20 UNC threads in aluminum / (8) 4-40 UNC threads in aluminum / either
27. specify (8) 1/4-28 UNF threads in steel / (4) 2-64 UNF threads in aluminum / either
28. specify (8) 1/4-20 threads in aluminum / (8) M6x1.0 threads in aluminum / either
29. specify (8) 1/4-20 UNC threads in aluminum / (8) 1/2-13 UNC threads in aluminum / either

## EML 2322L DFM Quiz (KEY)

Select the correct answer to the following questions based on the DFM information presented in class and your experience working in the lab.

**Define what is meant by the phrase *design for manufacturability* (or DFM):**

consciously trying to design parts that can be manufactured for the lowest cost while meeting the required design intent and service factors.

**Circle the answer that achieves the DFM goal of reducing part cost:**

1. use **larger** / smaller part tolerances
2. use **fewer** / more finished surfaces
3. use **coarser** / finer surface finishes
4. use **fewer** / more dimension datums
5. use arbitrary / **nominal** feature dimensions
6. use stronger / **weaker** material
7. use tapped / **thru-bolted clearance** holes
8. use screw / **bolt** holes
9. use blind / **thru** holes
10. specify **cone-bottomed** / flat-bottomed holes
11. make the part larger / **smaller**
12. design parts for **min** / max raw-stock removal
13. design parts to use **larger** / smaller cutting tools
14. design parts to use cutting tools with larger / **smaller** L:D ratios
15. design parts around custom / **standard** cutting tool sizes
16. design parts with / **without** chamfers and fillets
17. **avoid** / use mirror image (versus identical) parts
18. use **clearance** / line fits for fasteners holes
19. always / **never** design OTS parts
20. specify slots or pockets with **round** / square corners when using traditional mfg. equipment
21. **consider** / ignore room for assembly tools
22. always place fastener threads in shear / **tension**
23. use fasteners / **pins** for locating parts with respect to each other
24. specify **(8) 1/4-20 UNC threads in aluminum** / (8) 1/4-28 UNF threads in steel / either
25. specify **(8) 1/4-28 UNF threads in steel** / (8) 1/4-28 UNF threads in titanium / either
26. specify **(8) 1/4-20 UNC threads in aluminum** / (8) 4-40 UNC threads in aluminum / either
27. specify **(8) 1/4-28 UNF threads in steel** / (4) 2-64 UNF threads in aluminum / either
28. specify (8) 1/4-20 threads in aluminum / (8) M6x1.0 threads in aluminum / **either**
29. specify **(8) 1/4-20 UNC threads in aluminum** / (8) 1/2-13 UNC threads in aluminum / either