Parul® University | NAAC A++ Faculty of Engineering & Technology

U-1

SE

21/01/25

① SE apps are % on time, budget, with acceptable performance with correct operation

② What is s/w ? → Computer Program (when executed provi desired fn, features, etc.
→ Data structure (enable program to easily manipulate info.
→ Descriptive info. (both Hard & soft the describes the operation & use of program

③ Documentation Manual

- Analysis
  - Formal Specificatn
  - Context Diagram
  - Data flow diagram
- Design
  - Flow chart
  - ER Diagram
- Implementatn
  - Source-Code listings
  - Cross-ref. listing
- Testing
  - Data test
  - Result test

Documentation Manual
- → User
  - Sys. overview
  - Beginner's guide tutorial
  - Reference guide
- → Operational
  - Installation guide
  - Sys. admin. guide

④ Ch. of s/w :- S/w is developed/engineered ⊗ manufactured

⑤ S/w apps Domain
- Sys. S/w — Eg:- Window 10.
- Application S/w — Eg: Customize s/w.
- AI s/w — Eg: Siri
- Web applicatn s/w — Eg:- Linked in
- Engineering scientific s/w — Eg: MATLAB.
- Embedded s/w — Eg:- Oven
- Product line s/w — Eg:- Tally

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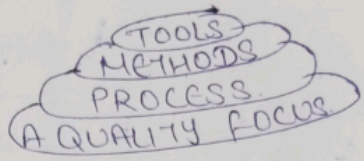
(6) SE is establishment & use of sound eng. principles in order to obtain economical s/w that is reliable & works efficiently in real machines.

(7) SE Layered approach

** COME IN EXAM.



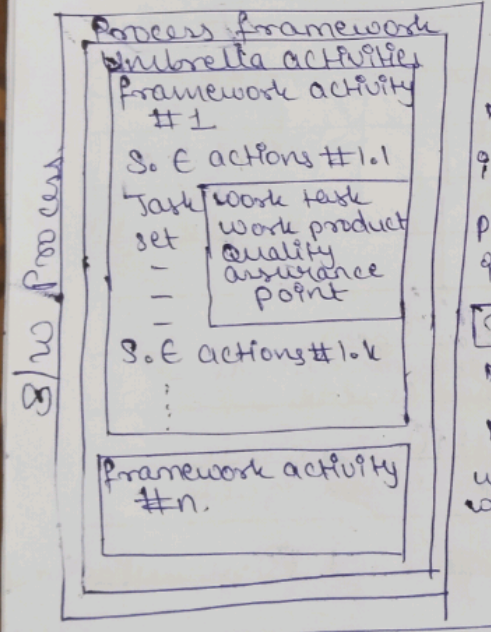
(Refer ass.)

(8) S/w process :→ A process is a collection of activities, actions, & tasks that are performed when some work product is to be created.

A task focuses ← on a small, but well-defn objective.

→ A process is not a rigid prescription for how to build the s/w, rather it's adaptable approach that enables people doing work to pick & choose appropriate set of work actions & tasks.

(9) S/w Process framework Diagram :



▸ Here each framework activity is populated by set of s/w eng. actions.

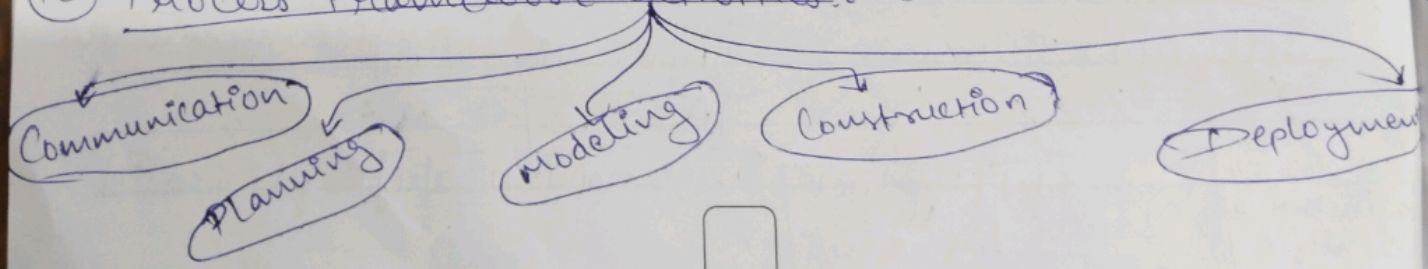
▸ Each S.E actions is defined by a task set that identifies work to be completed, product to be produced, quality ass. point & milestones to indicate progress.

PURPOSE OF S/W PROCESS IS :

▸ To deliver s/w timely

▸ Within sufficient quality to satisfy to those who have given proposal for s/w dev. & to those who will use it.

(10) Process framework activities : (CPMCD)



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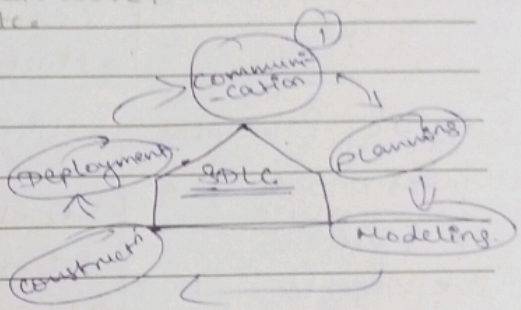
It establishes skeleton architecture for S.E work.

(11) UMBRELLA ACTIVITIES: Applied throughout s/w project & help s/w team to manage & control progress, quality, change & risk.

s/w project track & control	Risk Management	s/w quality assurance
Technical Review	Measurement	Reusability Management
s/w Config. Management		

Work Product Preparation & Production.
It encompasses the activities req. to create work product such as models, doc, logs, forms, etc.

(12) s/w Process Models:
aka SDLC (s/w dev. life cycle)
Process model prescribe distinct set of activities, actions, tasks & milestones req. to eng. high quality s/w.



Process Models:
- Waterfall
- Prototype
- Spiral
- Incremental
- Rapid Application dev.
- Agile

(13) Product & Process:
- Process weak → product suffer
- More confidence on process dangerous.
- As s/w professional you should also derive as much satisfaction from process as end product.
- Duality (Contrast) of product & process

(14) Agility: Updation/ Changes.
It's the property of quickness, lightness & ease of movement.
- The ability to quickly reprioritize use of resources when req., technology & knowledge shift.
- The ability to create & respond to change in order to profit in unstable global business env.
- MAXIMIZE BUSINESS VALUE

Deployment

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Q. What is Agility ?
- Effective response to change
- Rapid & incremental delivery to s/w
- Organising a team so that it is in cntrl to perform work

Drawing the customer onto the team.
Eliminate 'us & them' attitude.

(15) AGILE PROCESS:
- Diff. in predicting changes of req. & customer's priorities.
- For many types of s/w, design & construction are interleaved (mixed).
- Must adapt incrementally.

Analysis, design, construction & testing are not as predictable as we like

(16) Agility Principles:
- Higher priority is to satisfy the customer through early & continuous delivery of s/w
- Welcome changing req.
- Deliver working s/w frequently.
- Emphasize face-to-face conversation

Business people & developer must work together

Build projects around motivated individuals.

(17) AGILE PROCESS MODELS

- Extreme Programming (XP)
  - The most widely used approach to agile s/w development
  - A variant to XP called Industrial XP (IXP) has been proposed to target process for large org.
  - Its uses object oriented approach as its preferred dev. model
- Adaptive s/w development (ASD)
- Dynamic systems development method (DSDM)
- Feature Driven development (FDD)
- Crystal
- Agile Modelling (AM)

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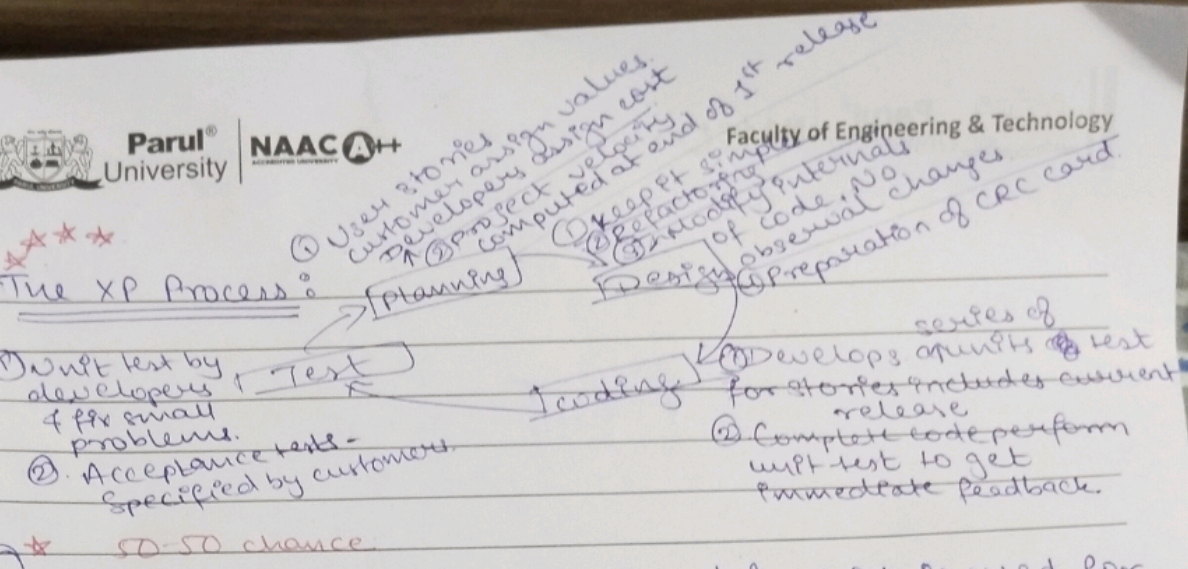
★★★

The XP Process:



★ 50-50 chance

(18) SCRUM: It's an agile process model which is used for developing the complex s/w sys.

→ It's light-weight process framework

→ Light weight means the overhead of process is kept as small as possible in order to maximize productivity

Includes

→ Backlogs: It's priority list of project req. or features that must be provided to customer. (Items can be included anytime)

→ Sprint: There are work units needed to achieve req. mentioned in backlog. It has fixed duration (2-4 weeks) 30 days. (changes are not introduced)

→ Scrum Meetings: There are 15 mins daily meet to report completed activities, obstacles & plan for next activities. Lead to knowledge socialization

Demo.

Deliver s/w increment to customer like giving Demo.

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