(1) What is the prime objective of software engineering. List out several paradigms. Summarize perselective & specialized process models with diagrams

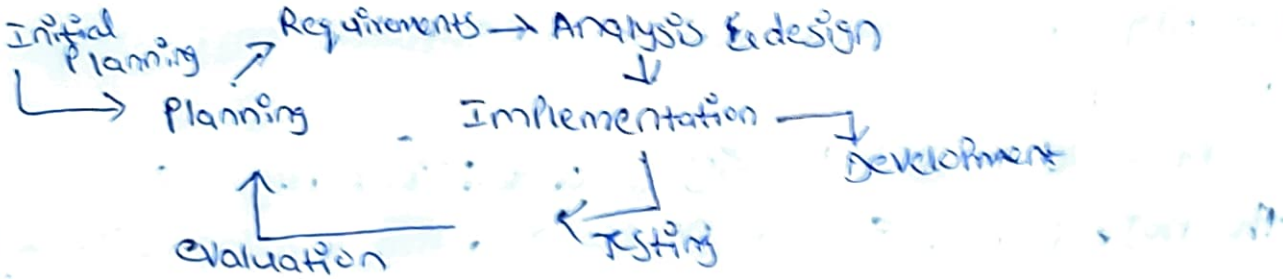
Ans:

Prime objective of software engineering:- the prime objective of software engineering is to create software that is reliable, efficient, & usable. This means that the software should be free of errors, should use resources efficiently, & should be easy for users to understand & use.

1) waterfall: This is a traditional software development process that follows a liner sequence of steps. the steps are typically: requirements gathering, design, implementation, testing, & development

Requirements → design → Development → testing → Development → Maintance

2) Iterative: This is a software development process that involves repeated cycles of planning, development, testing, & development

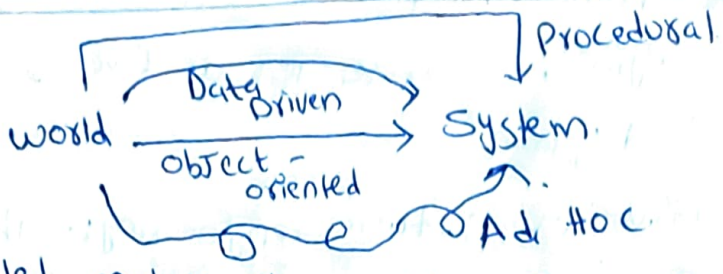


Agile: This is a software development methodology that emphasizes flexibility & collaboration

Summarise perspective & specialized process models with diagram

Perspective models focus on different aspects of the S/w development process, such as the people involved, the activities performed

People-oriented models: These models focus on the roles & responsibilities of the people involved in the S/w development process.



Product-oriented models: These models focus on the products that are produced during the S/w development process

Specialized Process models are tailored to specific types of S/w development, such as embedded systems or web applications.

- Embedded systems Process models: These models are designed for the development of embedded systems, which are S/w systems that are embedded in h/w devices
- web applications Process models: These models are designed for the development web app, which are S/w apl that are accessed over the internet.

2) Identify the umbrella activites in Software engineering Process.:

1) Software Project tracking & control: Track Progress against the Project Plan & take necessary action to maintain the schedule.

2) Formal technical reviews: Assess engineering work Products to uncover & remove errors before they Propagate to the next activity or Phase.

3) S/w quality assurance: Ensure that the S/w meets the requirements & is of high quality

4) S/w configuration management: Track & control changes to the S/w, ensuring that the changes are managed & tracked throughout the development Process.

5) Reusability management: Identify & reuse s/w components, reducing the cost & time of development.

6) Risk management: Identify & mitigate risks to the s/w project, reducing the likelihood of problems occuring.

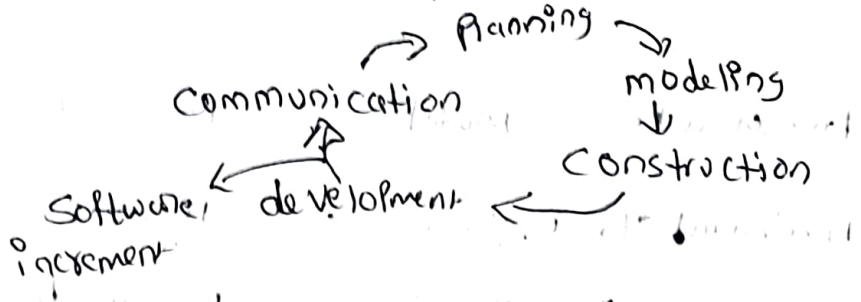
3) what is unified process model in software engineering explain & describe various phases of unified process with neat sketch to

Ans ⇒ The unified process(UP) is an iterative & incremental s/w development process framework.

⇒ It is divided into four phases: inception, Elaboration, construction & transition.

⇒ each phase is futher divided into iterations, which are smaller cycles of development that focus on a specific set of features or functionality.

⇒ The UP is characterized by its emphasis on iterative & incremental development, architecture-centric design, & use-case driven development.



⇒ The inception phase is where the project is defined & the initial requirements are gather.

⇒ The elaboration phase is where the requirements are further refined & the architecture of the system is designed.

⇒ The construction phase is where the system is implemented & tested.

⇒ The transition phase is where the system is developed to production & supported.

4) Briefly describe different software Myths & realities in software engineering.

Ans

Myth: Software development is a linear process

Reality: Software development is an iterative & incremental process

Myth: once the s/w is development, it is finished.

Reality: s/w is never finished. It is constantly being updated & maintained to meet the changing needs of the users.

Myth: s/w engineers are just code monkeys.

Reality: s/w engineers are highly skilled professionals who use their knowledge of computer science, mathematics, & engineering to create s/w.

5) Explain the difference b/w personal & Team process models.

⇒ Personal Process Model focuses on the individual s/w engineer & their development process. It provides a set of activities & practices that s/w engineers can use to improve their individual productivity & s/w quality

Team s/w process focused on the teams as a whole & their development process

Features	Personal Process Model	Team s/w Process
Focus	Individual s/w Engineer	Team
Activites	Activities that improve individual Productivity & s/w quality	Activities that improve overall team Productivity & s/w quality
Practices	Practices that helps individual s/w engineers follows the SDP activities	Practicives that help teams follow the TSP activities
Benifits	Improved individual Producity & s/w quality	Improved overall team Productivity & s/w quality.

Analyse Verification & Validation?

→ Verification is the Process of checking that the SW meets its requirements

⇒ Validation is the Process of checking that the SW meets the needs of the users.

⇒ Verification & Validation are complementary activites, & they should Performed throughout the SW development life cycle.

⇒ Verification ensures that the SW is built correctly, while Validation ensures that the SW is built right.

⇒ The Specific techniques that are used for verification & validation will depend on the specific SW Project.

⇒ There are no of different techniques that can be used for verification & validation, including reviews, walkthroughs, inspections, testing, usability testing, & acceptance testing