
Question 1: Select the appropriate choice for MCQs. There are 20 MCQs in total. [20]

1. SOFTWARE AND SYSTEMS INTEGRATION DELIVERY step propose is
 - a) to ensure that units tested are complete and documented prior to official delivery.
 - b) to describe how a programs and projects will benefit from outside resources.
 - c) to provide the necessary process steps to plan for systems and software design and development for integration.

2. The method used for SYSTEMS DESIGN step is
 - a) used for initial development of software requirements and changes to requirement baselines. stack
 - b) defines details about the product construction, behavior, components, and interfaces.
 - c) analyze customer requirements and develop a software design/development plan for defining the essential elements for a designed system to meet the specified requirements.

3. The requirements of SOFTWARE DESIGN/DEVELOPMENT step are
 - a) integration testing to ensure both software and systems are integrated and working mutually.
 - b) established between the elements of the design/development. The documented program and project plan.
 - c) communication between tester team and developer team.

4. The purpose of PRODUCT EVALUATION step is
 - a) Provides the necessary process steps to conduct and perform continual evaluations of software products during the design/development life cycle and integration activities.
 - b) Provides a consistent approach to integration to ensure that the software and systems elements are assembled properly.
 - c) Provides assurance that engineering builds function as expected.

5. The initiation of planning starts at the _____ phase with the customer.
 - a) Proposal
 - b) Implementation
 - c) Design
 - d) Installation

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6. When program objectives and the scope are considered, program managers can select the best approach to eliminate _____:
- a) **Roadblocks**
 - b) Customer satisfaction
 - c) Integration
 - d) Management support
7. _____ and focus helps teams be more effective during software design/development activities.
- a) Rewards
 - b) Ideas
 - c) **Effective Planning**
 - d) Incentives
8. To avoid project failures, it is imperative that project managers and a team of systems and software engineers do the following:
- a) Develop an approach for project planning
 - b) Ensure configuration control is in place
 - c) Oversee activities
 - d) **All of the above**
9. The first step in Software Development Life Cycle(SDLC) is:
- a) **Preliminary investigation and Analysis**
 - b) System Design
 - c) System Testing
 - d) Coding
10. The detailed study of existing system is referred to as
- a) System Planning
 - b) **System Analysis**
 - c) Feasibility Study
 - d) Design
11. Who writes the Software Requirement Specifications Document(SRS)?
- a) System Developer
 - b) System Tester
 - c) **System Analyst**
 - d) None of these
12. Which of the following is not a desirable characteristic of SRS document?
- a) Concise
 - b) **Ambiguous**
 - c) Traceable
 - d) Verifiable
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13. The tools Dynamic Object Oriented Requirements System (DOORS) can be used for the _____ and modeling to gain an understanding of potential architectures and associated software requirements.

- a) Testing
- b) Functions
- c) Integration
- d) **Analysis**

14. The functional software design/development life cycle states and modes are established per _____.

- a) System design
- b) **System requirements**
- c) Systems Engineering
- d) Software Test

15. One of the four key elements for Agile software engineering is:

- a) Only management has control of work assignments
- b) Communication with team members and customers is not needed
- c) **Change is good: "Think outside the box"**
- d) Customer satisfaction and expectations are not valued

16. Technique to reduce the time to improve productivity through the simultaneous performance of activities and processing of information.

- a) Lean software design/development
- b) **Concurrent software design/development method**
- c) All of the above
- d) None of the above

17. The purpose of _____ is to find and correct as many errors as possible before test team integration or customers find problems during delivery.

- a) **Peer reviews**
- b) Software reuse
- c) Documented plans
- d) None of the above

18. The development plan (DP) for software is a _____ and _____ process useful for implementation and applicable standards.

- a) validated, documented
- b) **documented, well-defined**
- c) well-defined, standard
- d) validated, standard

19. Which one of the following is NOT a CMMI Software Engineering task?
- Reuse capabilities for identified software
 - Establish infrastructure abilities with software design
 - Identify internal and external interfaces
 - Support numerous initiatives**
20. The tasks for the development of top-level software design architecture include the identification of major software functions, functional hierarchy diagrams and _____.
- Implementation phase
 - Integration Testing
 - Hardware/software interfaces**
 - Peer Review

Question 2: Mark as T for true and F for false. There are a total of 10 TF questions. [10]

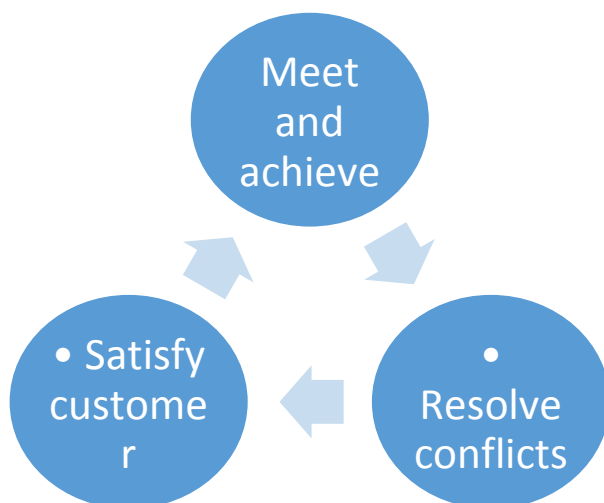
- Integration does mean that software, systems, firmware and hardware must all work together as one. [T]
- 'Quality First' is not the most important method for system integration. [F]
- Program objectives should be defined and technical and management disciplines, identified prior to the initiation of a plan. [T]
- Planned schedules affect team capabilities for risk assessment, configuration control, and quality. [T]
- Software requirements establish the principals for software design and integration test activities for both software and systems integration [T]
- Defined and complete software requirements are not critical to have in place before formal review acceptance. [F]
- Software requirements establish the principals for software design and integration test activities for both software and systems integration. [T]
- The most accomplished systems verification and validation of requirements is to plan, evaluate, and record software work product compliance with defined requirements. [T]
- The objective of Concurrent Software Design/Development method is to move as many changes as possible from the top curve to the bottom curve. [F]
- Software design is an inconsistent approach and method for the development of software requirements in defined designs of a work product. [F]

Question 3: Discuss the importance of teamwork? And what are the team responsibilities? [06]

Answer:

Energy and consistency influence high-performance goals. Therefore, trust and cohesiveness must be maintained in the work environment.

A plan is successful when a team delivers a high-quality work product, meets the defined schedule and maintains budget.



Question 4 (a): Verification and validation is important part of software requirement. Justify this argument. [03]

Ans:

1. Reduces the risk
2. Ensures design and development satisfies the user need
3. This ensures the what is understood by analyst is exactly what is required by the client.

(b): What are the major technical reviews and audits affecting software and systems?. [04]

Ans: The major technical reviews and audits affecting software and system are

- Initial requirements (IR)
- Incremental design review (IDR)
- Final design meeting (FDM)
- Test readiness (TR)
- First-article inspection (FAI)
- Functional configuration audit (FCA)
- Physical configuration audit (PCA)

Question 5: What is the difference between the following software design/development methods (state the definition and advantages/disadvantages):

1. Concurrent Software Design/Development method
2. Lean Software Design/Development method [07]

Answer:

- **Concurrent Software Design/Development method:**
- Requirement: software design expertise to anticipate where the defined design is going.

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- Disadvantage: possible to delay commitment until the last moment when failure to make a decision eliminates an important alternative or decision.
 - **Lean Software Design/Development method:**
 - Objective: to move as many changes as possible from the top curve to the bottom curve.
 - Advantages: Delays the freezing of all design decisions as long as possible.
 - Emphasizes designing and managing changes throughout the life cycle.
 - Provides a better understanding of software engineering and quick delivery to customers.