

G. PULLAIAH COLLEGE OF ENGINEERING AND TECHNOLOGY
(Affiliated to JNTUA, Ananthapuramu)
 Pasupula (PO), Kurnool – 518 002

COMPUTER SCIENCE AND ENGINEERING

TUTORIAL QUESTION BANK

Course Name	SOFTWARE ENGINEERING
Course Code	13A05504
Class	III B. Tech I Semester
Branch	Computer Science and Engineering
Year	2015 – 16
Course Faculty	Dr. S. Prem Kumar Mr. U. Veeresh, Assistant Professor Mr. R. Sandeep, Assistant Professor

OBJECTIVES

To meet the challenge of ensuring excellence in engineering education, the issue of quality needs to be addressed, debated and taken forward in a systematic manner. Accreditation is the principal means of quality assurance in higher education. The major emphasis of accreditation process is to measure the outcomes of the program that is being accredited.

In line with this, Faculty of G. Pullaiah College of Engineering and Technology has taken a lead in incorporating philosophy of outcome based education in the process of problem solving and career development. So, all students of the institute should understand the depth and approach of course to be taught through this question bank, which will enhance learner's learning process.

PART – A (Short Answer Questions)

S. No	Questions	Blooms Taxonomy Level	Course Outcome
UNIT – I			
1	Explain is legacy software?	Knowledge	1
2	Demonstrate all the applications of software?	Knowledge	2
3	List the types of software myths?	Knowledge	2
4	Discuss the architecture of layered technology?	Understand	2
5	List all the umbrella activities in process framework?	Understand	2
6	Explain is process pattern?	Knowledge	2
7	List the types of software models?	Understand	2
8	List the types other software process models?	Understand	2
9	Explain software component? explain its uses	Understand	2
10	Explain process assessment?	Knowledge	2
11	List the models in CMMI?	Knowledge	2
12	Explain the levels in continuous model in CMMI?	Understand	2
13	Compare between perspective and iterative process models?	Understand	2
14	Explain staged model in CMMI?	Knowledge	2
15	Write the other name of waterfall model and who invented waterfall model?	Understand	2
16	Explain Boehm model?	Understand	2
17	List the phases in unified process model??	Understand	2
18	List the types of patterns?	Knowledge	3
19	Explain PSP and TSP?	Knowledge	3
20	Explain high speed adaptation model?	Understand	3
UNIT - II			
1	Explain the kinds of system requirements?	Knowledge	3
2	Explain functional requirement?	Knowledge	3
3	Explain nonfunctional requirement?	Understand	3

4	Explain domain requirements?	Understand	3
5	List kinds of nonfunctional requirements?	Knowledge	3
6	Explain example of functional requirement?	Understand	3
7	Explain user requirements in detail?	Understand	3
8	Explain system requirement in detail?	Understand	4
9	Explain interface and list out how many types of there and what are they?	Knowledge	4
10	Explain the term stake holder?	Knowledge	4
11	Explain requirements gathering??	Knowledge	4
12	Explain requirement validation?	Understand	5
13	Explain requirement review?	Understand	5
14	Explain data dictionary?	Understand	5
15	Discuss data flow model?	Knowledge	5
16	Explain state machine model of a microwave oven?	Knowledge	5
17	List kinds of behavioral and object models?	Knowledge	5
18	Design class hierarchy for library by using in heritance model?	Knowledge	5
19	Describe ethnography?	Understand	5
20	Explain viewpoints and types of viewpoints?	Understand	5
UNIT - III			
1	Explain why design is important in design engineering?	Knowledge	4
2	Discuss analysis and design model?	Understand	4
3	Describe quality attributes and its guidelines?	Understand	5
4	List the design concepts?	Knowledge	5
5	Justify the importance of refactoring?	Understand	5
6	Discuss on low coupling?	Understand	5
7	Define software architecture with its importance?	Understand	5
8	Explain taxonomy of architectural styles?	Knowledge	5
9	Write short notes on architecture patterns?	Knowledge	6
10	Compare function oriented and object oriented design?	Understand	6
11	Define top-down and bottom-up design model?	Knowledge	6
12	Write short notes on coupling?	Knowledge	6
13	List out the steps for conducting component level design?	Knowledge	6
14	Write short notes on cohesion?	Knowledge	6
15	Design the class based components?	Understand	6
16	List out the golden rules for interface design?	Understand	6
17	Write short notes on interface design steps?	Knowledge	6
18	Describe design evaluation?	Knowledge	6
19	List out all the design issues?	Understand	6
20	Explain process in user interface design?	Understand	6
UNIT - IV			
1	Compare verification and validation?	Knowledge	6
2	Write short notes on unit testing?	Knowledge	6
3	Describe smoke testing?	Knowledge	6
4	List out the steps for bottom-up integration?	Knowledge	6
5	List out the steps for top-down integration?	Understand	6
6	Write short note on integration testing?	Understand	6
7	Compare Quality assurance vs. Quality Control?	Knowledge	6
8	Define CASE tools?	Knowledge	6
9	Write short notes on validation testing?	Knowledge	6
10	Explain art of debugging?	Understand	6
11	Describe regression testing?	Knowledge	5
12	List out the steps for integration step documentation?	Knowledge	5
13	Describe performance testing?	Knowledge	5
14	Write short notes on glass box testing?	Knowledge	5
15	Explain behavioral testing?	Understand	5
16	List the quality factors of McCall's?	Understand	5
17	List the quality factors of ISO 9126?	Knowledge	5
18	Define the following terms measures, metrics, and indicators?	Understand	5
19	Write short notes on product metric land scrape?	Understand	5
20	List out the metrics for analysis model?	Understand	5
UNIT - V			

1	Define reactive and proactive risk strategies?	Knowledge	6
2	List out the generic subcategories of predictable risks?	Understand	6
3	Define risk components?	Understand	6
4	List out the conditions for risk refinement?	Knowledge	6
5	Write about quality concepts?	Understand	6
6	Write short notes on formal technical reviews?	Understand	6
7	List out review guidelines??	Understand	6
8	Describe six sigma for software?	Knowledge	6
9	Write about the classification of case tool?	Knowledge	6
10	Write a short notes on ISO 9000 quality standards?	Understand	6
11	Write the formulae for measures of reliability and availability?	Knowledge	6
12	Explain about software cost estimation?	Knowledge	6
13	Write short note on the various estimation techniques?	Knowledge	6
14	Define software risks and what are the types of software risks?	Knowledge	6
15	Describe risk components and drivers?	Understand	6
16	Write the purpose of timeline chart?	Understand	6
17	Expand RMMM in RMMM plan?	Knowledge	6
18	Define software reliability?	Understand	6
19	Define quality and quality control in quality management?	Understand	6
20	Write short notes on risk identification?	Understand	6

PART – B (Long Answer Questions)

S. No	Questions	Blooms Taxonomy Level	Course Outcome
UNIT – I			
1	Explain the evolving role of software?	Knowledge	1
2	Define software and explain the various characteristics of software?	Knowledge	2
3	Describe “Software myth”? Discuss on various types of software myths and the true aspects of these myths?	Knowledge	2
4	Explain software Engineering? Explain the software engineering layers?	Understand	2
5	Explain in detail the capability Maturity Model Integration (CMMI)?	Understand	2
6	Describe with the help of the diagram discuss in detail waterfall model. Give certain reasons for its failure?	Knowledge	2
7	Explain briefly on (a) the incremental model (b) The RAD Model?	Understand	2
8	Explain the Spiral model in detail?	Understand	2
9	Describe With the help of the diagram explain the concurrent development model?	Understand	2
10	Explain unified process? Elaborate on the unified process work products?	Knowledge	3
11	Explain specialized process models?	Knowledge	3
12	Explain different software applications?	Knowledge	3
13	Explain the paradigms do you think would be most effective? Why?	Understand	3
14	Explain product and process are related?	Understand	3
15	Explain personal and team process models?	Understand	3
16	Explain process frame work activities?	Knowledge	3
17	Explain the purpose of process assessment?	Knowledge	3
18	Explain changing nature of software in detail?	Knowledge	3
19	Explain and contrast perspective process models and iterative process models?	Understand	3
20	Explain about the evolutionary process models?	Understand	3
UNIT – II			
1	Write short notes on user requirements. What are requirements?	Knowledge	3
2	Compare functional requirements with nonfunctional requirements?	Knowledge	3
3	Discuss system requirements in a detail manner?	Understand	3
4	Explain requirement engineering process?	Understand	3
5	Discuss briefly how requirement validation is done?	Knowledge	3
6	Discuss your knowledge of how an ATM is used; develop a set of use-cases that could serve as a basis for understanding the requirements for an ATM system?	Understand	3

7	Describe four types of non-functional requirements that may be placed on a system. Give examples of each of these types of requirement?	Understand	3
8	Explain how requirements are managed in software project management?	Understand	4
9	Explain context models?	Knowledge	4
10	Explain Behavioral models?	Knowledge	4
11	Explain Data models?	Knowledge	4
12	Explain Object models?	Understand	4
13	Explain in which circumstances would you recommend using structured methods for system development?	Understand	4
14	Explain SRS document and explain along with its contents?	Understand	4
15	Explain interface specification in detail?	Knowledge	4
16	Discuss how requirements are elicited and validated in software project?	Knowledge	4
17	Discuss how feasibility studies are important in requirement engineering process?	Knowledge	4
18	Demonstrate class hierarchy for library by using interface specification?	Understand	4
19	Explain inheritance model?	Understand	4
20	Explain state machine model with a suitable example?	Understand	4
UNIT - III			
1	Explain a two level process? Why should system design be finished before the detailed design, rather starting the detailed design after the requirements specification? Explain with the help of a suitable example	Knowledge	4
2	Discuss briefly the following fundamental concepts of software design: i) Abstraction ii) Modularity iii) Information hiding	Understand	4
3	Explain briefly the following: i) Coupling between the modules, ii) The internal Cohesion of a module	Understand	5
4	Discuss the fundamental principles of structured design. Write notes on transform analysis?	Knowledge	5
5	Explain software architecture in a detail manner?	Understand	5
6	Explain software design? Explain data flow oriented design?	Understand	5
7	Explain the goals of the user interface design?	Understand	5
8	Discuss briefly about the golden rules for the user interface design?	Knowledge	5
9	Discuss interface design steps in a brief manner?	Knowledge	5
10	Explain how the design is evaluated?	Understand	5
11	Explain design processing along with its quality?	Knowledge	5
12	Explain the design concepts in software engineering?	Understand	5
13	Explain pattern based software design in a detail manner?	Understand	5
14	Elaborate model for the design?	Understand	5
15	Discuss architectural styles and patterns?	Knowledge	5
16	Explain with a neat diagram of architectural design?	Knowledge	5
17	Elaborate modeling component level design?	Knowledge	5
18	Describe mapping data flow into software architecture?	Understand	5
19	Explain the guide lines of component level design?	Understand	5
20	Describe the way of conducting a component level design?	Understand	5
UNIT- IV			
1	Explain about the importance of test strategies for conventional software?	Knowledge	5
2	Discuss black box testing in a detailed view?	Apply	5
3	Compare black box testing with white box testing?	Apply	5
4	Compare validation testing and system testing?	Knowledge	5
5	Discuss software quality factors? Discuss their relative importance?	Understand	5
6	Discuss an overview of quality metrics?	Understand	5
7	Explain should we perform the Validation test – the software developer or the software user? Justify your answer?	Apply	5
8	Explain about Product metrics?	Knowledge	5

9	Explain about Metrics for maintenance?	Knowledge	5
10	Explain in detail about Software Measurement?	Understand	5
11	Explain about Metrics for software quality?	Knowledge	6
12	Explain strategic approach to software testing	Understand	6
13	Describe test strategies for conventional software	Understand	6
14	Describe validation testing	Understand	6
15	Write a long notes on system testing	Knowledge	6
16	Demonstrate art of debugging	Knowledge	6
17	Discuss a framework for product metrics	Knowledge	6
18	Demonstrate metrics for analysis model	Understand	6
19	List the metrics for the design model	Understand	6
20	Describe metrics for source code and for testing	Understand	6
UNIT - V			
1	Explain about software risks?	Knowledge	6
2	Elaborate the concepts of Risk management Reactive vs Proactive Risk strategies?	Understand	6
3	Explain about RMMM Plan?	Understand	6
4	Explain about Quality concepts?	Knowledge	6
5	Explain software quality assurance?	Understand	6
6	Explain about formal technical reviews?	Understand	6
7	Explain in detail ISO 9000 quality standards?	Understand	6
8	Discuss risk refinement?	Knowledge	6
9	Compare reactive with proactive risk strategies?	Knowledge	6
10	Discuss software reliability?	Understand	6
11	Briefly explain about formal approaches to SQA?	Knowledge	6
12	Demonstrate statistical SQA?	Understand	6
13	Define software reliability along with its terms?	Understand	6
14	Explain risk projection in detail?	Understand	6
15	Explain seven principals of risk management?	Knowledge	6
16	Explain software reviews in brief?	Knowledge	6
17	Explain six sigma for software engineering?	Knowledge	6
18	Explain quality management with their terms?	Understand	6
19	Demonstrate risk identification?	Understand	6
20	Describe developing a risk table?	Understand	6

PART – C (Problem Solving and Critical Thinking Questions)

S. No	Questions	Blooms Taxonomy Level	Course Outcome
UNIT – I			
1	Describe the law of conservation of familiarity in your own words?	Knowledge	1
2	Suggest a few ways to build software to stop deterioration due to change?	Knowledge	1
3	Try to develop a task set for the communication activity?	Apply	2
4	What is the purpose of process assessment? Why has SPICE been developed as a standard for process assessment?	Knowledge	2
5	Discuss the meaning of “cross-cutting concerns” in your words?	Knowledge	2
UNIT – II			
1	Identify and briefly describe four types of requirements that may be defined for computer based system?	Knowledge	3
2	List out plausible user requirements for the following functions a) Cash dispensing function in a bank ATM? b) Spelling check and correcting function in a word processor?	Knowledge	3
3	Suggest how an engineer responsible for drawing up a system requirements specification might keep track of the relationship between functional and non- functional requirements?	Knowledge	4
4	Suggest who might be stakeholders in a university student record system. Explain why it is almost inevitable that the requirements of different stakeholders will conflict in some way?	Knowledge	4
5	Explain who should be involved in requirements review? draw a	Apply	4

	process model showing how a requirements review might be organized?		
UNIT – III			
1	State how do we assess quality of a software design?	Knowledge	5
2	Suggest a design pattern that you encounter in a category of everyday things?	Apply	5
3	Provide examples of three data abstractions and the procedural abstractions that can be used to manipulate them?	Apply	5
4	Explain the difference between a data base that services one or more conventional business applications and data warehouse?	Knowledge	5
5	Demonstrate the architecture of a house or building as a metaphor, draw comparison with software architecture. How are the disciplines of classical architecture and software architecture similar? How do they differ?	Apply	5
UNIT – IV			
1	Provide a few examples that illustrate why response time variability can be an issue?	Knowledge	6
2	Develop two additional design principles “place the user in control”?	Apply	6
3	Develop two additional design principles “make the interface consistent”?	Apply	6
4	Develop a complete test strategy for the safe home system. Document it in a test specification.	Apply	6
5	Provide examples for unit testing?	Apply	6
UNIT – V			
1	Quality and reliability are related concepts but are fundamentally different in number of ways. Discuss them?	Apply	6
2	You have been given the responsibility for improving quality of software across your organization. What is the first thing that you should do? What’s next?	Apply	6
3	Some people argue that an FTR should assess programming style as well as correctness is this a good idea? Why?	Apply	6
4	Is it possible to assess the quality of software if the customer keeps changing what it is supposed to do?	Apply	6
5	Create a risk table for the project that if you are the project manager for a major software company. you have been asked to lead a team that’s developing “next generation “word- processing software?	Apply	6