1) i) Define Software Eng.
2) List attributes of good software
3) Diff. btw Computer Science & SE
4) define Requirement Eng.
5) differentiate btw user Requirement & System Requirement
6) what are the key challenges facing software Eng.

1 marks

2) Differentiate btw water fall model & incremental development model with example

3) Explain non-functional Requirements with Relevant diagram & example

4) List the functional & non-functional Requirements
   i) Examination software
   ii) Bus ticket Booking.

5) List the different formates specifying System Requirement Specification for seat allotment in college under different grades

6) Explain Requirements Elicitation & analysis process with diagram.

7) Explain in detail the Requirement Eng. process with diagram

8) what are the various Reasons where eliciting & understanding Requirements process is difficult for stake orders.

Frequently asked questions about software engineering

1

Question	Answer
What is software?	Computer programs and associated documentation. Software products may be developed for a particular customer or may be developed for a general market.
What are the attributes of good software?	Good software should deliver the required functionality and performance to the user and should be maintainable, dependable and usable.
What is software engineering?	Software engineering is an engineering discipline that is concerned with all aspects of software production.
What are the fundamental software engineering activities?	Software specification, software development, software validation and software evolution.
What is the difference between software engineering and computer science?	Computer science focuses on theory and fundamentals; software engineering is concerned with the practicalities of developing and delivering useful software.
What is the difference between software engineering and system engineering?	System engineering is concerned with all aspects of computer-based systems development including hardware, software and process engineering. Software engineering is part of this more general process.

Frequently asked questions about software engineering

Question	Answer
What are the key challenges facing software engineering?	Coping with increasing diversity, demands for reduced delivery times and developing trustworthy software.
What are the costs of software engineering?	Roughly 60% of software costs are development costs, 40% are testing costs. For custom software, evolution costs often exceed development costs.
What are the best software engineering techniques and methods?	While all software projects have to be professionally managed and developed, different techniques are appropriate for different types of system. For example, games should always be developed using a series of prototypes whereas safety critical control systems require a complete and analyzable specification to be developed. You can't, therefore, say that one method is better than another.
What differences has the web made to software engineering?	The web has led to the availability of software services and the possibility of developing highly distributed service-based systems. Web-based systems development has led to important advances in programming languages and software reuse.

3. Differentiate between Waterfall model and Incremental development with relevant example.? L4 8M

2

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INCREMENTAL MODEL	WATERFALL MODEL
Detailed documentation is not strictly Required in Incremental model.	Detailed documentation is strictly Required in Waterfall model.
Returning to previous stage/phase is allowed in waterfall model.	Returning to previous stage/phase is never advice in waterfall model.
Testing is done after every iteration of phase in incremental model.	Testing is done after completion of all coding phase in waterfall model.
Low risk in incremental model.	More risk in waterfall model.
Incremental model can't handle large project.	Waterfall model can't handle large project.
Early stage planning(not Extremely) is necessary in Incremental model.	Early stage planning(Extremely) is necessary in Waterfall model.
Delivery time is short.	Delivery time is not short.
There are multiple development cycles take place in incremental model.	There is only one development cycles in waterfall model.
Cost of incremental model is Low.	Cost of Waterfall model is Low.
Flexibility to change in incremental model is Easy.	Flexibility to change in waterfall model is difficult.
Overlapping of phases is possible in waterfall model.	Overlapping of phases is not possible in waterfall model.
Large team is not required in waterfall model.	Large team is require in waterfall model.

6/10

In the olden days, Waterfall model was used to develop enterprise applications like Customer Relationship Management (CRM) systems, Human Resource Management Systems (HRMS), Supply Chain Management Systems, Inventory Management Systems, Point of Sales (POS) systems for Retail chains etc.

- Non-functional requirements
  - Constraints on the services or functions offered by the system such as timing constraints, constraints on the development process, standards, etc.
  - Often apply to the system as a whole rather than individual features or services.
  - These define system properties and constraints e.g. reliability, response time and storage requirements. Constraints are I/O device capability, system representations, etc.
  - Process requirements may also be specified mandating a particular IDE, programming language or development method.
  - Non-functional requirements may be more critical than functional requirements. If these are not met, the system may be useless.
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12. Explain with a neat diagram the different steps in the requirements elicitation and analysis process?

- -> Software engineers work with a range of system stakeholders to find out about the application domain, the services that the system should provide, the required system performance, hardware constraints, other systems, etc.
- Stages include:
  - Requirements discovery,
  - Requirements classification and organization,
  - Requirements prioritization and negotiation,
  - Requirements specification.

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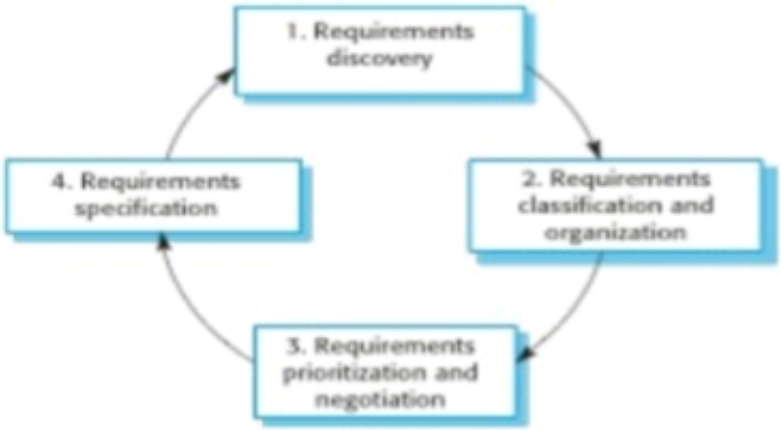
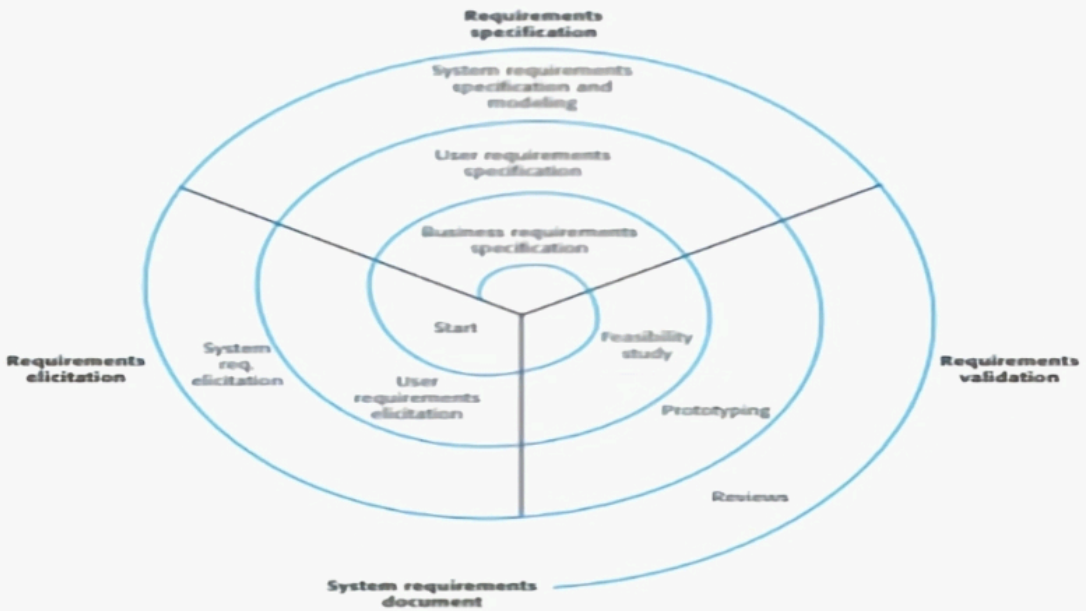


- Requirements discovery
  - Interacting with stakeholders to discover their requirements. Domain requirements are also discovered at this stage.
- Requirements classification and organisation
  - Groups related requirements and organises them into coherent clusters.
- Prioritisation and negotiation
  - Prioritising requirements and resolving requirements conflicts.
- Requirements specification
  - Requirements are documented and input into the next round of the spiral.

10. What are the different ways of writing system requirements specification?

11. Explain in details the requirements engineering processes with an appropriate diagram?

- -> The processes used for RE vary widely depending on the application domain, the people involved and the organisation developing the requirements.
- However, there are a number of generic activities common to all processes
  - Requirements elicitation;
  - Requirements analysis;
  - Requirements validation;
  - Requirements management.
- In practice, RE is an iterative activity in which these processes are interleaved.



13. What are the various reasons where Eliciting and understanding requirements process is difficult for stakeholders?

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- -> Stakeholders don't know what they really want.
- Stakeholders express requirements in their own terms.
- Different stakeholders may have conflicting requirements.
- Organisational and political factors may influence the system requirements.
- The requirements change during the analysis process. New stakeholders may emerge and the business environment change.