SWE 3313 Introduction to Software Engineering

Final Exam (04/27/2018 -05/04/2018)

Name: Michael Wessels KSUID: 000719643

email: mwessel@students.kennesaw.edu

- Multiple choice **(1 point per question, total 10 points)**

1. Which of the following is a component of risk management?

[1] Risk identification

[2] Risk prioritization

[3] Risk mitigation

[4] All of these are correct.

**Answer:** 4

2. Software organizations perform extensive studies over these change request forms to better understand which of the following?

[1] Product shortcomings

[2] Customer needs

[3] Product directions in the future

[4] All of these are correct.

**Answer:** 4

3. Which one of the following activities is *not* one of the components of software configuration management?

[1] Understanding the policy, process activities, and the resulting artifacts that need to be managed

[2] Determining and defining the framework that needs to be used to manage these artifacts

[3] Managing the software development life cycle process

[4] Training and ensuring that the agreed-upon configuration management process is practiced and adhered to

**Answer:** 3

4. Given a software artifact that we maintain in four different country versions and two platforms (iOS and Android), with yearly releases for 5 years, how many versions of the artifact would need to be managed?

[1] 8

[2] 40

[3] 60

[4] 11

**Answer:** 2

5. Which of the following models defines the facilities needed to store and to control the access of all the software artifacts?

[1] Storage and access

[2] Software configuration management

[3] Naming

[4] Build

**Answer:** 1

6. The fundamental discipline of which of the following involves keeping clear account of the multiple versions of source material and being able to deliver any one of those versions for integration and build, which generates the desired software release for users?

[1] Software engineering

[2] Software development

[3] Software configuration management

[4] Building tools

**Answer:** 4

7. Which of the following are techniques for detecting errors in programs and documents?

[1] Refactoring and testing

[2] Testing, inspection, and review

[3] Cluster analysis and refactoring

[4] All of these are correct.

**Answer:** 4

8. The content of a code inspection report needs to include:

[1] a list of problems found during the inspection.

[2] the participants of the inspection.

[3] severity levels of each of the problems found.

[4] what material was inspected.

[5] All of these are correct.

**Answer:** 5

9. One of the hindrances to using formal methods is that it requires the participants to be well trained in:

[1] mechanical engineering.

[2] physics.

[3] psychology.

[4] mathematics and logic.

[5] None of these are correct.

**Answer:** 4

10. Code reuse is done by sophisticated organization from design patterns to:

[1] reusable components.

[2] code templates.

[3] code libraries.

[4] All of these are correct.

[5] reusable components and code templates.

**Answer:** 2

- **True/False (1 point per question, total 10 points)**

1. WBS is dividing the project into bite-size pieces that can be estimated.

**Answer:** True

2. Fix deliveries are always done for emergency fixes so the customer does not need to do the next regular fix release.

**Answer:** False

3. Small functional enhancements provided to customers are not priced as a different product release.

**Answer:** True

4. The requirements artifacts are usually tied by our build tools to the related design document, source code, and test cases.

**Answer:** True

5. In order to ensure that all the source materials are the right ones during and throughout the development stages, we must introduce and implement the discipline of configuration management.

**Answer:** True

6. A “quality goal” is a vital part of a test plan.

**Answer:** True

7. The main levels of testing include unit testing, functional testing, and system testing.

**Answer:** False

8. Boundary-value testing is based on past knowledge to evade all boundary conditions in testing. **Answer:** False

9. Code inspections, walk-throughs, and reviews are all similar and just differ in degree of formality. **Answer:** True

10. Refactoring code will change the code’s logic and behavior.

**Answer:** False

- **Answer questions**

1. List three customer support functions that a customer support/service organization performs. (15 points)

**Answer:** Receive and evaulate problem and error calls, provide technical problem fixxes, and fix deliveries and installs.

2. Explain what happens to a product during its sunset period? (10 points)

**Answer:** the products new features releases are stopped and only severe problems are fixed. A new product replacement is announced and encouraged. notify users of the planned termination, give the customers vendors who may continue to support the software, and then terminate the software.

3. How would software configuration management vary between organizations, depending on project complexity, software process (agile vs waterfall), and degree of risk aversion? (15 points)

**Answer:** If a risk adverse company is working on large and complicated software, they may choose to follow a waterfall method very closely and have inspect the developing product often recording and storing the process and creation of the software, where a small organization will place emphasis on only a few activities like requirement specifications and coding.

4. Discuss an advantage of using an inspection technique over code testing. (10 points)

**Answer:** Inspecting code can be done more frequently, is more cost effective, and promotes maintainability. Also Code Inspection can find errors that cant be "tested", this means that the design of the code does not fit the product requirements or specifications.

5. Briefly discuss the issues associated with naming variables and procedures in a program. (15 points)

**Answer:** Naming is very important for readability and maintainability in a program, choosing a good name for variables and functions can make the code's intent more clear. Bad names however may need comments which can confuse, or mislead other users when viewing the code.

6. Explain the four phases for database design. (15 points)

**Answer:** The first phase of database design is the data modeling phase. In this phase detailed and complete ER models are created which includes ER diagrams and documentation on things not reflected by the diagram. The logical database design phase implies transforming the ER diagram into a set of tables, which repersent entities and relate to eachother in logical ways. The physical database design phase makes sure each attrubute is assigned the correct data type, decides what indexes to create and tables will be denormalized.