

GUJARAT TECHNOLOGICAL UNIVERSITY
BE - SEMESTER-VII (NEW) EXAMINATION – WINTER 2022

Subject Code:3173213**Date:05-01-2023****Subject Name:Software Engineering****Time:10:30 AM TO 01:00 PM****Total Marks:70****Instructions:**

1. Attempt all questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.
4. Simple and non-programmable scientific calculators are allowed.

MARKS

Q.1	(a) Define the system software. List any four-system software.	03
	(b) Define the generic process framework Software Engineering.	04
	(c) Analyze the steps in the V model in detail.	07
Q.2	(a) What is Component-based Development?	03
	(b) Explain the Object-oriented-metrics.	04
	(c) Consider the development of a travel management system. Illustrate the use of the waterfall model for the same.	07
OR		
	(c) Mention the phases of a unified process for software development.	07
Q.3	(a) State the importance of negotiating the requirements.	03
	(b) Compare the RAD and Prototype models.	04
	(c) List the empirical estimation models and explain the COCOMO model.	07
OR		
Q.3	(a) Examine the functions of Data Modeling.	03
	(b) Analyze any five design concepts for a good software design.	04
	(c) Develop a Software Requirements Specification document for a specific application domain.	07
Q.4	(a) What is a risk? State its characteristics.	03
	(b) Define the Grey box testing. How it differs from white box testing.	04
	(c) Examine the different steps in basis path testing.	07
OR		
Q.4	(a) Name four focus areas of software project management.	03
	(b) Mention the various quality attribute of the ISO 9001 -2000 standard.	04
	(c) What is the use of CMM? Discuss different levels of SEI-CMM.	07
Q.5	(a) What are the features of Six Sigma standard?	03
	(b) Difference between Forward engineering and Re-engineering process.	04
	(c) Describe the framework activities of component-based software engineering	07

OR

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| Q.5 | (a) | Write the benefits of Devops? | 03 |
| | (b) | Mention the different types of testing strategies for web applications. | 04 |
| | (c) | List down the various methods of the DevOps lifecycle for business agility. | 07 |



GUJARAT TECHNOLOGICAL UNIVERSITY

Bachelor of Engineering

Subject Code: 3173213

	Analysis Model, Data Modeling, Functional Modeling and Information Flow, Behavioral Modeling and Structured Analysis, Software Design and Software Engineering, The Design Process, Design Principles, Design Concepts, Modular Design, Design Heuristics for Effective Modularity, The Design Model ,Design Documentation, Function oriented v/s object-oriented design, Object Modeling using UML, Software Architecture and Data Design, Architectural Styles, Analyzing Alternative Architectural Designs, Mapping Requirements into a Software Architecture	
6	User Interface Design, Component Level Design: User Interface Design, Task Analysis and Modeling, Interface Design Activities and Implementation Tools, Design Evaluation, Structured Programming and Comparison of Design Notation.	04
7	Risk Analysis & Management: Reactive versus Proactive Risk Strategies, Software Risks (Risk Identification, Risk Projection, Risk Refinement, Risk Mitigation), Risks Monitoring and Management	03
8	Coding, Software Testing Techniques & Software Testing Strategies: Software Testing Fundamentals and Test Case Design, White-Box Testing and Black-Box Testing, ISO/IEC/IEEE Software Testing standards, Testing for Specialized Environments, A Strategic Approach to Software Testing and Issues, Unit Testing, Integration and Validation Testing, System Testing, Software Documentation and Debugging Techniques.	06
9	Software Quality Assurance and Configuration Management: Quality Concepts and Software Quality Assurance, Quality Planning and Control, Software Reviews (Formal Technical Reviews), Software Reliability and Fault Tolerance, The ISO 9000 Quality Standards, The SCM Process, Identification of Objects in the Software Configuration, Six Sigma, Version Control and Change Control.	04
10	Emerging and advanced topics in Software Engineering: Security Engineering, Agile Methods, Client Server Software Engineering, Aspect Oriented Software Development, Software Engineering Aspects of Programming Languages, Reverse Engineering, Re-engineering, Web Engineering, CASE.	04
11	DevOps Viewpoints: Overview, Problem Case Definition, Benefits of Fixing Application Development Challenges, DevOps Adoption Approach through Assessment, Solution Dimensions, What is DevOps?, DevOps Importance and Benefits, DevOps Principles and Practices, 7 C's of DevOps Lifecycle for Business Agility, DevOps and Continuous Testing, How to Choose Right DevOps Tools, Challenges with DevOps Implementation, Must Do Things for DevOps, Mapping My App to DevOps - Assessment, Definition, Implementation, Measure and Feedback	04

Suggested Specification table with Marks (Theory):

Distribution of Theory Marks					
R Level	U Level	A Level	N Level	E Level	C Level
15	25	20	10	--	--

Legends: R: Remembrance; U: Understanding; A: Application, N: Analyze and E: Evaluate C: Create and above Levels (Revised Bloom's Taxonomy)