

EML2322L Quiz 5 (9/24/19)

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

Name: _____

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

List 3 considerations when designing motor hubs:

1. _____
2. _____
3. _____

List the four common ways to transmit torque through a hub from strongest to weakest:

1. _____
2. _____
3. _____
4. _____

Which of the following is an advantage of press fits (i.e. interference fits)?

- A. simple to fabricate
- B. capable of high torque transfer
- C. easy to disassemble
- D. self-tightening

When transferring torque using set-screws, why is it important to use “D” shaped shafts with small flats cut into them and what is this called?

List two advantages of keyways and/or pin joints:

1. _____
2. _____

Advantages of splines include:

- A. provide positive mechanical engagement
- B. easy removal without damaging components
- C. can be designed to slip at a predetermined amount of torque transmission
- D. simple to fabricate
- E. all of the above

List at least 10 items a proper detail drawing should contain:

1. dimensions needed to locate every part feature
2. (appropriate) tolerances for every dim on dwg
3. units specification (inches, mm, angstroms, ...)
4. material specification (aluminum, steel, ...)
5. quantity of parts to be made
6. surface finish specifications for every surface
7. appropriate hole & thread notes for every hole
8. unique part name and/or number
9. designer/drawer’s name(s) (might be the same)
10. additional info about breaking sharp corners, etc

What is the purpose of tolerances and when should they be used?

Tolerances note the allowable margin of error for each dimension; they should always be used on final part drawings because manufacturing dimensions without tolerances are useless

You must provide detail drawings for all off-the-shelf (OTS) parts used with your project, with the exception of fasteners; however, fasteners must appear in the assembly drawings / BOM:

TRUE / FALSE

Which of the following should be present in assembly BOMs created for this course?

- A. part numbers
- B. part quantities
- C. part descriptions
- D. unique item numbers matching the balloon numbers on the assembly drawing
- E. cost information for each part

What information is required to properly denote fasteners in assembly BOMs for this course?

1. fastener thread specification
2. fastener head type
3. overall fastener length