

King Saud University
College of Computer and Information Sciences
Software Engineering Department

SWE 333- Software Quality Assurance

Quiz #1

1st Semester 1436-1437

.....:اسم الطالب.....:الرقم الجامعي:.....

Q1: [6 points] There are three categories belonging to McCall's factors model, please list them with their factors.

Answers

► **Product operations**

- **Correctness:** the functionality matches the specification.
- **Reliability:** the extent to which the system fails.
- **Efficiency:** system resource (including cup, disk, memory, network) usage.
- **Integrity:** protection from unauthorized access.
- **Usability:** ease of use.

► **Product revision**

- **Maintainability:** the ability to find and fix a defect.
- **Flexibility:** the ability to make changes required as dictated by the business.
- **Testability:** the ability to validate the software requirements.

► **Product transition**

- **Portability:** the ability to transfer the software from one environment to another.
- **Reusability:** the ease of using existing software components in a different context.
- **Interoperability:** the extent, or ease, to which software components work together.

Q2:[5 points] Panasonic Inc. is a manufacturer of washing machines and dishwashers. The requirements document for the new control unit included the following specifications:

- A. The firmware should be suitable for all six variations of model 2002 washing machines.**
- B. The water level control module of the washing machine should be suitable for use as a water level control module in the new model 2002 dishwasher.**

To which of the factors do the above requirements belong? Explain your answer?

Answers

- The specifications refer to the **flexibility** and **reusability** factors respectively.
- Requirement (a) refers to flexibility in the use of a complete firmware product that by its very design will enable it to be used as firmware in several variations of washing machines by using a variety of parameter sets.
- Requirement (b) refers to the reuse of part of a firmware product, to a module that is introduced into entirely different firmware products and saves the efforts of developing a new module, which will only serve dishwashers.

Q3: [4 points] write the appropriate McCall's factor in front of each the following requirements:

- 1. The extent to which a program can be expected to perform its intended function with required precision. **(Reliability)**
- 2. The amount of computing resources and code required to perform is function. **(Efficiency)**