Exam Code: CTAL-TTA

Exam Name: Certified Tester Advanced Level Technical Test Analyst

Exam A

QUESTION 1
Which of the following statements best captures the difference between data-driven and keyword-driven test automation?

A. Data-driven test automation extends keyword-driven automation by defining data corresponding to business processes.
B. Keyword-driven test automation extends data-driven automation by defining keywords corresponding to business processes.
C. Data-driven test automation is more maintainable than keyword-driven test automation.
D. Keyword-driven test automation is easier to develop than data-driven test automation.

Correct Answer: B
Section:
Explanation:
Keyword-driven test automation is a framework where test cases are written using keywords that represent the actions or tests to be performed on the system. This is an extension of data-driven test automation, which focuses on separating test scripts from the test data, allowing the same test script to be run with various sets of data. Keyword-driven test automation further abstracts the process by allowing tests to be written in a more human-readable form that corresponds to business processes. This approach can improve maintainability and readability of test cases, making them easier to understand and modify. It's not necessarily the case that one is more maintainable or easier to develop than the other (Options C and D); rather, they serve different purposes in test automation strategy.

QUESTION 2
A medical company has performed a safety criticality analysis using the IEC61508 standard. The software components to be developed have been categorized by Safety Integrity Level (SIL). Most components have been rated at SIL 1 or 2, and a few components at SIL 4.
After some discussions with the QA manager, the project has decided to adhere to the recommendations for test coverage provided by the IEC61508 standard.
Which level and type of test coverage should at least be used for the components rated at Safety Integrity Level (SIL) 2?

A. 100% statement coverage, 100% decision coverage and 100% multiple condition coverage
B. 100% statement coverage, 100% decision coverage and 100% MC/DC coverage
C. 100% statement coverage and 100% decision coverage
D. 100% statement coverage

Correct Answer: C
Section:
Explanation:
In the context of software testing, different safety integrity levels (SIL) require different levels of rigor in testing. According to the IEC61508 standard, for software components rated at SIL 2, achieving 100% statement coverage and 100% decision coverage is recommended. Statement coverage ensures that every line of code is executed at least once during testing, while decision coverage ensures that every decision in the code (e.g., every branch of an IF statement) is executed on both the true and false sides. These coverage criteria ensure a thorough testing of the software components to validate that they behave correctly in all circumstances. Multiple condition coverage and MC/DC coverage (Options A and B) are more rigorous and typically required for higher SIL levels, such as SIL 4.

QUESTION 3
Consider the pseudo code provided below:

```
READ A
READ B
If B > A THEN
            MIN = A
            IF B = 2*A THEN
                        PRINT "Bingo!"
            ENDIF
ELSE
            MIN = B
ENDIF
PRINT MIN
```
Given the following tests, what additional test(s) (if any) would be needed in order to achieve 100% statement coverage, with the minimum number of tests?
Test 1: A = 7, B = 7, Expected output: 7
Test 2: A = 7, B = 5, Expected output: 5

A. A=6, B=12, Expected output: Bingo! and A=7, B=9, Expected output: 7

B. A=6, B=12, Expected output: Bingo!

C. A=7, B=9, Expected output: 7

D. No additional test cases are needed to achieve 100% statement coverage.

Correct Answer: D
Section:
Explanation:
100% statement coverage means that every line of code is executed at least once during testing. Based on the provided pseudo-code and the test cases given:
Test 1 executes the MIN = B statement when A and B are equal.
Test 2 executes the MIN = A statement and skips the inner IF since B is not equal to 2*A.
All statements within the code have been executed by these two tests, hence no additional test cases are needed to achieve 100% statement coverage.
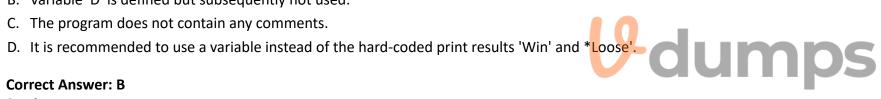
QUESTION 4
Below is the pseudo-code for the Win program:

```
0    program Win
1    A, B, C, D : integer
2    begin
3         read(A)
4         read(B)
5         read(C)
6         read(D)
7         if (A>B) then
8              if A>C then
8              write ("Win")
9              endif
10   else
11             write ("Loose")
12        endif
14   end program Win
```

The bingo program contains a data flow anomaly. Which data flow anomaly can be found in this program?

A. Variable 'A' is not assigned a value before using it.

B. Variable 'D' is defined but subsequently not used.

C. The program does not contain any comments.

D. It is recommended to use a variable instead of the hard-coded print results 'Win' and *Loose'.

Correct Answer: B
Section:
Explanation:
The pseudo-code provided for the 'Win' program reads in variables A, B, C, and D. However, only variables A, B, and C are used in the conditional statements to determine if the output will be 'Win' or 'Loose'. Variable 'D' is never used after it is read, which is a classic example of a 'defined but not used' data flow anomaly. This means that while there is an instruction to read a value into variable 'D', there is no subsequent use of this variable in the program's logic or output.

QUESTION 5
At which test level would performance efficiency testing most likely be performed?

A. Component testing

B. Integration testing

C. System testing

D. User acceptance testing

Correct Answer: C
Section:
Explanation:
Performance efficiency testing is most commonly associated with system testing. This is the level at which the complete, integrated system is evaluated, and it is typically where performance, load, and stress testing are conducted to assess the system's behavior under various conditions and loads. Performance efficiency testing at this level helps to ensure that the system meets the necessary performance criteria as a whole.

QUESTION 6
There are multiple activities the Technical Test Analyst performs regarding test automation. Which of the following activities is a typical test automation activity that the Technical Test Analyst will perform?

A. Define the business process keywords and related actions.

B. Execute the test cases and analyze any failures that may occur.

C. Train the Test Analyst and Business Analyst to use and supply data for the test scripts.

D. Decide regarding a test automation project based on a business case.

Correct Answer: B
Section:
Explanation:
A Technical Test Analyst is primarily involved in the technical aspects of test preparation and execution. One of their typical activities includes the execution of test cases, particularly those that are automated, and the subsequent analysis of any test failures to identify defects and issues. This activity is more technical than defining business processes or training other analysts, and while making decisions based on a business case may be part of their role, it is not an activity directly related to test automation.

QUESTION 7
Consider the pseudo code provided below:

```
IF (a>b) AND (b>c) THEN
        b = (a+c)/2
ENDIF
```

Which of the following options provides a set of test cases that achieves 100% decision coverage for this code fragment, with the minimum number of test cases?
Assume that in the options, each of the three numbers in parenthesis represent the inputs for a test case, where the first number represents variable ''a'', the second number represents variable ''b'', and the third number represents variable ''c''.

A. (5. 3,2)

B. (5. 3, 2); (6, 4, 2); (5, 4, 0)

C. (5. 4, 0); (3, 2, 5); (4, 5, 0)

D. (4,5. 0); {5, 4, 5)

Correct Answer: B
Section:
Explanation:
To achieve 100% decision coverage with the minimum number of test cases, we need to ensure that every branch of the decision is taken at least once. For the code provided:
The first condition (a>b) is true for the first two test cases and false for the third.
The second condition (b>c) is true for the first test case, false for the second, and does not matter for the third since the first condition is false.
Therefore, with these three test cases, we cover all possible outcomes of the decision, ensuring 100% decision coverage.

QUESTION 8
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

Correct Answer: C

Section:
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.

QUESTION 9
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.

Correct Answer: B
Section:
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.

QUESTION 10
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

Correct Answer: C
Section:
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.

QUESTION 11
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.

Correct Answer: D
Section:
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.

QUESTION 12
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

Correct Answer: C
Section:
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.

QUESTION 13
Which of the following does NOT contribute to a more effective review preparation by the Technical Test Analyst?

A. Ensure that participants spend enough time during preparation, e.g.. by managing checking rate (number of pages checked per hour during review preparation).

B. Managing logging rate (number of defects logged per minute during the meeting).

C. The usage of review checklists.

D. Review training for the Technical Test Analyst.

Correct Answer: B
Section:
Explanation:
An effective review preparation by a Technical Test Analyst includes ensuring that participants are well-prepared and that they spend enough time on preparation, which can be managed by checking the rate (option A). The use of review checklists (option C) and providing review training (option D) are also methods that contribute to more effective review preparation. However, managing the logging rate (option B), or the number of defects logged per minute during the meeting, is not related to the preparation phase but rather to the defect detection and logging phase during the actual review meeting. It is not a preparation activity but a review execution activity.

QUESTION 14
A product risk assessment has revealed the following product risks:
* lack of usability requirements
* security during on-line transactions
* perceived performance of the system and response time from the user interface
* a required availability of almost 100%
To address the 4th risk, which of the following quality characteristics for technical testing should be part of the test approach?

A. Adaptability

B. Reliability

C. Portability

D. Compatibility

Correct Answer: B
Section:
Explanation:
To address the product risk of requiring an availability of almost 100%, the quality characteristic of reliability should be part of the test approach. Reliability testing focuses on the ability of the system to perform under

expected conditions for a specified period of time. It is essential for systems that need to be operational continuously or near-continuously. This characteristic encompasses the system's uptime, fault tolerance, recoverability, and the ability to perform under anticipated conditions, all of which are relevant to maintaining high availability.

QUESTION 15
You have been assigned to perform a review on code provided below:

```
01      READ (A)
02      READ (B)
03      READ (C)
04      D = 0
05      E = 1
06
07      WHILE (A > B) DO  ** major decision taken to enter loop **
08        D = A * B
09        IF (D > C)
10          THEN D = A + B
11        ENDIF
12        IF (D < 0)
13          THEN D = A - B
14        ENDIF
15      A = A – B              ** to make sure the loop ends **
16      IF E < 1
17          PRINT "calculation is not possible"
18      ENDWHILE
19
20      PRINT A
21      PRINT B
```

Which type of defect should you report as part of the code review?

A. Endless loop

B. Unreachable code

C. Too many nested levels

D. No defects should be reported, code is correct.

Correct Answer: A
Section:
Explanation:
The code provided contains a potential endless loop. The loop is conditioned on the variable 'E' being less than 1 (IF E < 1), but within the loop, there is no operation that modifies the value of 'E'. Therefore, once the loop is entered, if the condition A > B holds true, the value of 'E' remains unchanged, leading to an endless loop situation. The decrement of 'A' in line 15 does not guarantee an exit condition for the loop, as it does not affect the value of 'E'. This is a control flow defect that could cause the program to hang or crash.

QUESTION 16
Within the world of consumer electronics, the amount of embedded software is growing rapidly. The amount of software in high-end television sets has increased by a factor of about eight over the last six years. In addition, the market of consumer electronics has been faced with a 5 -10% price erosion per year. The price of a product is, among a number of other things, determined by the microcontroller used. Therefore, the use of ROM and RAM remains under high pressure in consumer electronic products, leading to severe restrictions on code size.

Within a new high-end TV project, it has been decided to apply dynamic analysis.
Which of the quality goals listed below is MOST appropriate to the project context?

A. Prevent failures from occurring by detecting wild pointers and loss of system memory.

B. Analyse system failures which cannot easily be reproduced.

C. Evaluate network behaviour.

D. Improve system performance by providing information on run-time system behaviour.

Correct Answer: D
Section:
Explanation:
In the context of consumer electronics, where there is rapid growth in embedded software and pressure to minimize code size due to cost constraints, dynamic analysis can be particularly useful for improving system performance. Dynamic analysis involves examining the system's behavior during execution, which can provide insights into the efficiency of the code at runtime, memory utilization, and processing speed. In a high-end TV project where the use of ROM and RAM is under severe restrictions, dynamic analysis would be most appropriately applied to improve system performance, ensuring that the software runs efficiently within the available hardware resources. This supports the project context by contributing to the optimization of the software to run within the constraints of the microcontroller used, thereby potentially reducing costs.

QUESTION 17
Consider the pseudo code provided below regarding a customer request for cash withdrawal from an ATM.
If the customer has sufficient funds in their account
OR the customer has the credit granted
THEN the ATM machine pays out the requested amount to the customer
Which of the following test cases would be the result of applying multiple condition testing, but would NOT be the result of applying modified condition/decision testing?

A. TC 1: Customer has sufficient funds. Credit has not been granted.

B. TC 2: Customer does not have sufficient funds. Credit has been granted.

C. TC 3: Customer does not have sufficient funds. Credit has not been granted.

D. TC 4: Customer has sufficient funds. Credit has been granted.

Correct Answer: C
Section:
Explanation:
Multiple condition testing requires each possible combination of conditions to be tested, whereas modified condition/decision testing (MC/DC) requires each condition to be shown to independently affect the outcome. In the case of the ATM withdrawal, TC 3 (Customer does not have sufficient funds and credit has not been granted) would not result in the machine paying out, which is a result of applying multiple condition testing. However, for MC/DC, this test case would not be included because it doesn't provide an independent assessment of either condition's effect on the decision since both conditions are negative and the outcome is as expected (no payout).

QUESTION 18
Which of the following statements BEST describes how tools support model-based testing?

A. Finite state machines are used to describe the intended execution-time behavior of a software-controlled system.

B. Random sets of threads of execution are generated as test cases.

C. Large sets of test cases are generated to provide full code coverage.

D. An engine is provided that allows the user to execute the model.

Correct Answer: A
Section:
Explanation:
Model-based testing tools support the creation and execution of tests based on models of the system under test. Finite state machines (FSMs) are often used in model-based testing to describe the expected behavior of a

system during execution. FSMs help in defining the states of the system and the transitions between these states based on events, which can then be used to generate test cases that validate the system's behavior against the model.

QUESTION 19
A component has been analysed during a risk-assessment and rated as highly critical. Which of the following white-box test techniques provides the highest level of coverage and could therefore be used to test this component?

A. Decision testing
B. Statement testing
C. Multiple condition testing
D. Modified condition/decision testing

Correct Answer: D
Section:
Explanation:
Modified condition/decision testing (MC/DC) provides a higher level of coverage compared to other white-box testing techniques because it requires each condition in a decision to be shown to independently affect that decision's outcome. It is more rigorous than both decision testing (which only requires each decision's possible outcomes to be tested) and statement testing (which requires only each executable statement to be executed). Therefore, for a highly critical component, MC/DC is more appropriate as it ensures a more thorough assessment of the logic in the software component.
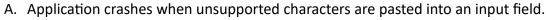
QUESTION 20
Consider the following fault attack:
* Force all possible incoming errors from the software/operating system interfaces to the application.
Which of the following is the kind of failure you are looking for when using this attack?

A. Application crashes when unsupported characters are pasted into an input field.
B. Application crashes when the network is unavailable.
C. Application crashes due to a lack of portability.
D. Application miscalculates total monthly balance due on credit cards.

Correct Answer: A
Section:
Explanation:
The fault attack described involves forcing all possible incoming errors from software/operating system interfaces. The type of failure being sought is one where the application does not handle erroneous or unexpected input correctly, which can lead to crashes or other unintended behavior. Thus, an application crash when unsupported characters are pasted into an input field is a typical failure that this kind of fault attack would aim to uncover.

QUESTION 21
Which of the following is NOT a common issue with traditional capture/playback test automation?

A. Difficult to maintain when software changes.
B. Recorded scripts are difficult to maintain by non-technical persons.
C. Data and actions are mixed in the recorded script.
D. Execution of the recorded script is difficult outside office hours.

Correct Answer: D
Section:
Explanation:
Common issues with traditional capture/playback test automation include difficulty in maintaining the scripts when software changes (option A), the challenge for non-technical persons to maintain recorded scripts (option B), and the issue that data and actions are often intertwined within the recorded script (option C), which can make them hard to understand and modify. However, the timing of the execution of the recorded script (option D),

such as the difficulty of running scripts outside office hours, is not typically a problem inherent to capture/playback test automation itself but rather an environmental or scheduling issue.

QUESTION 22
Which of the following is a valid reason for including security testing in a test approach?

A. There is a threat of unauthorized copying of applications or data.

B. To provide measurements from which an overall level of availability can be obtained.

C. To evaluate the ability of a system to handle peak loads at or beyond the limits of its anticipated or specified workloads

D. Software changes will be frequent after it enters production.

Correct Answer: A
Section:
Explanation:
Including security testing in a test approach is valid when there are concerns about unauthorized access or activities, such as the threat of unauthorized copying of applications or data (option A). This type of testing aims to uncover vulnerabilities that could be exploited to compromise the confidentiality, integrity, or availability of the system. The other options listed---availability measurements (option B), system's peak load handling (option C), and frequent software changes (option D)---relate to different aspects of testing, such as reliability, performance, and maintainability, which are not directly associated with security testing.

QUESTION 23
You are working on an internet banking project. Your company is offering this product to the financial market. For each new customer, some customization will typically be needed. To make the product successful there is a strong focus during development on a reliable and maintainable architecture. To support architectural reviews, a checklist will be developed. Within the checklist specific sections will be attributed to reliability and maintainability.
Which question from the list below should you include in the maintainability section of the architectural review checklist?

A. Will the system use n-version programming for critical components?

B. Will the user interface be implemented independently from the other software modules?

C. Does the system have user-friendly error messages?

D. Does the password protection of the system adhere to the latest regulations?

Correct Answer: B
Section:
Explanation:
In the context of an internet banking project where reliability and maintainability are emphasized, a key factor for maintainability is the modularity of the system. Implementing the user interface independently from other software modules (answer B) can significantly enhance maintainability. This is because it allows changes to be made to the user interface without impacting the underlying business logic or data access layers, making the system more adaptable to change. This kind of separation of concerns is a recognized best practice in software design for maintainability. The other options (A, C, and D) relate more to reliability and security aspects than to maintainability.

QUESTION 24
Consider the code fragment provided below:

```
25
26     READ (A)
27     READ (B)
28     READ (C)
29     READ (Lucky_nr1)
30     READ (Lucky_nr2)
31     READ (Lucky_nr3)
32
33     IF (A=Lucky_nr1) AND (B=Lucky_nr2) AND (C=Lucky_nr3) THEN
34       Print "You have won!";
35     ELSE
36       Print "Better luck next time";
37     ENDIF
38
```

How many test cases are needed for the code fragment lines 26 - 37 to achieve 100% modified condition/decision coverage?

A. 2 test cases

B. 4 test cases

C. 6 test cases

D. 8 test cases

Correct Answer: B
Section:
Explanation:
Modified condition/decision coverage (MC/DC) requires each condition in a decision to be shown to independently affect the decision's outcome. For the code fragment provided, we have three independent conditions that need to be evaluated both as true and false. The minimum number of test cases needed to satisfy MC/DC for three conditions is four, which would allow each condition to be shown to independently affect the outcome of the decision.

QUESTION 25
A software company based in Spain that develops mobile applications expects many small updates in the future, e.g., due to changing configurations and customer feedback. The company also wants to focus on being able to change the software effectively and efficiently during initial development without introducing new defects.
Which maintainability sub-characteristic should be covered by the test approach during the initial development?

A. Analysability

B. Modifiability

C. Modularity

D. Re-usability

Correct Answer: B
Section:
Explanation:
In the context of a software company in Spain developing mobile applications with an expectation of many small updates due to changing configurations and customer feedback, focusing on being able to change the software effectively and efficiently during initial development without introducing new defects is crucial. The maintainability sub-characteristic that should be covered by the test approach during the initial development is Modifiability.
Modifiability refers to the ease with which a software product can be modified to correct faults, improve performance or other attributes, or adapt to a changed environment. In a scenario where frequent and small updates

are anticipated, ensuring that the software architecture and design support easy modification is vital. This not only aids in implementing changes more rapidly but also helps in maintaining the stability and integrity of the application, thereby preventing the introduction of new defects. The focus on modifiability ensures that the software remains responsive to customer feedback and evolving requirements without compromising on quality or performance.

QUESTION 26
Which of the following statements about performance testing tools is NOT correct?

A. Typical metrics and reports provided by performance testing tools include the number of simulated users throughout the test, and the number and type of transactions generated by the simulated users, and the arrival rate of the transactions.
B. Significant factors to consider in the implementation of performance testing tools include the flexibility of the tool to allow different operational profiles to be easily implemented, and the hardware and network bandwidth required to generate the load.
C. Performance testing tools typically drive the application by simulating user interaction at the graphical user interface level to more accurately measure response times.
D. Performance testing tools generate a load by simulating a large number of virtual users following their designated operational profiles to generate specific volumes of input data.

Correct Answer: C
Section:
Explanation:
The statement about performance testing tools that is NOT correct is that they typically drive the application by simulating user interaction at the graphical user interface (GUI) level to more accurately measure response times. In practice, performance testing tools often simulate user interactions at a protocol or service level rather than the GUI level. This approach allows the tools to generate a high load by simulating many virtual users, which would be challenging to achieve with GUI-level interactions due to the higher resource consumption and slower execution speed associated with GUI automation.
Performance testing tools are designed to assess the performance of a system under a particular load and are not primarily focused on the user interface. They simulate multiple users accessing the system simultaneously, which helps in identifying bottlenecks, understanding the system's behavior under load, and determining how the system scales with increasing load. The tools typically simulate user requests to the server, bypassing the GUI to directly test the backend, APIs, or other service endpoints. This method allows for more efficient and scalable testing, enabling the simulation of thousands of users without the overhead of rendering the GUI.

QUESTION 27
Within the world of consumer electronics, the amount of embedded software is growing rapidly. The amount of software in high-end television sets has increased by a factor of about eight over the last six years. In addition, the market of consumer electronics has been faced with a 5 -10% price erosion per year. The price of a product is, among a number of other things, determined by the microcontroller used. Therefore, the use of ROM and RAM remains under high pressure in consumer electronic products, leading to severe restrictions on code size.
You are a Technical Test Analyst involved in the review of the architecture of this project.
Which of the following issues would be MOST important to focus on during the review and when verifying the correct implementation?

A. Connection pooling
B. Caching
C. Transaction concurrency
D. Lazy instantiation

Correct Answer: D
Section:
Explanation:
The key context here is the challenge of managing limited resources, particularly ROM and RAM, due to severe restrictions on code size in consumer electronics. Lazy instantiation is a design pattern that defers the creation of an object until the first time it is needed. This approach can significantly reduce the application's memory footprint by avoiding unnecessary pre-allocation of memory, which is particularly valuable in systems where memory resources are constrained. In reviewing the architecture for such a system, it's crucial to ensure that objects are only created when necessary and that memory is optimally managed. Hence, the focus on lazy instantiation would be most important to ensure that the system uses resources efficiently and remains within the restricted code size.

QUESTION 28
Assume you are involved in testing a Health Insurance Calculation system.
At the main screen one can enter information for a new client. The information to be provided consists of last name, first name and date of birth. After confirmation of the information, the system checks the age of the potential new client and calculates a proposed premium.
The system also has the option to request information for an existing client, using the client's ID number.

A keyword-driven automation approach is being used to automate most of the regression testing.
Based on the information provided, which TWO of the options provided would be the MOST LIKELY keywords for this application? (Choose two.)

A. Remove_Client

B. Enter_Client

C. Print_Premium

D. Select_Client

E. Exclude_Client

Correct Answer: B, D
Section:
Explanation:
Considering the functionalities described for the Health Insurance Calculation system, the keywords would represent the main actions that can be performed in the system. 'Enter_Client' would be a keyword for entering new client information, which is a primary feature of the system as described. 'Select_Client' would be used to retrieve information for an existing client using the client's ID number, which is another main functionality. Other options such as 'Remove_Client', 'Print_Premium', and 'Exclude_Client' are not explicitly mentioned in the provided system functionalities, therefore, 'Enter_Client' and 'Select_Client' are the most likely keywords for automation.

QUESTION 29
At which test level would reliability testing most likely be performed?

A. Static testing

B. Component testing

C. System testing

D. Functional acceptance testing

Correct Answer: C
Section:
Explanation:
Reliability testing is aimed at verifying the software's ability to function under expected conditions for a specified period of time. It is typically conducted during system testing, where the software is tested in its entirety to ensure that all components work together as expected in an environment that closely simulates the production environment. Reliability testing is not typically associated with static testing, component testing, or functional acceptance testing, as these levels of testing do not address the overall behavior of the system over time.