EGR 120
Introduction to Engineering
File: N120RT1A

Test #1 Review

Related Material:

Homework Assignments 1 – 6
Media Assignments 1-4
Chapters 1, 2, 5, and 6 in Engineering Fundamentals – An Introduction to Engineering, 4E by Moaveni.

Format

No books, no notes, no computers.
Several formats will probably be included, including multiple-choice, True/False, Fill-in-the-blank, and discussions.

Calculator

Bring a calculator (all calculators are OK unless otherwise indicated by the instructor)
You still must show your work on unit conversion problems using dimension analysis.

Items Provided:

A copy of the ***NSPE Code of Ethics*** will be provided with the test.
A copy of the conversion tables from the inside front and back covers of the text will be provided.

Topics: This general list of topics is not meant to exclude any information covered in class.

The Engineering Profession – Chapters 1-2 (and related notes)
Engineering disciplines
Specialization versus generalization in choosing a degree
Benefits of and requirements for advanced degrees
Difference between engineers, scientists, and technologists/technicians
ABET Accreditation
Engineering Societies – 6 key functions
Benefits of getting involved in student chapters of engineering societies
Licensing as an engineer
    The licensing process – 4 steps
    Why become licensed?
    Exam information
        - How long are the exams?
        - When are they offered?
        - What type of materials can be taken into the exam?
        - What are the 7 areas of specialization for the FE Exam?
        - Who licenses engineers (what authority)?
Media assignments – some questions might be related to the media assignments

(continued)

Engineering Ethics – Chapter 5 (and related notes)
Case studies - discuss how to handle situations involving ethical decisions, including references from the NSPE Code of Ethics.
Short answer questions (T/F, Multiple Choice, Fill in the blank) on basic ethics issues and on the NSPE Code of Ethics.

Engineering Data – Chapter 6 (and related notes)
Significant digits

- Rules for the number of significant digits
- Rules for expressing the results of calculations with the correct number of significant digits:
  - Multiplying and dividing
  - Adding and subtracting
- Implied precision
- Relationship to percent error

Dimensions and Units
Systems of Units

- Advantages of the SI system
- Table of SI Base Units – know the 7 SI Base Units (name and symbol)
- The precise definitions of the 7 SI Base Units are not needed for the test
- Table of SI Prefixes – know all prefixes from 10^{-18} to 10^{+18}
- Rules for prefixes and units
- Performing calculations using prefixes
- Derived units
  - Derived units are built on the base units
  - You will be given information for any derived units needed (Ex: $1\ N = 1\ kg \cdot m/s^2$)
- Calculating force using $F = ma$
- Calculating weight using $W = mg$ (the value of g will be given)
- US Base Units
- Mass versus force
- Mass in slugs and lbm
- Conversions between units – you must use ***dimension analysis*** on the test
- Dimensional analysis
- Temperature conversion – know the formulas to convert between °F, °C, °R, and K