Roll No:	Name:

INDIAN INSTITUTE OF TECHNOLOGY TIRUPATI

CS302L SOFTWARE ENGINEERING

B.TECH **QUIZ-1, Sep 10 2024** TIME: 60 Min

SEMESTER V MARKS: 40 Marks

Be *agil*e, ***crisp*** and *sharp* in your answers, use bullets, tables, diagrams and write assumptions if any! Carefully read the questions, plan and answer appropriately! All the best ☺ ☺

Section A. Fill-in-the-blanks (4X1 = 4m)

1. The statement "Are we building the right product" denotes _____Validation_____ and the statement "Are we building the product right" denotes _____Verification_____

2. Software can be defined as multi-__version_____ construction of multi-___person_____ software.

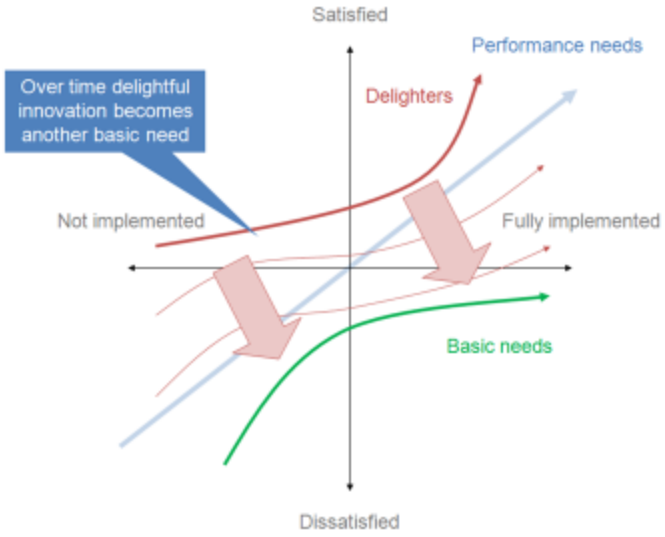
3. Deming's Philosophy is ____Process-Step Product Quality Co-relation_____

4. _____Literate_____ programming by Donald Knuth is a way of interspersing source code with natural language, diagrams to explain flow of thoughts!

Section B. Short Answer Questions (3 marks X 10 = 30 marks) I repeat: Be pointed and precise in your answers (writing stories and long paragraphs is strictly banned!)

1. **Briefly explain the Kano model of quality through examples for a software chat application**

Kano Model



2. **Draw a table to briefly explain Garvin's five perspectives of software quality, and explain each through *bookmyshow* !**

Garvin's Five Perspectives

- Transcendental view.
  - Quality is something we can recognize but not define.
- User view.
  - Quality is fitness for purpose.
- Manufacturing view
  - Quality is conformance to specification
- Product view
  - Quality is tied to inherent product characteristics
- Value-based view.
  - Quality depends on the amount the customer is willing to pay for it.

3. **What are the various kinds of classification/categories of software qualities? Write an example for each!**

Classification of sw qualities "ilities"

- Internal vs. external
  - External→ visible to users
  - Internal→ concern developers
- Product vs. process
  - Our goal is to develop software products
  - The process is how we do it
- Internal qualities affect external qualities
- Process quality affects product quality

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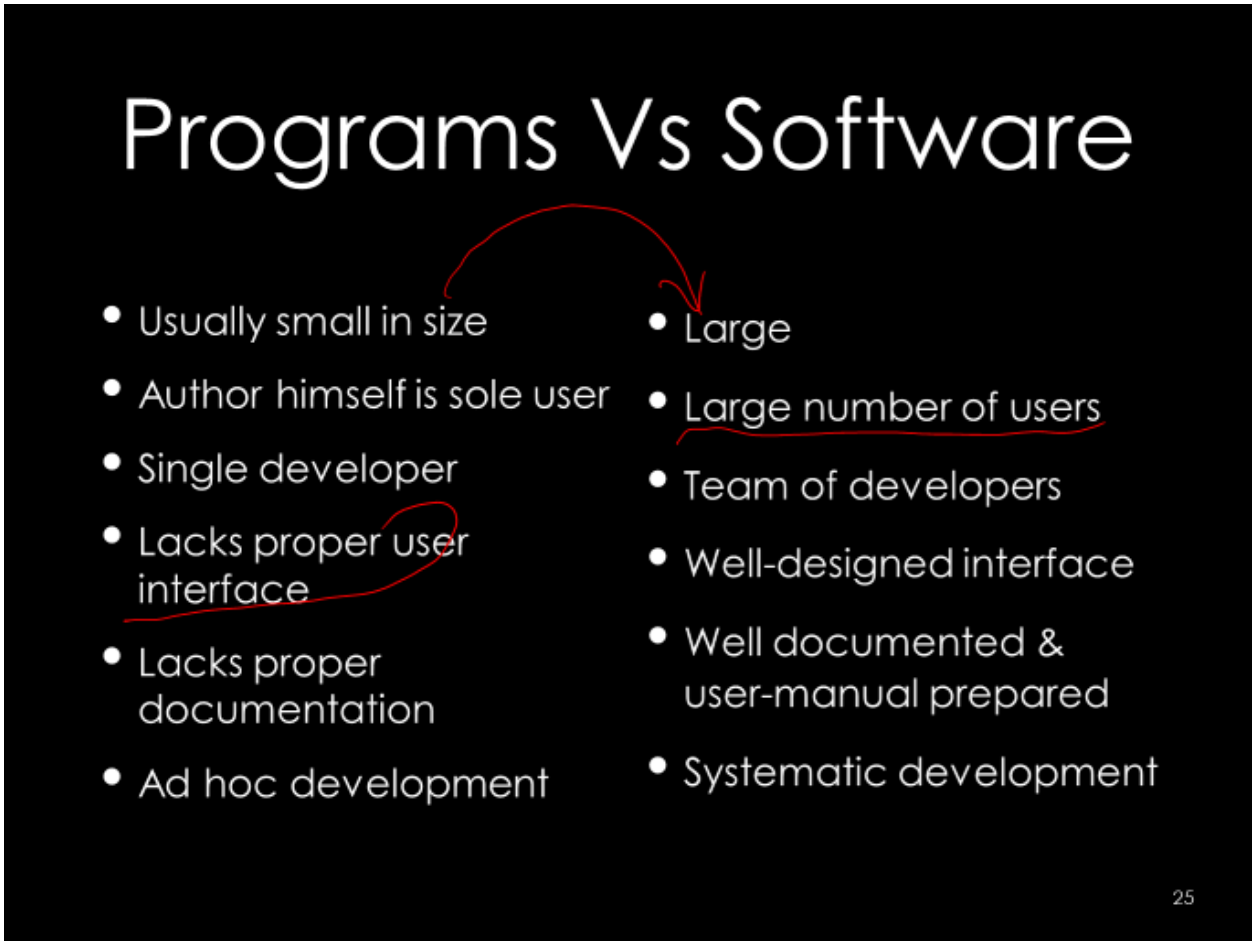
4. **Write the key differences between software engineer and programmer through a table – remember the example of an engineer and mason in class?**



5. **What are the three broad ways of assessing software quality? Write an advantage and disadvantage of each approach!**

Verification & Validation

- Formal Methods
- Testing
- Standards Compliance

- Quality Control [Product]
- Quality Assurance [Process]

Verification - Are we building the product *right?*

Validation - Are we building the *right* product?

6. **Briefly define three software qualities, and how do you measure (which metric) each one of them?**

Check L7,8 - Slides for definition
Reliability, robustness, performance, usability,correctness, verifiability, maintainability, reusability, portability, Understandability, interoperability,

7. **Write three significant past contributions in software engineering which are challenges even today!**

Subjective - Discussed with Sir

1) Formal Verification of programms

2)Getting the Requirements Specifications correct
(still has been the biggest issue in software industry)

3)Mentaining Agility Based Development + Waterfall Based Perspective (for getting future trends)
ie still very little concept of mixture of multiple models for development
only example by far today is of Spiral which is used for Risk aversion and not day to day SE task...

8. **Write three future trends of software engineering as discussed during lectures!**

Subjective - Discussed with Sir

1) Availabiltiy of more and more knowlege on the time + man power required for development of software is getting more and more crystallized
hence leading to lowering costs and better estimation of software deadlines

2)Slow but steady realization of code pollution + errors + security vulnerabilites introduced by using LLMs

3)Natural Language getting more and more closer to programming languages help reduce the gap between programers and problem solvers from non programming domain

9. **Explain when is testing good and when is formal verification or proving programs good through an example?**

Subjective - Discussed with Sir

10. **List 3 concepts (not more than a sentence each) that you learnt in the course related to software engineering other than what you wrote in the previous answers!**

Subjective - Discussed with Sir

Section C. Android Project (6X1 = 6m)

Write down the work done by each of the team members of the Android project, and marks will be given only if all the team members write the same work

mapping has to be done by TA at the end of paper checking till then do not provide the marks.

Team Member	Work done

