KTest

更に上のクオリティ　更に上のサービス

問題集

Exam : **CTAL-TTA**

Title : ISTQB Advanced Level
Technical Test Analyst
(CTAL-TTA)

Version : DEMO

1.Within an embedded software project, the maintainability of the software is considered to be critical.
It has been decided to use static analysis on each delivered software component.
Which of the following metrics is NOT a maintainability metric typically used with static analysis?
A. Number of Lines of Code (LOG)
B. Number of Function Calls
C. Mean Time Between Failures
D. Comment Frequency
Answer: C
Explanation:
Maintainability metrics typically used with static analysis include measures that reflect the complexity and understandability of the code, such as Number of Lines of Code (LOC), Number of Function Calls, and Comment Frequency. These metrics help in assessing how easily the software can be understood, modified, and maintained. Mean Time Between Failures (MTBF), on the other hand, is a reliability metric. It measures the time elapsed between inherent failures of a system during operation. MTBF is used to predict the system's reliability and is not directly related to the maintainability of the code. Reliability metrics like MTBF would be used in the testing phase to measure the operational reliability of the system rather than during static analysis for maintainability assessment.

2.You are involved in testing a system in the medical domain. Testing needs to comply with the FDA requirements and is rated as being safety critical. A product risk assessment has been performed and various mitigation actions have been identified. Reliability testing is one of the test types that needs to be performed throughout the development lifecycle.
Based on the information provided, which of the following activities would need to be addressed in the test plan?
A. Perform a vulnerability scan.
B. Design and execution of specific tests that evaluate the software's tolerance to faults in terms of handling unexpected input values.
C. Design and execution of test cases for scalability.
D. Testing whether the installation/de-installation can be completed.
Answer: B
Explanation:
In the context of safety-critical systems, particularly in the medical domain, reliability is of utmost importance. For such systems, it is crucial to ensure that the software can handle unexpected input values and continue to operate without failure. This is essential to ensure patient safety and compliance with FDA requirements. Vulnerability scans (option A) are more related to security testing, whereas scalability (option C) and installation/de-installation (option D) are important but not specifically related to the reliability and safety criticality of the system in the medical domain.

3.The following characteristics were identified during an early product risk-assessment for a software system:
• the software system needs to manage synchronization between various processes
• microcontrollers will be used that will limit product performance
• the hardware that will be used will make use of timeslots
• the number of tasks supported in parallel by the software system is large and are often highly complex.

Based on the information provided, which of the following non-functional test types is MOST appropriate to be performed?
A. Maintainability testing
B. Security testing
C. Time-behaviour testing
D. Portability testing
Answer: C
Explanation:
The characteristics listed in the question point towards the need to manage synchronization between processes and make efficient use of limited hardware resources, such as microcontrollers and timeslots. Additionally, the complexity and concurrency of tasks highlight the importance of the software's performance over time. Time-behaviour testing is the most appropriate non-functional test type to perform in this scenario as it focuses on evaluating the timing aspects of the system, such as response times, processing times, and throughput rates. It ensures that the system meets its time-related requirements, which is critical for systems reliant on synchronization and limited by hardware performance constraints.

4.Consider the pseudo code for the Price program:

```
01        MAIN "The Price Program"
02
03        Read Supplier_Price
04        Read Markup
05        Read QTY
06        Price = Supplier_Price * Markup
07        Sale_Value = Price * QTY
08
09        Del_Charge = 5
10        Commision = 1
11
12        WHILE Del_Charge > 0
13
14          IF Sale_Value > 30000
15          THEN Commission = 2
16          ENDIF
17
18          IF Sale_Value > 60000
19          THEN Del_Charge = 2
20          Bonus_Commission = 2
21          ENDIF
22
23          Del_Charge = Del_Charge + 1
24        ENDWHILE
25
26        END
```

Which of the following statements about the Price program describes a control flow anomaly to be found in the program?

A. The Price program contains no control flow anomalies.

B. The Price program contains unreachable code.

C. The Price program contains data flow defects.

D. The Price program contains an infinite loop.

Answer: D

Explanation:

The pseudo code provided for the Price program shows a potential for an infinite loop due to the way the 'Del_Charge' variable is being manipulated. The loop is set to continue 'WHILE Del_Charge > 0', and within the loop, 'Del_Charge' is initially set to 5 and then potentially decreased by 2 if 'Sale_Value > 60000'. However, at the end of each loop iteration, 'Del_Charge' is increased by 1. This means that if 'Sale_Value' is not greater than 60000, 'Del_Charge' will not decrease and will instead increment

indefinitely, causing an infinite loop. Even if 'Sale_Value' is greater than 60000, the decrement by 2 could be negated by the subsequent increments if the loop runs enough times, potentially leading to an infinite loop situation. There is no guaranteed exit condition once the loop is entered, which is a control flow anomaly.

5.A major Caribbean bank typically develops their own banking software using an Agile methodology. However, for some specific components COTS software is acquired and used. The bank does not want to create a dependency on any external COTS supplier.
As part of the test approach, portability testing will be performed.
Which portability sub-characteristic is especially relevant for the Caribbean bank?
A. In stall ability
B. Adaptability
C. Replaceability
D. Co-existence
Answer: C
Explanation:
Portability testing is concerned with how well software can be transferred from one environment to another. In the context of a bank using COTS (Commercial Off-The-Shelf) software, the sub-characteristic of replaceability becomes particularly relevant. This is because the bank does not want to create a dependency on any external COTS supplier, meaning it should be able to replace the software with another product without significant effort or operational disruption. Replaceability ensures that if needed, the bank can switch to different software, thereby mitigating the risk of supplier dependency.