Test **Management**: Part II

Software Testing: INF3121 / INF4121

Summary: Week 7

Test organisation

    Independence | Tasks of the test leader and testers

Test planning and estimation

    Activities | Entry and exit criteria | Estimation | Strategy and approach

Test progress monitoring and control

Configuration and management

Risk and testing

Part I: Close-ended questions

Question 1

Which of the following metrics would be most useful to monitor during test execution?

a. Percentage of test cases written
b. Number of test environments remaining to be configured
c. Number of defects found and fixed
d. Percentage of requirements for which a test has been written

Question 1: Answer

Which of the following metrics would be most useful to monitor during test execution?

Test progress monitoring

- Give feedback and visibility of the test effort / activities

- Monitoring information can be collected manually / automatically

- Metrics can be used to measure exit criteria

Common test metrics

% of work done in test case preparation	Test case execution (e.g. number of tests run/not run)	Defect information (e.g. defect density, found / fixed)	Dates of test milestones
% of work done in test environment preparation	Test coverage (requirements, risks, code)	Subjective confidence of testers in the product	Testing costs

Question 1: Answer

Which of the following **metrics** would be most **useful** to **monitor** during **test execution**?

a. Percentage of test cases written
b. Number of test environments remaining to be configured
c. **Number of defects found and fixed**
d. Percentage of requirements for which a test has been written

Question 2

In a test **summary report**, the project's test leader makes the following statement:

"The payment processing subsystem fails to accept payments from American Express cardholders, which is considered a must-work feature for this release."

This statement is likely to be found in which section?

a. Evaluation
b. Summary of activities
c. Variances
d. Incident description

Question 2: Answer

This statement is likely to be found in which section?

Test reporting

    Summarising information about the test effort

    What happened during a test period?

        E.g. dates when exit criteria were met

Analysed metrics to support decisions about future actions

    Adequacy of the test objectives for that test level

    Adequacy of the test approaches taken

    Effectiveness of the testing with respect to its test objectives

Question 2: Answer

This statement is likely to be found in which **section**?

"The payment processing subsystem fails to accept payments from American Express cardholders, which is considered a must-work feature for this release."

IEEE 829 Standard:
TEST SUMMARY REPORT

Test summary report identifier
Summary
    Identify all relevant support materials
    Test items / Environment / References
Variances
    Document changes or deviations from test plan
Comprehensiveness assessment
    Evaluation of the test effort in terms of objectives
    Assess quality / effectiveness of testing
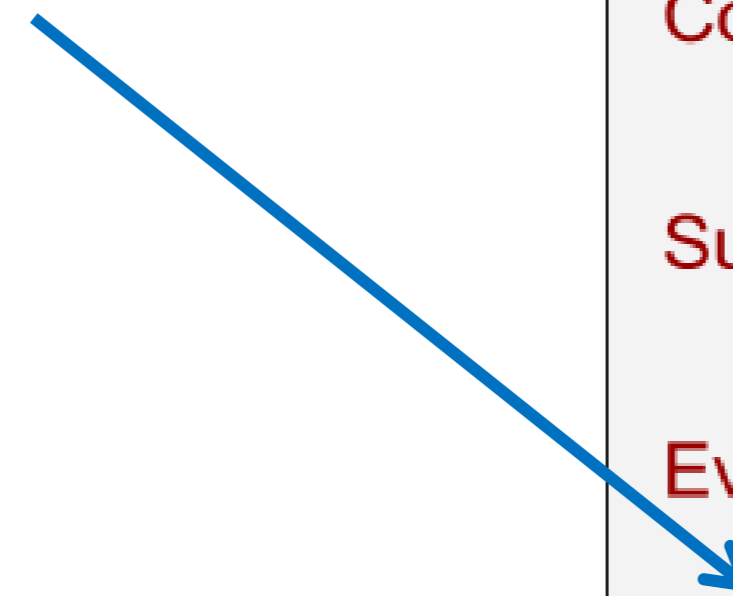Summary of results
    Report overall status of incidents
    Defect patterns / Open, unresolved incidents
Evaluation
    Assess quality of the software
    Limitations → Incomplete or partial functions
    Failure likelihood
Summary of activities
Approvals

Question 2: Answer

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a. **Evaluation**
b. Summary of activities
c. Variances
d. Incident description

Question 3

During an **early** period of test **execution**, a **defect** is **located**, **resolved** and **confirmed** as resolved by **re-testing**, but is seen again later during **subsequent** test execution.

Which of the following is a **testing-related** aspect of **configuration management** that is most likely to have **broken** down?

a. Traceability
b. Confirmation testing
c. Configuration control
d. Test documentation management

Question 3: Answer

Which is a testing-related aspect of configuration management most likely to have broken down?

Configuration Management

Establish and maintain the integrity of the products of the software

| Components | Data | Documentation |

Integrity → Assurance of the accuracy and consistency of data through the life cycle

Ensure that all items of testware are:

Identified

Version controlled ⟶ Maintain traceability throughout the test process

Tracked

Question 3: Answer

During an **early** period of test **execution**, a **defect** is **located**, **resolved** and **confirmed** as resolved by **re-testing**, but is seen again later during **subsequent** test execution.

Which of the following is a **testing-related** aspect of **configuration management** that is most likely to have **broken** down?

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b. Confirmation testing
c. **Configuration control**
d. Test documentation management

Question 4

You are working as a tester on a project to develop a point-of-sales system for grocery stores. Which of the following is a product risk for such a project?

a. Arrival of a more reliable competing product on the market
b. Delivery of an incomplete test release to the first cycle of system test
c. An excessively high number of defect fixes fail during re-testing
d. Failure to accept allowed credit cards

Question 4: Answer

Which of the following is a product risk for a point-of-sales system?

Risks

Possibility of a negative / undesirable outcome

Possible problems that may endanger the objectives of the project stakeholders

Risk analysis and management aid in managing possible negative outcomes

Two main categories of risks

Product risks

Project risks

Which of the following is a product risk for a point-of-sales system?

Product Risks

Potential failure areas in the software

Risks specifically related to the quality of the product

Failure-prone software

Software / Hardware that could case harm to the user

Poor software characteristics

Software that does not perform its intended functions

Question 4

You are working as a tester on a project to **develop** a **point-of-sales** system for grocery stores. Which of the following is a **product risk** for such a project?

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b. Delivery of an incomplete test release to the first cycle of system test
c. An excessively high number of defect fixes fail during re-testing
d. **Failure to accept allowed credit cards**

Question 5

A **product risk analysis** meeting is held during the **planning** period. Which of the following **determines** the **level** of **risk**?

a. Difficulty of fixing related problems in code
b. The harm that might result to the user
c. The price for which the software is sold
d. The technical staff in the meeting

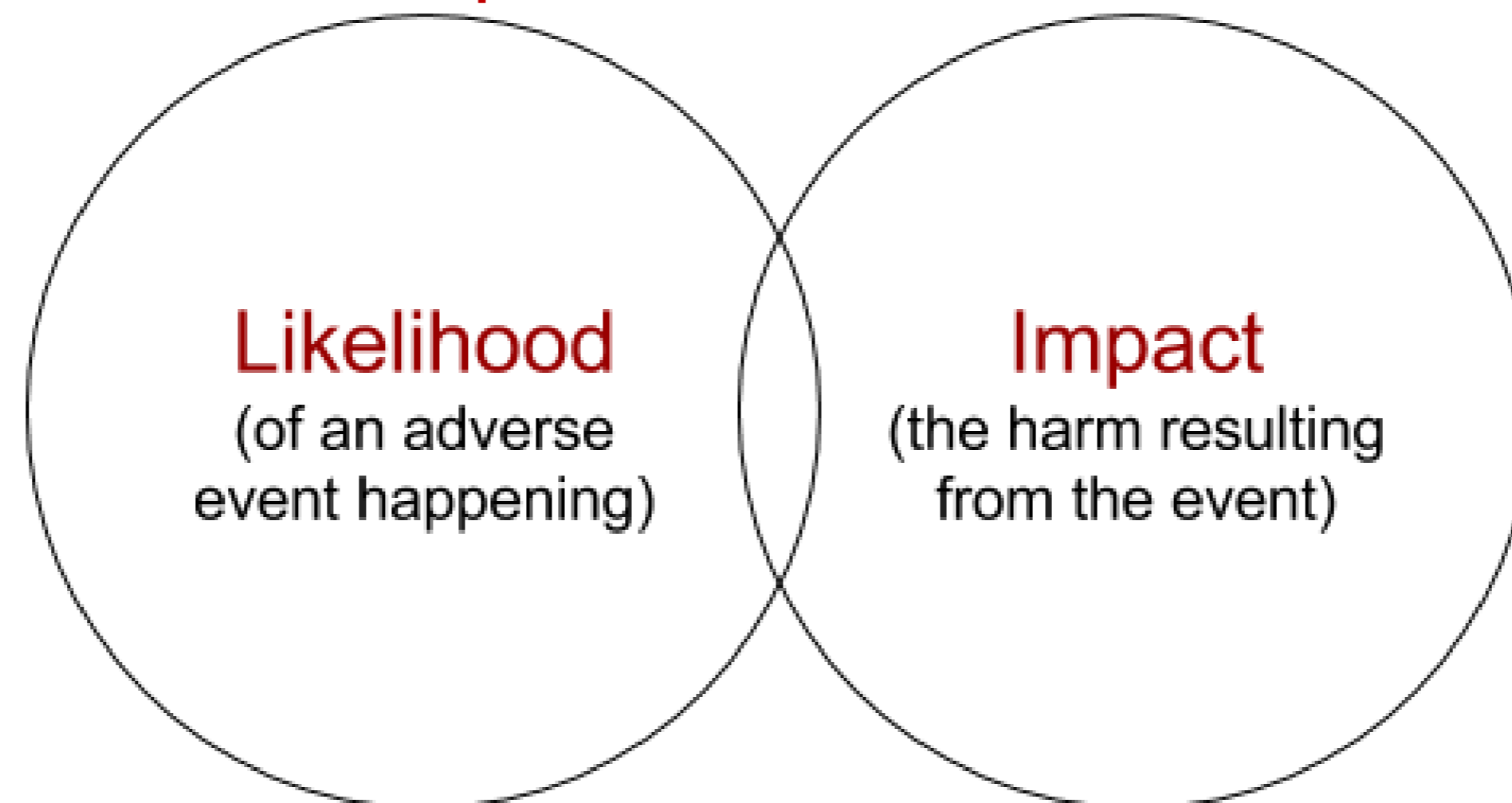**What determines the level of risk during a product risk analysis meeting in the planning period?**

Determining the level of risk

Likelihood → What are the chances?

Impact → What are the consequences?

Likelihood
(of an adverse
event happening)

Impact
(the harm resulting
from the event)

Question 5

A **product risk analysis** meeting is held during the **planning** period. Which of the following **determines** the **level** of **risk**?

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b. **The harm that might result to the user**
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d. The technical staff in the meeting

Question 6

You are writing a **test plan** using the **IEEE 829** template and currently completing the **Risks** and **Contingencies** section.
Which of the following is most likely to be listed as a **project risk**?

a. Unexpected illness of a key team member
b. Excessively slow transaction-processing time
c. Data corruption under network congestion
d. Failure to handle a key use case

Question 6: Answer

Which of the following is most likely to be listed as a project risk?

Project risks

Risks that surround the project's capability to deliver its objectives

Risks specifically related to aspects of the project processes

Organisational factors

Shortage of people, skill, training | Communication and attitude problems

Technical issues → Problems defining the right requirements

Supplier issues → Third-party failures

Question 6: Answer

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a. **Unexpected illness of a key team member**
b. Excessively slow transaction-processing time
c. Data corruption under network congestion
d. Failure to handle a key use case

Question 7

You and the project stakeholders develop a list of product risks and project risks during the planning stage of a project. What else should you do with those lists of risks during test planning?

a. Determine the extent of testing required for the product risks and the mitigation and contingency actions required for the project risks

b. Obtain the resources needed to completely cover each product risk with tests and transfer responsibility for the project risks to the project manager

c. Execute sufficient tests for the product risks, based on the likelihood and impact of each product risk and execute mitigation actions for all project risks

d. No further risk management action is required at the test planning stage

Question 7: Answer

What **else** should you **do** with those lists of **product** and **project risks** during test **planning**?

Risk-based approach during the planning stage

Product risks

Determine the extent of testing to be carried out

Prioritise testing in an attempt to reveal critical defects as early as possible

Project risks

Identify risk items

Determine likelihood and impact for each item

Define mitigation and contingency actions for the identified risks

Question 7: Answer

You and the project stakeholders **develop** a **list** of **product** risks and **project risks** during the **planning** stage of a project. What **else** should you **do** with those **lists** of **risks** during test **planning**?

a. **Determine the extent of testing required for the product risks and the mitigation and contingency actions required for the project risks**

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Question 8

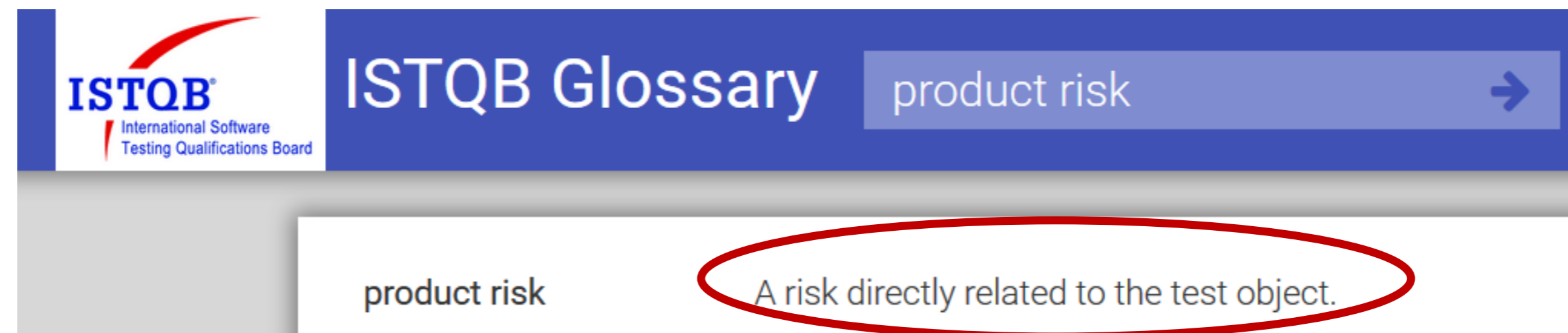**According to the ISTQB Glossary, a product risk is related to which of the following?**

a. Control of the test project
b. The test object
c. A single test item
d. A potential negative outcome

Question 8: Answer

According to the ISTQB Glossary, a product risk is related to which of the following?

Product risk: ISTQB definition

In contrast to a project risk

"*A risk related to management and control of the project* "

E.g. lack of staffing, strict deadlines, changing requirements, etc.

Question 8: Answer

According to the **ISTQB Glossary**, a **product risk** is related to which of the following?

a. Control of the test project
b. **The test object**
c. A single test item
d. A potential negative outcome

Question 9

Typical test strategies include:

1. Risk-based testing
   Testing directed to areas of greatest risk
2. Failure-based testing
   Test more in failure-prone areas
3. Management-directed testing
   Test first the areas indicated by the org. management

Which are true and which are false?

Question 9: Answer

Risk-based testing

Idea: Can organise test effort to reduce the residual level of risk

Use of risk analysis to prioritise and emphasise appropriate tests

Guide planning, specification, preparation, and execution

Analysis and risk identification starts early in the project

Involves both preventive (mitigation) and damage control (contingency) measures

Mitigation → Testing to provide opportunities to reduce likelihood of defects

Contingency Testing to identify work-arounds for the defects that aren't discovered

Question 9: Answer

Failure-based testing

Idea: Can organise test effort based on failure-prone areas

Identifies areas most likely to hold defects, based on complexity

Some functionality is harder to implement than other

These areas are more vulnerable to defects

Starts early in the project and conducted throughout the life cycle

New problems / challenges will always emerge

Management-directed testing

This is not a defined test strategy in the ISTQB syllabus

Question 9: Answer

Typical **test strategies** include:

1. Risk-based testing **TRUE**
   Testing directed to areas of greatest risk
2. Failure-based testing **TRUE**
   Test more in failure-prone areas
3. Management-directed testing **FALSE**
   Test first the areas indicated by the org. management

Which are **true** and which are **false**?

In an **incident report**, the tester makes the following statement:

"At this point, I expect to receive an error message explaining the rejection of this invalid input and asking me to enter a valid input. Instead, the system accepts the input, displays an hourglass for between one and five seconds, and finally terminates abnormally, giving the message [Unexpected data type: 15. Click to continue]"

This statement is likely to be found in which of the following sections of an IEEE 829 Incident Report?

a. Summary
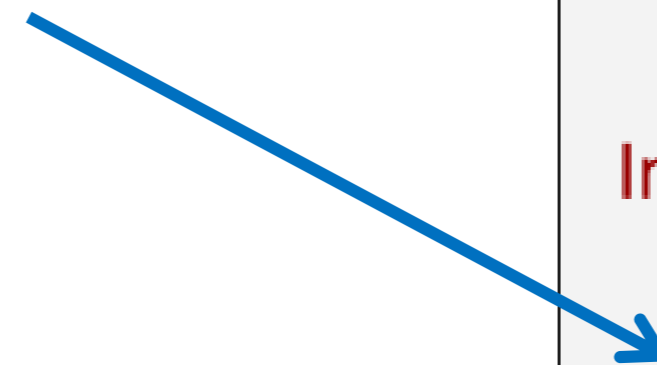b. Impact
c. Item pass / fail criteria
d. Incident description

Question 10: Answer

This statement is likely to be found in which of the following sections of an IEEE 829 Incident Report?

"At this point, I expect to receive an error message explaining the rejection of this invalid input and asking me to enter a valid input. Instead, the system accepts the input, displays an hourglass for between one and five seconds, and finally terminates abnormally, giving the message [Unexpected data type: 15. Click to continue]"

IEEE 829 Standard:
TEST INCIDENT REPORT

Test incident report identifier
Summary
    Summary of actual incident
    References to:
        Test procedure used to discover incident
        Test logs showing actual execution of cases
Incident description
    Detailed explanation of the incident
    Inputs / Expected results
    Actual results
    Anomalies
    Procedure step
Impact
    Report actual damage caused by incident
    Severity / Priority assessment

Question 10: Answer

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This **statement** is likely to be **found** in which of the following **sections** of an **IEEE 829** Incident Report?

a. Summary
b. Impact
c. Item pass / fail criteria
d. **Incident description**

Question 11

According to the **ISTQB Glossary**, what do we call a **document** that describes **any event** that **occurred** during **testing** which requires **further investigation**?

a. A bug report
b. A defect report
c. An incident report
d. A test summary report

Question 11: Answer

According to the ISTQB Glossary, what do we call a document that describes any event that occurred during testing which requires further investigation?

Incident

Discrepancies between actual and expected test outcomes

Incident management

The process of recognising, investigating, taking actions, and disposing of incidents

Incident report

A document reporting on any event that occurred during testing

Requires further investigation

Question 11: Answer

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A **product risks analysis** is performed during the **planning** stage of the test process. During the **execution** stage, the test manager directs testers to **classify** each **defect** report by the **known product risk** it relates to (or by **'other'**).

Once a week, the test manager runs a **report** that **shows** the percentage of **defects** related to each **known product risks**, and to **unknown risks**.

What is one **possible use** of such a **report**?

a. To identify new risks to system quality
b. To locate defect clusters in product subsystems
c. To check risk coverage by tests
d. To measure exploratory testing

Question 12: Answer

What is one possible use for a report showing defects related to known product risks and unknown risks?

Objectives of an incident report

Provide developers with feedback about incidents to:

Enable identification, isolation, and corrective measures

Provide test leaders with feedback about incidents to:

Track system quality

Measure test progress

Provide ideas for test process improvement

Identify potential new risks to system quality

Question 12: Answer

A **product risks analysis** is performed during the **planning** stage of the test process. During the execution stage, the test manager directs testers to **classify** each **defect** report by the **known product risk** it relates to (or by **'other'**).

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a. **To identify new risks to system quality**
b. To locate defect clusters in product subsystems
c. To check risk coverage by tests
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Part II: Exercises and Open-ended questions

Exercise 1

Go to the following **website** and **find** an **incident**:

www.adam.goucher.ca/parkcalc/

Fill out the attached **incident report**

Exercise 1: Incident Report

Date:_____

Project:_____

Tester:_____

Program / Module:_____ Build/Revision/Release:_____

Software Environment:_____ Hardware Environment:_____

Status of the incident:_____

Number of Occurrences:_____ Severity:_____ Impact:_____ Priority:_____

Detailed Description:_____

_____

Expected result / Actual result: _____

Assigned To:_____

Incident Resolution::_____

Exercise 1: Incident Report

Date: 24.02.16
Project: adam.goucher.ca/parkCalc
Tester: Esben

Program/Module: Parking Calculator   Build/Revision/Release: _____
Software Environment: Vivaldi 1.0.344.37   Hardware Environment: Macbook Pro
Status of the incident _____

Number of Occurrences: 2   Severity: low   Impact low   Priority   low
Detailed Description: When choosing lot Long-term Garage parking, and entry time is after exit time, you don't get an error message, just cost = 0, and a negative time displayed

Expected result / Actual result: Error message expected, but $0, and negative time is given as result.

Assigned To: Uncle Bob
Incident Resolution: _____

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