**R13**

**Code No: 115EM**

**JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD**
**B. Tech III Year I Semester Examinations, November/December - 2018**
**SOFTWARE ENGINEERING**
**(Common to CSE, IT)**

**Time: 3 hours** **Max. Marks: 75**

**Note:** This question paper contains two parts A and B.
Part A is compulsory which carries 25 marks. Answer all questions in Part A. Part B consists of 5 Units. Answer any one full question from each unit. Each question carries 10 marks and may have a, b, c as sub questions.

**PART - A**

**(25 Marks)**

1.a) What are the merits of incremental model? [2]
b) List the task regions in the spiral model. [3]
c) What is feasibility study? [2]
d) What are the differences between functional requirements and non-functional requirements? [3]
e) List the guidelines for data design. [2]
f) Name the commonly used architectural styles. [3]
g) Write a short note on black box testing. [2]
h) How to compute the cyclomatic complexity? [3]
i) Differentiate between reactive risk and proactive risk strategies. [2]
j) What is software reliability and how this parameter helps in managing software quality? [3]

**PART - B**

**(50 Marks)**

2.a) What is legacy software? Explain briefly its impact in software engineering.
b) Explain the following:
i) Water fall model
ii) Spiral Model. [5+5]

**OR**

3.a) Give an overview of unified process model.
b) Write detailed notes on CMMI. [5+5]

4.a) Describe five desirable characteristics of a good software requirement specification document.
b) Draw the complete DFD at least up to 2-levels for a library management system. [5+5]

**OR**

5.a) Compare ISO and SEI-CMM models.
b) Who should be involved in a requirement review? Draw a process model showing how a requirements review might be organized. [5+5]

6.a) Define Software architecture. Explain why it may be necessary to design the system architecture before the specifications. Compare function oriented and object oriented designs.

b) What do you mean by the terms cohesion and coupling in the context of software engineering? How are these concepts useful in arriving at a good design of a system? [5+5]

**OR**

7. What is system modeling? Explain the process of creating models and the factors that should be considered when building models. [10]

8. Show using a small example, why it is practically impossible to exhaustively test a program? [10]

**OR**

9.a) Distinguish between error and failure. Which of the two is detected by testing? Justify.

b) Explain how black box testing differs from white box testing. [5+5]

10.a) What do you mean by risk management? Explain how to select the best risk reduction technique when there are many ways of reducing a risk?

b) Explain about formal technical reviews. [5+5]

**OR**

11. Using a schematic diagram and suitable example to show the order in which the following are estimated in the COCOMO estimate technique: Cost, Effort, Duration, and Size. [10]

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**Code No: 115EM** **R13**

**JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD**
**B. Tech III Year I Semester Examinations, March - 2017**
**SOFTWARE ENGINEERING**
**(Common to CSE, IT)**

**Time: 3 hours** **Max. Marks: 75**

**Note:** This question paper contains two parts A and B.
Part A is compulsory which carries 25 marks. Answer all questions in Part A. Part B consists of 5 Units. Answer any one full question from each unit. Each question carries 10 marks and may have a, b, c as sub questions.

## PART - A

**(25 Marks)**

| | | |
|---|---|---|
| 1.a) | What are the merits of incremental model? | [2] |
| b) | What are the fundamental activities of a software process? | [3] |
| c) | Differentiate ERD and DRD. | [2] |
| d) | What are non functional requirements? | [3] |
| e) | Define design process. | [2] |
| f) | List the principles of a software design. | [3] |
| g) | Distinguish between verification and validation. | [2] |
| h) | Write about drivers and stubs. | [3] |
| i) | Give a note on the various estimation techniques. | [2] |
| j) | Define maintenance. What are the types of software maintenance? | [3] |

## PART - B

**(50 Marks)**

2.a) Define the term Software. Describe its various characteristics.
b) Elaborate on the changing nature of software in detail. [5+5]

**OR**

3.a) Explain software development life cycle. Discuss various activities during SDLC.
b) What are various myths about software? [5+5]

4. Give an overview of various system models. [10]

**OR**

5.a) Discuss about principal requirements engineering activities and their relationships.
b) Explain how a software requirements document is structured. [5+5]

6.a) Distinguish between coupling and cohesion? How do they effect software design?
b) For a Case study of your choice show the architectural and component design. [5+5]

**OR**

7. List and explain different kinds of architecture styles and patterns. [10]

8. What is black box testing? What is boundary value Analysis? Explain the technique specifying rules and its usage with the help of an example. [10]

**OR**

9.a) Define unit testing. Explain about unit testing considerations and procedures.

b) What is equivalence class partitioning? List rules used to define valid and invalid equivalence classes. Explain the technique using examples. [5+5]

10.a) What is the purpose of Delphi method? State advantages and disadvantages of the method.

b) Explain the COCOMO model for estimation. [5+5]

**OR**

11. What is software configuration management? Explain various aspects of the configuration management. [10]

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**Code No: 115EM** **R13**

**JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD**
**B.Tech III Year I Semester Examinations, February/March - 2016**
**SOFTWARE ENGINEERING**
**(Common to CSE, IT)**

**Time: 3 hours** **Max. Marks: 75**

**Note:** This question paper contains two parts A and B.
Part A is compulsory which carries 25 marks. Answer all questions in Part A. Part B consists of 5 Units. Answer any one full question from each unit. Each question carries 10 marks and may have a, b, c as sub questions.

**Part- A**

**(25 Marks)**

| | | |
|---|---|---|
| 1.a) | Distinguish between software process and project. | [2] |
| b) | Discuss about changing nature of software. | [3] |
| c) | What is meant by system requirements? | [2] |
| d) | Explain about context models. | [3] |
| e) | Write brief notes on data design. | [2] |
| f) | Write about interface design evaluation. | [3] |
| g) | What is meant by debugging? | [2] |
| h) | What is meant by software measurement? | [3] |
| i) | What is meant by software reliability? | [2] |
| j) | Discuss the reactive risk strategy. | [3] |

**Part- B**

**(50 Marks)**

| | | |
|---|---|---|
| 2. | State and explain various software myths. | [10] |
| | **OR** | |
| 3. | Explain about specialized process models. | [10] |
| 4. | Explain clearly about software requirements document. | [10] |
| | **OR** | |
| 5. | State and explain various aspects in requirements validation process. | [10] |
| 6. | Discuss about mapping dataflow into software architecture. | [10] |
| | **OR** | |
| 7. | Explain about conducting component level design. | [10] |
| 8. | Discuss about metrics for design model and source code. | [10] |
| | **OR** | |
| 9. | Explain clearly about metrics for software quality. | [10] |
| 10. | Explain about formal technical reviews. | [10] |
| | **OR** | |
| 11. | Explain about risk projection and risk management. | [10] |



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**JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD**
**B. Tech III Year I Semester Examinations, November/December - 2016**
**SOFTWARE ENGINEERING**
**(Common to CSE, IT)**

**Time: 3 hours** **Max. Marks: 75**

**Note:** This question paper contains two parts A and B.
Part A is compulsory which carries 25 marks. Answer all questions in Part A. Part B consists of 5 Units. Answer any one full question from each unit. Each question carries 10 marks and may have a, b, c as sub questions.

**PART - A** **(25 Marks)**

| | | |
|---|---|---|
| 1.a) | What is legacy software? Explain. | [2] |
| b) | What are the advantages of unified process? | [3] |
| c) | Write the purpose of context model. | [2] |
| d) | What is the significance of feasibility study? | [3] |
| e) | What is the use of interface analysis? Explain. | [2] |
| f) | What do you mean by software design quality? Explain. | [3] |
| g) | Differentiate between verification and validation. | [2] |
| h) | What is regression testing? Give example. | [3] |
| i) | Define software reliability. | [2] |
| j) | What is the importance of software reviews? | [3] |

**PART - B**

**(50 Marks)**

2.a) Discuss about the changing nature of software
b) Explain spiral model with its merits and demerits. [5+5]

**OR**

3.a) Discuss in brief about different software myths and their consequences.
b) Explain CMMI model with a neat sketch. [5+5]

4.a) Differentiate between functional and non-functional requirements.
b) List and explain the object models in brief. [5+5]

**OR**

5.a) What are the activities of requirements elicitation and analysis? Explain.
b) Discuss about different structured methods used in software development. [5+5]

6.a) Explain the process of mapping dataflow into software architecture.
b) List the golden rules of user interface design. [5+5]

**OR**

7.a) Discuss about pattern based software design in detail.
b) Define and explain about different types of cohesion. [5+5]

8.a) Describe the framework for software product metrics.
b) Differentiate between Black box and White box testing. [5+5]

**OR**

9.a) What are the metrics used for software maintenance? Discuss.
b) Briefly discuss about Integration testing strategies. [5+5]

10.a) Differentiate between Reactive Vs Proactive risk strategies.
b) What is the significance formal technical review? Explain. [5+5]

**OR**

11.a) Write a detailed note on ISO 9000 quality standards.
b) What types of risks occur during software development? Discuss. [5+5]

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Code No: 115EM **R13**

**JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD**
**B. Tech III Year I Semester Examinations, November - 2015**
**SOFTWARE ENGINEERING**
**(Common to CSE, IT)**

**Time: 3 hours** **Max. Marks: 75**

**Note:** This question paper contains two parts A and B.
Part A is compulsory which carries 25 marks. Answer all questions in Part A. Part B consists of 5 Units. Answer any one full question from each unit. Each question carries 10 marks and may have a, b, c as sub questions.

**PART - A** **(25 Marks)**

| | | |
|---|---|---|
| 1.a) | What is an agile process? Explain. | [2] |
| b) | What is the difference between a UP Phase and a UP Workflow? | [3] |
| c) | What is the intent of requirements validation? | [2] |
| d) | What are the characteristics of good SRS document? | [3] |
| e) | Differentiate between coupling and cohesion. | [2] |
| f) | How do we assess the quality of software design? | [3] |
| g) | What is Cyclomatic complexity? What is its purpose? | [2] |
| h) | What are the metrics used for software maintenance? | [3] |
| i) | What is software reliability? Define. | [2] |
| j) | Can a program be correct and still not exhibit good quality? Explain. | [3] |

**PART - B** **(50 Marks)**

2.a) What is the purpose of process assessment? Why has SPICE been developed as a standard process assessment?
b) Explain Spiral model with a neat sketch. What can you say about the software that is being developed or maintained as you move outward along the spiral process flow? [5+5]

**OR**

3.a) What are the five generic process framework activities? Explain.
b) Explain different levels of Capability Maturity model and list the KPA's of each level. [5+5]

4.a) What is the goal of requirements analysis phase? Give reasons why the requirements analysis phase is a difficult one.
b) Briefly explain the models used for structured analysis. [5+5]

**OR**

5.a) Differentiate between functional and non-functional requirements with suitable examples.
b) "Data Modeling can be viewed as a subset of OOA." Comment on this statement and justify your comments. [5+5]

6.a) How are the concepts coupling and software portability are related? Provide examples to support your discussion.

b) Explain the process of mapping data flow into software architecture. [5+5]

**OR**

7.a) Write the taxonomy of architectural styles and give a brief description of each style.

b) State and explain the generic tasks that are always performed in user interface design. [5+5]

8.a) What is the need of software testing? What are its main objectives and principles?

b) Describe Boundary Value Analysis (BVA) testing for software. [5+5]

**OR**

9.a) What are the main objectives of Software verification and validation? Briefly explain different V and V techniques.

b) Discuss the software metrics that can be applied to the qualitative assessment of software quality and the side effects that occur during maintenance phase. [5+5]

10.a) Explain ISO 9126 quality model with a neat sketch.

b) Explain various software quality standards and discuss how to assure them. [5+5]

**OR**

11.a) Explain the factors that affect software quality.

b) List the major risks in a software project. What are the major ways to abate the risk of cost and schedule overruns? [5+5]

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