Roll No.												

PRESIDENCY UNIVERSITY

BENGALURU

End - Term Examinations – December 2025

Date: 05-12-2025 **Time:** 09:30am – 12:30pm

School: SOCSE	**Program:** B.Tech (CSE & Allied Branches)CCS,CDV,CBC,CBD,CSN,CSI	
Course Code: CSE2271	**Course Name:** Software Design and Development	
Semester: III	**Max Marks**: 100	**Weightage**: 50%

CO - Levels	CO1	CO2	CO3	CO4	CO5
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 the main goal of software engineering?	**2 Marks**	**L1**	**CO1**
2.	Name any four SDLC models	**2 Marks**	**L1**	**CO1**
3.	What is requirements engineering?	**2 Marks**	**L1**	**CO2**
4.	Define modularity.	**2 Marks**	**L1**	**CO2**
5.	Define a sprint.	**2 Marks**	**L1**	**CO3**
6.	Explain the role of the Product Owner in the Scrum framework.	**2 Marks**	**L1**	**CO3**
7.	Define acceptance testing.	**2 Marks**	**L1**	**CO3**
8.	Explain the concept of Black Box Testing.	**2 Marks**	**L1**	**CO4**
9.	Write short notes on software quality assurance (SQA)	**2 Marks**	**L1**	**CO4**
10.	Define reverse engineering.	**2 Marks**	**L1**	**CO4**

Part B

Answer the Questions. **Total Marks 80M**

11.	**a.**	Explain how a prototyping model works. Explain types of prototyping.	**10 Marks**	**L2**	**CO1**
	b.	Explain the reasons why software engineering is required.	**10 Marks**	**L2**	**CO1**
		Or			
12.	**a.**	Draw the diagrams of both classical waterfall model and iterative waterfall model and explain their main differences.	**10 Marks**	**L2**	**CO1**
	b.	Compare waterfall model, spiral model, and prototype model based on the following features (i) Flexibility (ii) Customer involvement (iii) Risk handling (iv) When to use (v) Type of approach	**10 Marks**	**L2**	**CO1**

13.	**a.**	Explain the following characteristics of a SRS document **(i)** Correctness **(ii)** Completeness **(iii)** Unambiguity **(iv)** Consistency **(v)** Traceability	**10 Marks**	**L2**	**CO2**
	b.	Prepare a SRS document for an E-commerce application indicating the Users, functional requirements, and Non-functional requirements.	**10 Marks**	**L3**	**CO2**
		Or			
14.	**a.**	Why a good user interface design is important? Explain the following golden rules of interface design (i)Enable frequent users to use shortcuts (ii) Offer simple error handling (iii) Permit easy reversal of actions	**10 Marks**	**L2**	**CO2**
	b.	What is a use case diagram? Draw a use case diagram for airline reservation system indicating the include and extend relationships also.	**10 Marks**	**L3**	**CO2**

15.	**a.**	What are the key values and principles of agile manifesto. Explain various scrum roles.	**10 Marks**	**L2**	**CO3**
	b.	Define a stake holder. Explain the responsibilities of project manager, customer, company, and Government.	**10 Marks**	**L2**	**CO3**

		Or			
16.	**a.**	With a neat diagram explain in detail the DevOps architecture.	**10 Marks**	**L2**	**CO3**
	b.	Explain the benefits of scaling. Explain user stories with example.	**10 Marks**	**L2**	**CO3**

17.	**a.**	Consider a problem for the determination of the nature of the roots of a quadratic equation where the inputs are 3 variables (a, b, c) and their values may be from the interval [0, 100] **Apply BVA to generate the test cases.** The output may be one of the following depending on the values of the variables: Not a quadratic equation, Real roots, Imaginary roots, Equal roots. Conditions for types of roots: • Roots are real if $(b^2 - 4ac) > 0$ • Roots are imaginary if $(b^2 - 4ac) < 0$ • Roots are equal if $(b^2 - 4ac) = 0$ • Equation is not quadratic if a = 0s	**10 Marks**	**L3**	**CO4**
	b.	Explain the various steps involved in software reverse engineering.	**10 Marks**	**L2**	**CO4**
		Or			

18.	**a.**	if (A > 10)
		  if (B < 5)
		  X = X + 1;
		  else
		  X = X - 1;
		else
		  X = 0;
		
		For the above pseudo-code, identify all decision paths and provide test cases for all the corresponding paths.
			10 Marks	**L3**	**CO4**

	b.	Explain the seven phases of software maintenance.	**10 Marks**	**L2**	**CO4**