DR. BABASAHEB AMBEDKAR TECHNOLOGICAL UNIVERSITY,

LONERE – RAIGAD - 402 103

Winter Semester Examination – December - 2019

Branch: Information Technology **Sem.:- V**

Subject with Subject Code:- Software Engineering(BTITC503) **Marks: 60**

Date:- 13/12/2019 **Time:- 3 Hr.**

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Instructions to the Students

1. Each question carries 12 marks.
2. Attempt **any five** questions of the following.
3. Illustrate your answers with neat sketches, diagram etc., wherever necessary.
4. If some part or parameter is noticed to be missing, you may appropriately assume it and should mention it clearly.

		(Marks)
Q.1	a)Explain Waterfall and Prototyping process models with its merits and demerits.	06
	b)What is extreme programming? What are the key activities of extreme programming?	06
Q.2	a)What are the tasks of requirements engineering?	06
	b)What is use case diagram? What are the elements of use case diagram? Draw use case diagram for library management system.	06
Q.3	a)What is a pattern? What types of design patterns are available for the Software Engineer?	06
	b)Explain the different types of architectural style in detail.	06
Q.4	a)What is debugging? Why is debugging so difficult?	06
	b)Explain Formal Technical Reviews in detail.	06
Q.5	a)What types of analysis activity occur during modeling of a WebApp?	06
	b)What roles do people play on a WebE team?	06
Q.6	a)Explain size oriented and function oriented metrics with one example each.	06
	b)What types of risks are we likely to encounter as software is built?	06

******* PAPER END*******

DR. BABASAHEB AMBEDKAR TECHNOLOGICAL UNIVERSITY, LONERE

Supplementary Summer Examination – 2023

Course: B. Tech. Branch: Computer Engineering Semester: Fifth

Subject Code & Name: BTCOC503 Software Engineering

Max Marks: 60 Date: 11 August 2023 Duration: 3 Hr.

Instructions to the Students:

1. *All the questions are compulsory.*
2. *The level of question/expected answer as per OBE or the Course Outcome (CO) on which the question is based is mentioned in ( ) in front of the question.*
3. *The use of non-programmable scientific calculators is allowed.*
4. *Assume suitable data wherever necessary and mention it clearly.*

		(Level/CO)	Marks
Q. 1	**Solve Any Two of the following.**		**12**
A)	What is object-oriented programming (OOP)? Describe the fundamental principles of OOP and how they contribute to software design and development.	Understand	**6**
B)	Provide an OO design for the following specifications. *"Build a software system that stores customers' contact detailssuch as mobile number, WhatsApp number, mail ID and date ofbirth. The system should give birthday greetings and festivalgreetings to the customers."* The OO design should include classes, relationships and methods. Draw aclass diagram in UML.	Analyse	**6**
C)	Compare and contrast agile and waterfall software development methodologies. Highlight the advantages and disadvantages of each approach.	Remember	**6**
Q.2	**Solve Any Two of the following.**		**12**
A)	Define software testing and its importance in the development process. Describe at least three different types of testing and provide scenarios where each type would be most effective	Analyse	**6**
B)	Explain the significance of continuous development and continuous integration in the DevOps project pipeline	Analyse	**6**
C)	Suggest an appropriate process model for the projects. Justify your answers. 1. IOT-based water-level monitoring system. 2. Website development for a restaurant 3. A Mobile application to track students' attendance	Analyse	**6**
Q. 3	**Solve Any Two of the following.**		**12**

A)	Given a scenario, design a class diagram for a library management system that includes classes for books, library members, and transactions. Include associations, attributes, and methods.	Create	**6**
B)	Give the syntax of the following commands and explain their purpose in the context of GitHub. (1) fork, (2) merge, (3) pull request, (4) cloning a repository	Remember	**6**
C)	Consider a scenario where you are developing software for a medical clinic. Identify and categorize three functional and three non-functional requirements for the software. Explain why each requirement is important for the successful implementation of the system.	Remember	**6**
Q.4	**Solve Any Two of the following.**		**12**
A)	Imagine you're developing a banking application. Describe how you would handle concurrent access to a shared bank account to ensure data consistency and avoid conflicts.	Analyse	**6**
B)	Define the following quality attributes : (1) Modifiability, (2) Portability, (3) Scalability, (4) Reliability	Remember	**6**
C)	Analyse a recent software project failure and identify the key reasons behind its failure. Discuss what could have been done differently to prevent or mitigate these issues.	Remember	**6**
Q. 5	**Solve the following.**		**12**
A)	Write pseudocode for a function that takes a list of integers as input and returns the sum of all even numbers in the list.	Remember	**6**
B)	Define the following quality attributes : (1) Cohesion (2) Coupling (3) LOC (4) Fan-in and Fan-out	Create	**6**
C)	What is Hyrum's law? Explain with an example	Remember	**6**

***** End *****

Dr. BABASAHEB AMBEDKAR TECHNOLOGICAL UNIVERSITY, LONERE

Winter Examinations 2022

Course: B. Tech. **Branch :** Computer Science & Engineering **Semester : VII**

Subject Code & Name: Software Engineering (BTCOC701)

Max Marks: 60 **Date:27.01.2023** **Duration: 3 Hr.**

Instructions to the Students:

1. *All the questions are compulsory.*
2. *The level of question/expected answer as per OBE or the Course Outcome (CO) on which the question is based is mentioned in ( ) in front of the question.*
3. *Use of non-programmable scientific calculators is allowed.*
4. *Assume suitable data wherever necessary and mention it clearly.*

		(Level/CO)	Marks
Q. 1	**Solve Any Two of the following.**		**12**
A)	Describe incremental approach for software development.	(Understand)	6
B)	State characteristics of good software.	(Remember)	6
C)	Explain different task regions of spiral model with diagram.	(Apply)	6
Q.2	**Solve Any Two of the following.**		**12**
A)	State principles of Agile software development.	(Understand)	6
B)	Write note on Requirements validation.	(Apply)	6
C)	Discuss the structure of software requirements documents.	(Remember)	6
Q. 3	**Solve Any One of the following.**		**12**
A)	Discuss Structural models in UML.	(Understand)	6
B)	Illustrate event-driven modeling with sketch.	(Analyze)	6
C)	Discuss MVC Architectural pattern.	(Remember)	6
Q.4	**Solve Any Two of the following.**		**12**
A)	Write note on Open source development.	(Understand)	6
B)	Explain the process of Object-oriented design using UML.	(Apply)	6
C)	Describe essential elements of Design patterns.	(Remember)	6
Q. 5	**Solve Any One of the following.**		**12**
A)	Define software testing. Explain development testing in detail.	(Remember)	6
B)	Explain Test-driven development with diagram.	(Understand)	6
C)	Discuss issues related to safety and security in software development.	(Analyze)	6

***** End *****

DR. BABASAHEB AMBEDKAR TECHNOLOGICAL UNIVERSITY, LONERE

Supplementary Semester Examination – Summer 2022

Course: B. Tech. **Branch: Computer Engineering** **Semester: VII**

Subject Code & Name: BTCOC701 Software Engineering

Max Marks: 60 **Date: 13/08/2022** **Duration: 3.45 Hr.**

Instructions to the Students:

1. *All the questions are compulsory.*
2. *The level of question/expected answer as per OBE or the Course Outcome (CO) on which the question is based is mentioned in ( ) in front of the question.*
3. *Use of non-programmable scientific calculators is allowed.*
4. *Assume suitable data wherever necessary and mention it clearly.*

		(Level/CO)	Marks
Q. 1	**Solve Any Two of the following.**		
A)	Explain Waterfall.	Remember	06
B)	Explain Relational Unified Model in Detail.	Understand	06
C)	What is SDLC? Explain Each Part of the SDLC	Apply	06
Q.2	**Solve Any Two of the following.**		
A)	Enlist and Explain Different types of Agile Methodologies.	Remember	06
B)	Write down the Difference between Functional and Non- Functional Requirements.	Understand	06
C)	With an Example Illustrate how we can Perform Requirement Management.	Apply	06
Q. 3	**Solve Any Two of the following.**		
A)	What is Interaction Model? Explain in Software Development?	Remember	06
B)	Explain Different Architectural Pattern in Software Engineering.	Understand	06
C)	What is Model Driven Engineering. Explain in Detail.	Apply	06
Q.4	**Solve Any Two of the following.**		
A)	Design Class Diagram for University System.	Evaluate	06
B)	Design Sequence Diagram for Student Registration System.	Evaluate	06
C)	Design State Chart Diagram for Student Registration System.	Evaluate	06
Q. 5	**Solve Any Two of the following.**		
A)	Differentiate software testing and development testing	Analyze	06
B)	Explain Dependability Properties in Software Engineering	Apply	06
C)	Why Security is a risk management? Illustrate with Example.	Apply	06

***** End *****

DR. BABASAHEB AMBEDKAR TECHNOLOGICAL UNIVERSITY, LONERE

Supplementary Winter Examination-2023

Course: B. Tech. Branch: Information Technology Semester: V

Subject Code & Name: BTITC501 Software Engineering

Max Marks: 60 Date: 01/01/2024 Duration: 3 Hr.

Instructions to the Students:

1. *All the questions are compulsory.*
2. *The level of question/expected answer as per OBE or the Course Outcome (CO) on which the question is based is mentioned in ( ) in front of the question.*
3. *Use of non-programmable scientific calculators is allowed.*
4. *Assume suitable data wherever necessary and mention it clearly.*

		(Level/CO)	Marks
Q. 1	**Solve Any Two of the following.**		12
A)	Describe Practitioner's Myths about Software and the true aspects of these myths.	CO 1	6
B)	Give the comparison between Prototyping and Spiral Models.	CO 1	6
C)	Describe Waterfall model with applications. Give certain reasons for its failure.	CO 1	6
Q.2	**Solve Any Two of the following.**		12
A)	Explain the different types of coupling with examples.	CO 2	6
B)	Enlist the distinct tasks involved in requirement engineering process. Explain any three tasks in detail.	CO 2	6
C)	Draw a Use case Diagram for Library Management System.	CO 2	6
Q. 3	**Solve Any Two of the following.**		12
A)	Explain Alpha and Beta testing.	CO 2	6

B)	Explain what is cyclomatic complexity and different methods to calculate it. Find cyclomatic complexity of following code:
	IF A > 10 THEN
	IF B > C THEN
	A = B
	ELSE
	A = C
	ENDIF
	ENDIF
	PRINT A
	PRINT B
	PRINT C
		CO 2	6

C)	What is Unit testing? Differentiate between black box and white box testing.	CO 2	6
Q.4	**Solve Any Two of the following.**		12
A)	Explain Constructive Cost Model in detail.	CO 3	6

B)	Using COCOMO, Obtain effort estimation, duration estimation and person estimation for a Semi-detached mode of software project with 2000 lines of code.	CO 3	6
C)	Explain size oriented and function-oriented metrics with one example each.	CO 3	6

Q. 5 Solve Any Two of the following. **12**

A)	Write a note on: RMMM	CO 4	6
B)	Explain the various steps involved in change and version control.	CO 4	6
C)	Explain Software Quality assurance and Quality Control.	CO 4	6

5)

*** End ***

	DR. BABASAHEB AMBEDKAR TECHNOLOGICAL UNIVERSITY, LONERE **Regular & Supplementary Winter Examination-2023** **Course: B. Tech. Branch: CSE/CE Semester : V** **Subject Code & Name: BTCOC503 Software Engineering** **Max Marks: 60 Date:05-01-24 Duration: 3 Hr.**		
	Instructions to the Students: *1. All the questions are compulsory.* *2. The level of question/expected answer as per OBE or the Course Outcome (CO) on which the question is based is mentioned in ( ) in front of the question.* *3. Use of non-programmable scientific calculators is allowed.* *4. Assume suitable data wherever necessary and mention it clearly.*		
		(Level/CO)	Marks
Q. 1	**Solve Any Two of the following.**		**12**
A)	What is Software Engineering Ethics? Explain ACM/IEEE code of ethics.	Remember	**6**
B)	Why requirements engineering considered as a critical stage of the software process? Discuss the three main activities involved in the requirements engineering process.	Understand	**6**
C)	Explain software process activities.	Understand	**6**
Q.2	**Solve Any Two of the following.**		**12**
A)	Explain refactoring and pair programming as agile development techniques.	Understand	**6**
B)	Discuss Functional and Non-Functional Requirements	Understand	**6**
C)	Explain requirements validation software process.	Understand	**6**
Q. 3	**Solve Any Two of the following.**		**12**
A)	What is System Modelling? Explain different types of System Models in brief.	Understand	**6**
B)	What are Architectural Patterns? Explain Layered Architecture Pattern with suitable diagram.	Understand	**6**
C)	Explain application architecture for Transaction Processing System with suitable diagram.	Understand	**6**
Q.4	**Solve Any Two of the following.**		**12**
A)	Write a note on Open-Source Development and Open-Source Licensing.	Understand	**6**
B)	Discuss Object Oriented Design using UML in brief.	Understand	**6**
C)	Compare Software Inspection and Testing.	Understand	**6**

Q. 5	**Solve Any Two of the following.**		**12**
A)	Discuss Component testing in detail	Understand	**6**
B)	What is Test-driven development (TDD)? Explain TDD process activities.	Understand	**6**
C)	Write a note on User Testing	Understand	**6**
	***** End *****		

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	DR. BABASAHEB AMBEDKAR TECHNOLOGICAL UNIVERSITY, LONERE **Regular & Supplementary Winter Examination-2023** **Course: B. Tech. Branch : Electronics & CE / Electronics & CSE** **Semester :V** **Subject Code & Name: BTECPE503D Software Engineering** **Max Marks: 60 Date:05.01.2024 Duration: 3 Hr.**		
	Instructions to the Students: *1. All the questions are compulsory.* *2. The level of question/expected answer as per OBE or the Course Outcome (CO) on which the question is based is mentioned in ( ) in front of the question.* *3. Use of non-programmable scientific calculators is allowed.* *4. Assume suitable data wherever necessary and mention it clearly.*		
		(Level/CO)	Marks
Q. 1	**Solve Any Two of the following.**		**12**
A)	**Explain the Software Engineering Ethics.**	**1**	**6**
B)	**Explain the Waterfall Process Model also state where it is used.**	**1**	**6**
C)	**State the four fundamental activities used in various process models.**	**1**	**6**
Q.2	**Solve Any Two of the following.**		**12**
A)	**What do you mean by agility in software development?**	**2**	**6**
B)	**Give comparison between Plan-driven & Agile Project Management Methodologies.**	**2**	**6**
C)	**Differentiate between functional & non-functional requirements.**	**2**	**6**
Q. 3	**Solve Any Two of the following.**		**12**
A)	**What do you mean by system modelling? Explain interaction Model.**	**3**	**6**
B)	**What is model driven Engineering?**	**3**	**6**
C)	**Explain Pipe and filter architecture**	**3**	**6**
Q.4	**Solve Any Two of the following.**		**12**
A)	**Explain student management system.**	**4**	**6**
B)	**What do you mean by open source licensing?**	**4**	**6**
C)	**Explain the configuration management activities.**	**4**	**6**
Q. 5	**Solve Any Two of the following.**		**12**
A)	**Which are the different benefits of software testing?**	**5**	**6**
B)	**Explain the concept of performance testing.**	**5**	**6**
C)	**Explain the types of user testing.**	**5**	**6**

	***** End *****	

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	DR. BABASAHEB AMBEDKAR TECHNOLOGICAL UNIVERSITY, LONERE **Course: B. Tech. Branch: CSE/CE Semester : V** **Subject Code & Name: BTCOC503 Software Engineering** **Max Marks: 60 Date: 05/07/2024 Duration: 3 Hr.**		
	Instructions to the Students: *1. All the questions are compulsory.* *2. The level of question/expected answer as per OBE or the Course Outcome (CO) on which the question is based is mentioned in ( ) in front of the question.* *3. Use of non-programmable scientific calculators is allowed.* *4. Assume suitable data wherever necessary and mention it clearly.*		
		(Level/CO)	Marks
Q. 1	**Solve Any Two of the following.**		**12**
A)	Demonstrate your understanding of umbrella activities of a Software process	CO1/ Apply	**6**
B)	List and describe qualities of good software	CO1/ Understand	**6**
C)	With neat sketch explain Verification and Validation model used for Software Engineering	CO1/ Understand	**6**
Q.2	**Solve Any Two of the following.**		**12**
A)	Discuss the Extreme Programming process	CO2/ Understand	**6**
B)	What is agile Software Development? Give its advantages	CO2/ Understand	**6**
C)	Compare Functional and Non-Functional Requirements with respect to Software Engineering.	CO2/ Analysis	**6**
Q. 3	**Solve Any Two of the following.**		**12**
A)	What is the purpose of System Modelling? Explain different types of System Models in brief.	CO3/ Understand	**6**
B)	What are Architectural Patterns in Software Engineering? How do the Architectural Patterns contribute to system design?	CO3/ Understand	**6**
C)	Explain in brief i) Context Models and ii) Interaction models	CO3/ Understand	**6**
Q.4	**Solve Any Two of the following.**		**12**
A)	Draw sequence diagram and use case diagram for ATM.	CO4/ Understand	**6**
B)	Draw various symbols used for drawing UML diagrams	CO4/ Remember	**6**
C)	Discuss Object Oriented Design using UML in brief.	CO4/ Understand	**6**

Q. 5	**Solve Any Two of the following.**		**12**
A)	Compare functional testing and nonfunctional testing	CO5/ Analyze	**6**
B)	Explain test driven development with neat sketch.	CO5/ Understand	**6**
C)	In brief describe a) Usability Testing b) Unit Testing c) Acceptance Testing.	Understand	**6**
	***** End *****		