

- Assignments must be completed individually.
- No late assignments will be accepted.
- Provide **concise** answers to the following questions. Use **point form** whenever possible.
- Submit your completed solutions to **Crowdmark**.

[3]

1. Your instructor maintains a database to track your iClicker responses, to compute your class participation grades for CS 430. This database is a software product (albeit a very small one). Which software development life-cycle model do you think your instructor used to develop this database? Give two reasons to justify why this choice of life-cycle model is appropriate for developing this software product.

- [4] 2. To compare the open source life-cycle model against the (modified) waterfall life-cycle model within a large software company, the following experiment is proposed.

The same software product will be built by two different teams, one using the open source life-cycle and the other using the (modified) waterfall life-cycle. The life-cycle that completes the project sooner will be considered the winner.

Give two reasons why this experiment is impractical and unlikely to yield meaningful results. Briefly explain each reason.

[5]

3. In each part, indicate of which definition (**regression fault**, **regression test**, **scope creep**, **Miller's Law**, **stepwise refinement**) the given description is an example. No justification is required.

You are completing an IT project to modify a payroll system to modify the income tax deducted at-source for salaried employees, per new Canada Revenue Agency (CRA) rules. The change to the CRA rules does not affect hourly paid employees.

- (a) The Requirements document contains a list of 30 requirements. During the Analysis phase of your project, your business analyst cannot work on all 30 requirements simultaneously.
  
- (b) The Requirements document contains a list of 30 requirements. During the Analysis phase of your project, your business analyst begins by analyzing the most important 5 requirements first, temporarily ignoring all the rest.
  
- (c) Your business partners request to add a change to the computation of the at-source deductions for benefits coverage to the Requirements document for your project.
  
- (d) You run your old code (pass 0) and your new code (pass 1) against a set of test cases selected from the hourly paid employees, and confirm that the computed at-source income tax deductions are identical in pass 0 and pass 1.
  
- (e) You deploy your completed code, and after deployment, your business partners report that the at-source income tax deductions for hourly paid employees have changed, where they should not have changed.

4. The Software Project Management Plan (SPMP) is produced during the Requirements Workflow. The SPMP must contain an estimate of the person-days required to complete the project.

[3]

- (a) What consequences might we face if we under-estimate the person-days required?

[1]

- (b) What consequence might we face if we over-estimate the person-days required?

5. In this question you will identify the **workflow** to which an artifact belongs, and the **phase** during which it will most likely be completed.

- [1] (a) State to which workflow the artifact of **code: ready for unit testing** belongs.
- [1] (b) State during which phase the artifact of **code: ready for unit testing** will most likely be completed.
- [1] (c) State to which workflow the artifact of **system architecture design: final version** belongs.
- [1] (d) State during which phase the artifact of **system architecture design: final version** will most likely be completed.
- [1] (e) State to which workflow the artifact of **database analysis: first draft** belongs.
- [1] (f) State during which phase the artifact of **database analysis: first draft** will most likely be completed.
- [1] (g) State to which workflow the artifact of **database analysis: final version** belongs.
- [1] (h) State during which phase the artifact of **database analysis: final version** will most likely be completed.

- [4] 6. You have just started a new software firm. All your employees are recent university graduates; this is their first programming job. Will it be possible to implement democratic teams in your firm? Justify your answer.

- [4] 7. A student programming team is organized as a classical chief programmer team. What can be deduced about the students in the team?