

## OSE2 Exercise Key

### Written Assignment

Answer each of the below questions. You may use this as an answer sheet, typing your answers below each question.

1. What is the vision of ABET (Accreditation Board for Engineering & Technology)?

“ABET will provide world leadership in assuring quality and in stimulating innovation in applied science, computing, engineering, and technology education.”

2. Give a definition of the term “profession”.

From Ford and Gibbs paper: Webster’s Ninth New Collegiate Dictionary (1983) gives this definition:

profession ... 4 a : a calling requiring specialized knowledge and often long and intensive academic preparation b : a principal calling, vocation, or employment c : the whole body of persons engaged in a calling.

3. List the eight infrastructure components in Ford and Gibbs’ model “maturity of a profession”.

- \* Initial Professional Education
- \* Accreditation
- \* Skills Development
- \* Certification
- \* Licensing
- \* Professional Development
- \* Code of Ethics
- \* Professional Society

4. Explain the difference between the terms “accreditation”, “certification” and “licensing”. Give an example of each.

These definitions come from the Ford and Gibbs paper:

- \* Accreditation is a mechanism to assure the quality of educational programs.
- \* Certification is a voluntary process administered by a profession.
- \* Licensing is a mandatory process administered by a governmental authority.

5. Which engineering profession has the highest percentage of practicing engineers who are registered as professional engineers (PEs)?

Civil Engineering at 44%, from Ford and Gibbs paper.

6. List several advantages and several disadvantages of the licensing of software engineers.

From SE & Licensing Position Papers:

- \* Advantages
  - > From Hawthorne “protect the public from people who do not know what they are doing”
  - > From Hawthorne “force the CS departments to teach "good engineering practice"”
  - > From Hawthorne “licensing of software engineers is a necessary step in the maturation of the field”
  - > From Parnas “to make sure that those who design these products are fully qualified by their education and experience to do that kind of work”
  - > From Parans “to be sure that they are fully aware of their professional and legal responsibilities”
- \* Disadvantages
  - > From Brooks “licensing most certainly did not ensure competence, and may not even have encouraged it”
  - > From Gray “our field is changing so fast that the license will be a sign that the person knows the technology of 10 years ago”
  - > From Gray “governmental agencies are poorly equipped to license software engineers”
  - > From Gray “do not think that licensing will protect consumers (reduce fraud or malpractice)”

7. Which area of the *Software Engineering Ethics and Professional Practices* is concerned with

- a. “Not knowingly use software that is obtained or retained either illegally or unethically”?
- b. “Promote public knowledge of software engineering”?

8. List the names of four ACM Special Interest Groups (SIGS).

Here are several:

- \* Algorithms and Computation Theory SIGACT
- \* Ada Programming Language SIGAda
- \* APL Programming Language SIGAPL
- \* Applied Computing SIGAPP
- \* Computer Architecture SIGARCH
- \* Computer Science Education SIGCSE
- \* The ACM Special Interest Group on Computer Science
- \* Software Engineering SIGSOFT

9. How many Journals are listed in the ACM Digital Library?

The following five (5) journals are listed at the ACM web site:

- \* ACM Computing Surveys (CSUR)
- \* ACM Journal of Computer Documentation (JCD)
- \* Journal of Experimental Algorithmics (JEA)
- \* Journal of the ACM (JACM)

- \* Journal on Educational Resources in Computing (JERIC)

10. List the names of four of the IEEE Computer Society technical committees (or councils or task forces).

Here are several:

- \* Bioinformatics (TCBI)
- \* Complexity in Computing (TCCX)
- \* Computational Intelligence (TCCI)
- \* Computational Medicine (TCCM)
- \* Computer Architecture (TCCA)
- \* Computer Languages (TCCL)
- \* Software Engineering

11. How many Transactions publications are listed in the IEEE-CS Digital Library?

The following seven (7) journals are listed at the IEEE-CS web site:

- \* Computers
- \* Knowledge & Data Engineering
- \* Pattern Analysis & Machine Intelligence
- \* Parallel & Distributed Systems
- \* Software Engineering
- \* Mobile Computing
- \* Visualization & Computer Graphics