



# KIET Group of Institutions, Ghaziabad

## Department of Computer Applications

(An ISO – 9001: 2008 Certified & 'A' Grade accredited Institution by NAAC)

### KCS-601: Software Engineering

#### Question Bank

#### UNIT 1

1. What is software?
2. What is software process?
3. What is software process model?
4. List out the key challenges faced by software engineering?
5. Define software engineering?
6. What is Software Development Life Cycle? Draw a diagram for waterfall life cycle.
7. Explain the characteristics of software.
8. List and explain management and customer myths. Why a late project can not be placed back on schedule by merely adding people to the project teams?
9. Explain the Waterfall Model. State four problems associated with it.
10. "Software is developed or engineered; it is not manufactured in classical sense". Explain.
11. State the difference between program and software. Why have documents and documentation become very important?
12. Differentiate between prescriptive and evolutionary process models. Explain 'Prototyping' model with a diagram.
13. What are the different types of software?
14. Describe the spiral model of software development.
15. Differentiate between verification and validation of a software product. When would you carry them out?

#### UNIT 2

1. What is requirement? Explain various types of requirements.
2. What is feasibility study? What are the contents we should contain in the feasibility report?
3. What are the purposes of Data Flow diagrams, Entity-Relationship diagrams? Give an example diagram of each.
4. What is the difference between SRS document and design document? What are the contents we should contain in the SRS document and design document?
5. What are functional and non-functional requirements?
6. Write short informative note on Structured approach versus Object Oriented approach for software design.
7. What is requirement analysis? What is its importance?
8. What is DFD? State the notations used for creating a DFD.
9. Discuss the contents of a software requirement specification document (SRS document). Differentiate between functional and non-functional requirements.
10. Define the following software product quality factors – portability, consistency, maintainability.
11. Draw DFD and ER diagram for the following program: "For each court case, the name of the defendant's address, type of the crime and the date of the crime committed, where committed, the name of the arresting officer and date of arrest are entered by the court registrar. The unique number identifies each case. Each case has to maintain the name of



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presiding judge, public prosecutor, the starting date and array of hearing dates and the next trial date. On completion, it should maintain the judgment of the summary.

12. Bring out the objectives of a formal technical review for software quality assurance.
13. What is Structure Chart? State the notations used for creating a Structure Chart.
14. Why CMM is important for software process? Discuss five levels of CMM.

### UNIT 3

1. What is cyclomatic number? Discuss its significance with suitable example?
2. What are the types of Cohesion?
3. Discuss the function point estimation method with an example.
4. "Modularity is very important design principles of System Development". What are the different steps to be followed to maintain the Modularity of a system.
5. Define Cohesion. What is Functional Cohesion? Does Functional Cohesion within a module bring about good software design? Give an example. What type of coupling and cohesion between/among modules is preferred for good quality software?
6. What is coupling? Which form of coupling among software modules is the best? What are the various forms of coupling? Explain.
7. Elaborate any techniques for measuring the usability of a good user interface design?
8. What are the different metrics used to verify the design of software?
9. What do you mean by a good software design? Also discuss the criteria for a software design to enhance the quality of software.
10. Discuss the following with suitable examples:
  - a. Object Oriented Design
  - b. Halstead's Software Science
11. Compare the relative advantage of code inspection and code walkthrough.
12. Compare the relative advantages and disadvantages of function-oriented design and object-oriented design.
13. Draw the Data flow diagram of Payroll management software.

### UNIT 4

1. Write essential steps to test a system through white box testing. Write how white box testing is different from black box testing.
2. List and explain different types of testing done during the testing phase.
3. What is user acceptance testing? Explain different testings in user acceptance testing. Why is it necessary?
4. Discuss the important objectives of testing software system
5. Explain error, fault and failure. What is the difference between failure and fault?
6. What is test plan and what does typical test plan contains?
7. Explain top-down approach used in Integration Testing.
8. Write short notes on verification and validation?
9. Discuss the use of static testing strategies.
10. Write a short note on
  - a. Code Walkthrough
  - b. Code Inspection
11. Differentiate between a structure chart and a flow chart



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12. Design equivalence class partitioning test suite that reads an integer value and display whether it is even.
13. Explain various types of debugging techniques used in software testing?

### UNIT 5

1. What are the metrics used for estimating cost? Discuss in detail about the COCOMO model in cost estimation of the software.
2. Elaborate the types of maintenance.
3. What is reverse engineering? How can a CASE tool help in the reverse engineering of software?
4. What do you mean by risks in software projects? How does risk management tackle these risks? What procedure is usually followed?
5. Explain Software Configuration Management (SCM) process and standards. Mention the features of version control, change control and configuration audit used in SCM.
6. What are the different types of risks in software projects?
7. What do you mean by the term software reengineering? Why is it required?
8. Discuss the importance of the maintenance phase in the software life cycle.
9. What stages are involved in the reverse engineering process?
10. Describe the difference between risk components and risk drivers in your own words.
11. Define RMMM plan.