Roster Number: _____

EML2322L Quiz 7 (10/8/19)

Name: _____

Answer the following questions based on the information presented in class. You can use **your** notes but do not speak with others.

Lab Period: **T5-6 / T7-8 / T9-10**
(circle one) **W2-3 / W4-5 / W7-8 / W9-10**
R2-3 / R4-5 / R7-8 / R9-10

Groups which care about their success on the course project will read the Project Tips posted on the website and do which of the following:

A. review their weekly schedule and plan their individual work assignments
B. review part drawings in office hours with a TA to be prepared to make the parts in lab
C. complete paperwork *outside* their formal lab block
D. print working copies of non-OTS part drawings for reference during lab
E. use 80/20 wisely by selecting pre-cut pieces before cutting longer pieces to length; and only cutting the shortest over-size pieces to the necessary lengths
F. bring 1:1 scale printed and trimmed sheetmetal templates to lab to expedite part fabrication
G. prepare for the **Tapped Hole Quiz** so their group can use the CNC milling machine to drill and tap the holes in the face of their other wheel hub(s)
H. have a backup plan in case a machine their group needs is being used by another team
I. always wait for their TA to answer questions

Circle the word that makes the following answers correct to reduce part cost:

1. use OTS / custom parts
2. use larger / smaller feature tolerances
3. use coarser / finer surface finish specifications
4. use fewer / more finished surfaces
5. use fewer / more dimension datums
6. use stronger / weaker material
7. use tapped / thru-bolted holes
8. use blind / thru holes when reasonable/possible
9. use cone-bottomed / flat-bottomed holes
10. use arbitrary / nominal part dimensions
11. design parts to be larger / smaller
12. design parts for max / min raw-stock removal
13. design parts to use larger / smaller cutting tools
14. design parts fewer / more fillets
15. design around custom / standard cutter sizes
16. avoid / use mirror image (versus identical) parts
17. make acceptable / great detailed part drawings

With project manufacturing commencing this week, it's important to review important rules for your personal safety:

1. You must come to lab each week with long _____ , proper _____ , and printed equipment _____ _____

2. Never leave the _____ _____ in the lathe chuck; even for one second

3. Never reach over the rotating _____ on the lathe for any reason because of the dangerously protruding _____ _____

4. Always _____ and _____ the milling machine spindles before changing tools over the plastic _____ _____

5. Always check the milling machines and lathes are in _____ range before turning them on

6. Always adjust _____ _____ with the mills, lathes and drill presses running

7. Never pull _____ off the machines using your hands; use a rag instead

8. Always engage the workpiece _____ to avoid chipping the fragile cutting inserts / edges

9. Always wear _____ when working with sheetmetal, except when using _____ _____, such as bandsaws, drill presses, grinders, and sanders

10. Never cut any material except _____ on the Marvel bandsaw (hint: the 80/20 extrusion is made from the same general type of material)

11. Always take time to _____ each workpiece after cutting to remove the sharp edges which can injure a teammate or TA