

Name : Fardouse Iomat Jahan Rumpa

Dept : B. Sc in CSE

ID No : 2210170041

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Ans to the Qus NO: 01(a)

① Ans: Software Engineering:

Software engineering is a disciplined and systematic approach to designing, developing, testing and maintaining software applications or systems. It involves the applications of engineering principles to create reliable, efficient, and high-quality software that meets the needs of users and stakeholders.

Ans to the Qus NO: 01(b)

01(b) Ans: SDLC (Software Development life cycle) refers to the process of planning, creating, testing, deploying, and maintaining software systems. The SDLC activities typically include:

① Requirements Gathering:

Collecting and understanding users needs and system requirements.

② System Design:

Creating a high-level design of the system's architecture and components.

③ Implementation:

Writing, coding and integrating the software components.

④ Testing: Validating the software's functionality, performance, and reliability.

⑤ Deployment:

Installing and Making the software available to users.

⑥ Maintenance:

Making updates, fixing bugs and enhancing the software based on user feedback.

Q1) The spiral model is a software development model that combines iterative development with elements of waterfall methodology. It involves a series of repeating cycles or "spirals," where each cycle represents a phase of the SDLC. The spiral Model includes four main phases.

① Planning: Defining project objectives, risks and constraints, Deciding what should be developed and determining the scope of the project.

② Risk Analysis: Identifying potential risks and evaluating strategies to mitigate them.

③ Engineering: Developing, testing and refining the software in a series of iterations.

④ Evaluation: Reviewing the project progress assessing the software's quality and functional

The spiral Model emphasizes risk assessment and iterative development, allowing for flexibility and adaptation to changing requirements and conditions during the software development process.

Ans to the Qus No: 01(c)

Ans: The V-model, also known as the verification and validation model, is a software development and testing methodology that emphasizes a systematic approach to ensure high-quality software. It is an extension of the traditional waterfall model and highlights the relationship between development phases and corresponding testing phases.

In the V-Model:

The verification phase includes several steps. business requirement analysis, system analysis, software architecture design, module design and coding.

In the business requirement analysis step, the team comes to understand the project requirements as laid out by the customer.

In the system analysis step, the system engineers analyze and interpret the business requirements of the proposed system by studying the user requirements documents.

In the software architecture design stage, the team selects the software architecture based on the list of modules, the brief functionality of each module, the interface relationships, dependencies, database table architecture diagrams, technology detail and more.

In the module design stage, the development team breaks down the system into small modules and specifies the detailed design of each module, which we call low-level design.

Finally we begin coding. The development team selects a suitable programming language based on the development and product requirements. There are, of course, guidelines and standards for coding and the code will go through many reviews to check its performance.

Ans to the Qus No: 01 (d)

Ans: The graphical user interface, developed in the late 1970s by the Xerox Palo Alto research lab and developed commercially in Apple's Macintosh and Microsoft's Windows operating system, was designed as a response to the problem of inefficient usability early, text-based command-line interfaces for the average user.

Graphical user interfaces would become standard of user-centered design in software application programming, providing users the capability to intuitively operate computers and other electronic devices through the direct manipulation of graphical icons such as buttons, scroll bars, windows, tabs, menus, cursors and the mouse pointing device. Many modern graphical user interfaces feature touchscreen and voice-command interaction capabilities.

→ Each control has one or more routines known as callbacks.

→ Execution of callbacks is triggered by user action or events.

(a) Ans to the Qus NO: 02(a)

Ans: A project manager is a professional responsible for planning, organizing, and overseeing the execution of a project. They co-ordinate resources, monitor progress, manage risks, and ensure that the project is completed within scope, schedule and budget. Their role involves communication, team coordination, and decision-making to achieve the project's goals and deliverables.

Ans to the Qus NO: 02 (b)

Ans: Project manager roles and responsibilities:

Roles define what you need to do for the project. These roles define how you relate yourself to your team members and customers. Responsibilities are further dependent on your role.

Key roles of a project manager:

① Make coordination with the team:

Defining the role of HR would be limited to hiring and other practices related to administration. Similarly, developers would focus on coding and developing websites.

② keeping the team close-knit:

focus on building a team that "works together" by defining primary roles for the departments.

To simplify this process, define goals! When you know what your goals are, you will be able to define roles for each department with ease.

With clearly defined roles, maintaining harmony in the team and fostering trust within its people is the next process so that everyone can achieve more and achieve fast.

③ Delegating work effectively:

As a project manager, it becomes critical to delegate tasks to your team members effectively. It is a leadership style that every project manager has to learn and adopt. You should not misuse that responsibility by blaming regarding your team members.

④ Employee feedback:

Of all the roles you are involved in as a project manager, gathering employee feedback plays the most crucial role. As the project progresses, it is essential to review the performance of your team members.

⑤ Planning everything from execution to delivery

Ideally, you should have a strategy to achieve more in less. By more I mean, more outcomes, more quality, and more client satisfaction, while less refers to less resources and less time. In simple words, you must chalk out a pathway that will help you to complete the project successfully and efficiently.

⑥ Directing the team to achieve a common goal :

You should ensure that your team is on the right track toward success.

Have you ever seen what a good shepherd does?

He guides all his sheep and goats on the track toward greenery.

Similarly, keep your team members motivated so they continue moving on the right track.

It's your responsibility to ensure that your team showcases their full potential. In some instances, you will have to own up tasks of other domains.

Ans to the Qus NO:02 (c)

Ans: The objectives of the software design process are correctness, completeness, efficiency, flexibility, consistency and maintainability.

In software design, the objects ~~at~~ refers to the key components or entities that make up a software system. These objects serve specific purposes and interact with each other to fulfill the functionality of the software. Objects of software design include:

- classes.
- objects.
- Abstraction
- Encapsulation
- Inheritance
- polymorphism.
- Interface
- Modules
- Collaboration
- Coupling and cohesion.