UG Mid Sem Exam
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Q.1.a
Ans

(A) → The standard IEEE defines Software Engineering as the application of a systematic, disciplined, quantifiable approach to the development, operation and maintenance of software.

It is called 'engineering' because it deals with an engineering approach to develop a software. Software engineering does not teach to build a software, rather discusses the approach to building an effective software, and hence it is called an 'engineering'.

Software Engineering differs from other engineering branches as the software engineering focuses on discovering, creating and designing a practical solution to a problem with a system.

Q.1.
Ans)

(b) → The life cycle model is a flexible approach that can be used in a variety of software investigation tasks.

The significance of life cycle model is that these models help the supporting practitioners with better insights into their processes and systems make better data-driven development decisions.

There are various SDLC Models, of which Incremental model and Iterative models are two such models.

Incremental model:

1. It is a module by module delivery ~~motte~~ model, that means the entire solution is built in parts.
2. In this model, the development team have to wait until the final stage to delives the final product.

Iterative model:

1. It is a model where the idea is iterated and improved over versions.
2. In this model, after each versions, the product is improved, that means the ~~final~~ building product is provided beforehand for testing and using and further improved with each version update.

Q.10
Ans

(c) → SRS (Software Requirement Specification) document is the output listings of the requirements phase of the Software development process. IEEE standard defines SRS document as 'a document that clearly and precisely describes each of the essential requirements of the software and the external interfaces.'

Components of SRS document:

1. Introduction
2. Overall description
3. Product perspective
4. Product functions
5. User Characteristics
6. Constraints.
7. Assumption and Dependency
8. Apportioning of Requirements
9. Specific Requirements
10. External Interface.
11. Functions
12. Performance Requirements
13. Logical database of Requirements
14. Design Constraint.
15. Software system attributes.
16. Organising Specific Requirements
17. Change management process
18. Document approvals
19. Supporting information.

Structures of SRS Model:

1: Functionality
2. Analysis Model
3. Cognitive model
4. The content and Structure of the specification
5. Specification.

Q.3.

Ans

(A) → The PIECES framework method is a framework used to classify a problem, opportunities, and directives contained in the scope definition of analysis and system design, so that it can be generated new things that can be considered in developing the system.

There are six variables used in PICES to analyse the information system:

1. Performance
2. Information and Data
3. Economics
4. Control and Security
5. Efficiency
6. Service.

Q.30
Ans

(b)→ COCOMO is used for effort estimation. It is a heuristic estimation technique that implies that relationship that exists among different project parameters can be modeled using suitable mathematical expressions.

There are two different types of COCOMO model:

1. Basic COCOMO Model:
It computes software development effort, time and cost as a function of program size.

$$EFFORT = a_1 * (KLOC)^{a_2} \text{ PM}$$
$$T_{dev} = b_1 * (EFFORT)^{b_2} \text{ Months}$$

where,

KLOC is estimated thousands of source lines of code.

$a_1, a_2, b_1, b_2$ are constants.

$T_{dev}$ is estimated time to develop the software, in months.

PM is person months, a unit used to express total effort required to develop the software product.

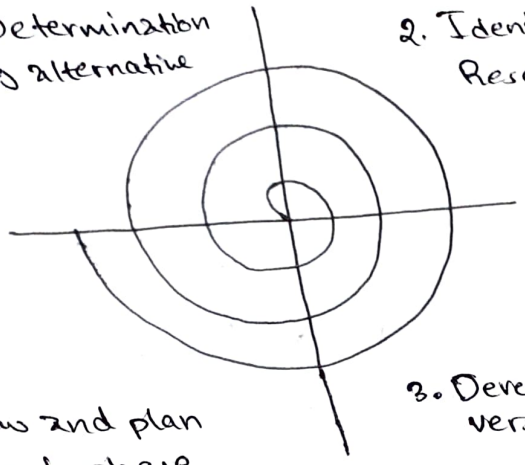
2. Intermediate COCOMO Model:
It computes software development effort as function of program size and set of "cost drivers" that include subjective assessment of product, hardware, personnel and projects attributes.

$$EFFORT = a_1 (KLOC)^{b_1} * EAF$$

where,
EAF is effort adjustment factor.

Q.20

Ans: For an Office Automation Software, the most appropriate model would be: Spiral Model.




- Radius of Spiral = Cost
- Angular Dimension = Progress

Reasons:

→ Good at Risk Handling
→ Flexible even at large projects.
→ Complete customer satisfaction.
→ No early lock on requirement.
→ Even less experience can work

Key functions in various stages:

1. Objective Determination and identify alternative solutions
2. Identify and Resolve Risks.
3. Develop Next version of product
4. Review and plan for next phase.