



PRESIDENCY UNIVERSITY

BENGALURU

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End - Term Examinations – MAY 2025

Date: 21-05-2025

Time: 01:00 pm – 04:00 pm

School: SOIS	Program: BCA - AIML	
Course Code: CSA2006	Course Name: Fundamentals of Software Engineering	
Semester: IV	Max Marks: 100	Weightage: 50%

CO - Levels	C01	C02	C03	C04	C05
Marks	24	24	26	26	-

Instructions:

- (i) Read all questions carefully and answer accordingly.
- (ii) Do not write anything on the question paper other than roll number.

Part A

Answer ALL the Questions. Each question carries 2marks.

10Q x 2M=20M

1.	List myths associated with Software Engineering.	2 Marks	L1	C01
2.	Explain user story in Agile methodology.	2 Marks	L2	C01
3.	List any two functional requirements of Online food delivery system.	2 Marks	L1	C02
4.	List the characteristics of a Software Requirement Specification.	2 Marks	L1	C02
5.	Discuss different Test Strategies for conventional Software.	2 Marks	L2	C03
6.	Differentiate between manual and automated testing.	2 Marks	L2	C03
7.	Mention any two techniques used in black box testing.	2 Marks	L1	C03
8.	Discuss reverse engineering.	2 Marks	L2	C04
9.	Discuss the main goals of CMMI model	2 Marks	L2	C04
10.	A university's student portal is being upgraded to include an online exam module for remote assessments. Mention two potential risks associated with this update.	2 Marks	L2	C04

Part B

Answer the Questions.

Total Marks 80M

11.	a.	Explain Scrum roles, responsibilities and activities in Agile Methodology.	10 Marks	L2	CO1
	b.	<p>A fintech startup is developing a mobile app for personal finance management. They initially release a basic version with features like expense tracking and budgeting. In upcoming versions, they plan to integrate investment tracking, credit score monitoring, and personalized financial tips based on user behavior.</p> <ol style="list-style-type: none"> 1. Which software process model is most suitable for this approach? 2. Explain how this model supports efficient and flexible development. 	10 Marks	L3	CO1

Or

12.	a.	Describe the ethical responsibilities of software engineers when working with sensitive user data. How can they make sure that privacy and security are maintained during development?	10 Marks	L2	CO1
	b.	Choose an appropriate SDLC model for a large, complex project which requires risk management and frequent releases. Give reasons for your choice	10 Marks	L3	CO1

13.	a.	Discuss the role of encapsulation and abstraction in software design. How do these principles enhance the reliability, reusability, and ease of maintenance in large-scale software systems? Support your answer with suitable examples.	10 Marks	L2	CO2
	b.	<p>Consider a Hospital Management System where patients can book appointments, view prescriptions, and pay bills online. Doctors can manage appointments, access patient records, and update prescriptions. The admin manages user roles, system settings, and reports.</p> <p>(i) Draw a use case diagram for the Hospital Management System.</p> <p>(ii) Identify two actors and their key use cases.</p>	10 Marks	L3	CO2

Or

14.	a.	Explain the various stages of the Requirements Engineering Process in Software Engineering.	10 Marks	L2	CO2
	b.	As a project manager, create a Software Requirements Specification (SRS) document for a school management system. The system should manage student records, attendance, class schedules, fee payment, and library management.	10 Marks	L3	CO2

15.	a.	A password input field must accept passwords that are between 6 and 12 characters long (inclusive). Write test cases using Boundary Value Analysis to validate this field.	10 Marks	L3	CO3
	b.	Explain the major elements of a Software Quality Assurance framework.	10 Marks	L2	CO3
Or					
16.	a.	<pre> begin int a, b; input(a); if(a > 0) if(a % 5 == 0) b = a / 5; else b = a + 5; else b = -1; output(b); end </pre> <p>a. Draw the CFG for the given code. b. Calculate cyclomatic complexity c. Find the independent paths d. Write the Test cases.</p>	10 Marks	L3	CO3
	b.	Discuss the main activities involved in the Software Configuration Management (SCM) process	10 Marks	L2	CO3

17.	a.	Explain the different phases of maintenance in the context of software Engineering. How do these phases contribute to the overall efficiency of the system?	10 Marks	L2	CO4
	b.	Describe all five levels of the Capability Maturity Model (CMM). Discuss how organizations improve their software processes as they move from one level to the next.	10 Marks	L2	CO4
Or					
18.	a.	Explain various methods used for software cost estimation.	10 Marks	L2	CO4
	b.	Explain the COCOMO (Constructive Cost Model) in detail. Describe its different types and how they are used to estimate effort and cost in software projects. Support your answer with suitable equations and examples.	10 Marks	L2	CO4