ASQ CSQE Practice Questions

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Question 1

Question Type: MultipleChoice

Which of the following verification and validation techniques is used to verify that the completed requirements and designs conform to their requirements specifications?

Options:

A- Feasibility analysis
B- Execution of test cases
C- Functional configuration audits
D- Mathematical proofs of correctness

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Answer:

C

Explanation:

Functional configuration audits are used to verify that the completed requirements and designs conform to their requirements specifications. These audits involve checking that the developed product meets all the specified requirements and that the design has been implemented correctly. This process ensures that the final product aligns with the original requirements and design specifications, maintaining consistency and quality. Reference:

IEEE Std 828-2012, IEEE Standard for Configuration Management in Systems and Software Engineering.

ISO/IEC/IEEE 29148:2011, Systems and software engineering - Life cycle processes - Requirements engineering.

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Question 2

Question Type: MultipleChoice

During the design review of several sections (modules) of software, the reviewers find an unusually high number of defects After defect correction and testing, which of the following can be expected of these sections?

Options:

A- They will be free of defects.
B- They might need less testing than other sections
C- They will need less test documentation than other sections.
D- They might have additional defects.

Answer:

D

Explanation:

When a section of the software has an unusually high number of defects, even after correction and testing, it is likely that these sections might still contain additional defects. This is based on the defect clustering principle, which suggests that defects tend to cluster in certain modules of the software. Consequently, these sections require more thorough testing and scrutiny to ensure all defects are identified and resolved.

It is unrealistic to assume that these sections will be free of defects after initial corrections. They often need more comprehensive testing and more detailed test documentation to track and manage the corrections and any subsequent issues that may arise.

'Software Testing Techniques' by Boris Beizer.

'The Art of Software Testing' by Glenford J. Myers.

Question 3

Question Type: MultipleChoice

As it relates to testing, the phrase "80% coverage" means 80% of the

Options:

A- software is error-free
B- statements in the program have been tested
C- planned test cases have been completed
D- predicted errors have been uncovered

Answer:

B

Explanation:

The phrase '80% coverage' in testing typically refers to the percentage of statements in the program that have been executed at least once during testing. This is known as statement coverage or code coverage. It is a measure of how much of the code has been exercised by the test suite and is used to assess the thoroughness of the testing efforts. It does not necessarily mean that 80% of the software is error-free, that 80% of planned test cases have been completed, or that 80% of predicted errors have been uncovered, although higher coverage often correlates with better defect detection. Reference:

Kaner, Cem, Jack Falk, and Hung Quoc Nguyen. 'Testing Computer Software.' 2nd Edition, Wiley, 1999.

Myers, Glenford J., Tom Badgett, and Corey Sandler. 'The Art of Software Testing.' 3rd Edition, Wiley, 2011.

Question 4

Question Type: MultipleChoice

Which of the following describes when a test plan should be changed?

Options:

A- After product stability has been assessed
B- After changes to the design specifications
C- After each code review
D- When the configuration management tool is updated

Answer:

B

Explanation:

A test plan should be changed after changes to the design specifications. This ensures that the tests remain relevant and accurately reflect the new design and functionality of the software. Keeping the test plan updated with design changes helps ensure comprehensive test coverage and alignment with the project's requirements.

Question 5

Question Type: MultipleChoice

A function point analysis uses counts of Which option best elements^

Options:

A- Data definitions
B- Physical lines
C- Executable lines
D- External inquiries

Answer:

D

Explanation:

Function point analysis is a standardized method used to measure the size and complexity of software based on its functionality. It uses counts of specific elements like external inquiries, which refer to the user-initiated requests for information from the system. These are one of the five major components (the others being external inputs, external outputs, internal logical files, and external interface files) considered in function point analysis.

'Function Point Analysis: Measurement Practices for Successful Software Projects' by David Garmus and David Herron

'Function Point Counting Practices Manual' by IFPUG (International Function Point Users Group)

Question 6

Question Type: MultipleChoice

Which of the following diagrams is most appropriate for showing the relationship between software design input requirements and software design output?

Options:

A- Tree
B- Matrix
C- Affinity
D- Ishikay

Answer:

B

Explanation:

A matrix diagram is most appropriate for showing the relationship between software design input requirements and software design output. This type of diagram:

Visual Mapping: Displays how different elements (inputs and outputs) are related or interact with each other.

Traceability: Helps in tracing requirements to their corresponding design elements, ensuring that all requirements are addressed.

Matrix diagrams are useful for verifying that design outputs meet the specified requirements, facilitating quality and completeness in the design process.

The Quality Toolbox by Nancy R. Tague

Total Quality Management for Engineers by M. Zairi

Question 7

Question Type: MultipleChoice

Which of the following problem-solving tools is most appropriate for breaking down ideas into progressively greater detail?

Options:

A- Tree diagram
B- Matrix diagram
C- Affinity diagram
D- Relationship diagram

Answer:

A

Explanation:

A tree diagram is a tool used to break down broad categories into finer levels of detail. It is particularly useful for:

Hierarchical Decomposition: Breaking down complex ideas or processes into manageable sub-components.

Problem Solving: Identifying root causes and exploring solutions systematically.

Project Planning: Defining tasks and sub-tasks in a structured manner.

The tree diagram starts with a single node and branches out into multiple nodes, each representing a more detailed aspect of the main topic.

'The Quality Toolbox' by Nancy R. Tague

'The Memory Jogger II: A Pocket Guide of Tools for Continuous Improvement and Effective Planning' by Michael Brassard and Diane Ritter

Question 8

Question Type: MultipleChoice

The best way to reduce post-release defect density in future releases is to

Options:

A- provide online help for known defects
B- categorize defects and perform analyses to uncover their causes
C- evaluate defect arrival rates and analyze defect resolution costs
D- maintain a responsive helpdesk function to identify recurring problems

Answer:

B

Explanation:

The best way to reduce post-release defect density in future releases is to categorize defects and perform analyses to uncover their causes. By systematically categorizing defects and analyzing their root causes, organizations can identify underlying issues in the development process and implement corrective actions. This approach helps in preventing similar defects in future releases, leading to improved software quality.

'Root Cause Analysis: Improving Performance for Bottom-Line Results' by Robert J. Latino and Kenneth C. Latino

'The Pragmatic Programmer: Your Journey to Mastery' by Andrew Hunt and David Thomas

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Question 9

Question Type: MultipleChoice

Which of the following metrics is included in earned value management?

Options:

A- The actual cost of scheduled work
B- The actual cost of outstanding work
C- The actual delay in project schedule
D- The budgeted cost of work performed

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Answer:

D

Explanation:

Earned Value Management (EVM) includes several key metrics, one of which is the budgeted cost of work performed (BCWP). Here's a detailed explanation:

Earned Value (EV): Represents the value of work actually performed in terms of the budget assigned for that work.

Planned Value (PV): The budgeted cost for the work planned/scheduled.

Actual Cost (AC): The actual cost incurred for the work performed.

Performance Measurement: BCWP is crucial for comparing planned work with actual progress and costs, helping in performance measurement and project forecasting.

'Project Management: A Systems Approach to Planning, Scheduling, and Controlling' by Harold Kerzner.

PMI's 'A Guide to the Project Management Body of Knowledge (PMBOK Guide)'.

Question 10

Question Type: MultipleChoice

Which of the following activities is classified as data collection and storage?

Options:

A- Installing and administering data technology
B- Supporting data technology usage and related issues
C- Confirming adequacy, uniqueness, and consistency of data
D- Providing mechanisms that support data availability requirements

Answer:

C

Explanation:

Data collection and storage activities are focused on ensuring that the data is adequate, unique, and consistent. This involves:

Adequacy: Ensuring that the collected data meets the necessary requirements for its intended use.

Uniqueness: Verifying that the data is not duplicated and is uniquely identifiable.

Consistency: Ensuring that the data is consistent across different datasets and over time.

These activities are critical for maintaining the integrity and reliability of the data, which is essential for effective data analysis and decision-making.

'Data Quality: The Accuracy Dimension' by Jack E. Olson

'Data Management for Researchers' by Kristin Briney

Question 11

Question Type: MultipleChoice

Quality function deployment is defined as a

Options:

A- procedure in which code modules with low defect density are identified for reuse
B- technique for measuring complex metrics by random sampling of functional units
C- method that provides a framework for relating product features to customer needs
D- process in which best practices are distributed throughout all levels of an organization

Answer:

C

Explanation:

Quality Function Deployment (QFD) is a method used to translate customer needs (the voice of the customer) into specific product features (technical requirements). It provides a structured approach for defining customer requirements and transforming them into detailed engineering specifications and plans to produce the products that fulfill those needs. QFD uses tools like the House of Quality matrix to ensure that customer requirements are systematically addressed throughout the product development process. Reference:

Akao, Yoji. 'Quality Function Deployment: Integrating Customer Requirements into Product Design.' Productivity Press, 1990.

Hauser, John R., and Don Clausing. 'The House of Quality.' Harvard Business Review, May-June 1988.

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