SCHEME AND SOLUTIONS

Fifth Semester B.E./B.Tech. Degree Examination, Dec.2025/Jan.2026
Software Engineering and Project Management

Time: 3 hrs. Max. Marks: 100

Note: 1. Answer any FIVE full questions, choosing ONE full question from each module.
2. M : Marks , L: Bloom's level , C: Course outcomes.

		Module – 1	M	L	C
Q.1	a.	Explain the domains of software applications.	08	L2	CO1
	b.	Outline the unique nature of WebApps.	08	L2	CO1
	c.	Explain various software myths. Discuss.	04	L2	CO1
		OR			
Q.2	a.	Explain the activities performed in a software process framework?	06	L2	CO1
	b.	Explain the waterfall model along with its pros and cons.	08	L2	CO1
	c.	Explain specialized process models.	06	L2	CO1
		Module – 2			
Q.3	a.	Explain how groundwork parameters are established in requirements engineering.	08	L2	CO2
	b.	What is the importance of quality function deployment in eliciting requirements?	06	L1	CO2
	c.	How can we validate requirements?	06	L1	CO2
		OR			
Q.4	a.	Explain about scenario based modelling.	10	L2	CO2
	b.	Illustrate regarding how can we create a Behavioral Model.	10	L2	CO2
		Module – 3			
Q 5	a.	Explain Agility along with the principles of Agility.	10	L2	CO3
	b.	Explain the Extreme Programming Process.	06	L2	CO3
	c.	Explain about the critics of XP.	04	L2	CO3
		OR			
Q.6	a.	Explain the scrum flow process.	08	L2	CO3
	b.	Explain the communication principles guiding framework activity.	08	L2	CO3
	c.	How can we validate and test principles in coding.	04	L1	CO3
		Module – 4			
Q.7	a.	Define Project. Show the contrast of software projects with other types of projects.	06	L2	CO4
	b.	Explain the ISO 12207 software development life cycle with a neat diagram.	10	L2	CO4
	c.	What are outsourced projects?	04	L1	CO4
		OR			
Q.8	a.	Illustrate the cost benefit evaluation techniques.	10	L2	CO4
	b.	Illustrate the concept of Risk evaluation.	10	L2	CO4
		Module – 5			
Q.9	a.	Explain the details to be drafted for achieving quality in software.	06	L2	CO5
	b.	Explain the software quality characteristics of ISO 9126.	08	L2	CO5
	c.	Explain process requirements for the process quality management.	06	L2	CO5
		OR			
Q.10	a.	Explain about the decomposition techniques.	10	L2	CO5
	b.	Explain the COCOMO II model.	10	L2	CO5

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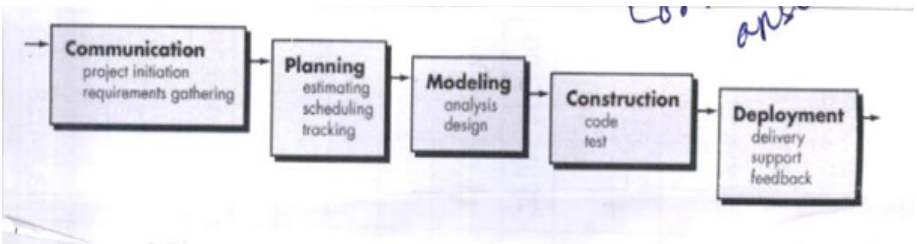
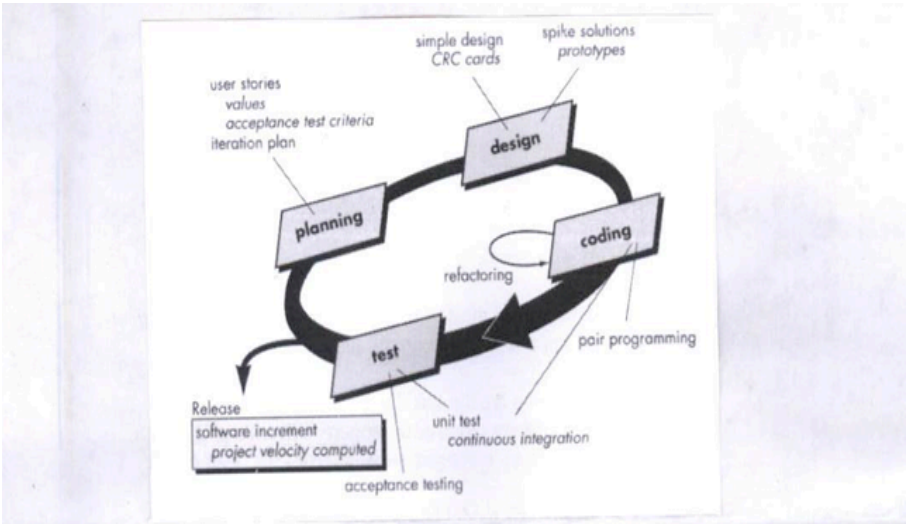
Q. No	Solution	Marks Allocated
1. a	Software is instructions that, when executed, provide desired features, functions, and performance. Softrose Application Domains System software, application software, scientific software, embedded software, product line software, web applications, and artificial intelligence software. Definition: 1 mark, description: 7 marks	08 (1+7)
b.	Network intensiveness, Concurrency, Unpredictable load, Performance, Availability, Data driven, Content sensitive, Continious evolution, Immediacy, Security, Aesthetics. List and Description: 8 Marks	08 (8*1)
c	Software myths are erroneous beliefs about software and the Process that is used to build it. Management myths, Customer myths, Practitioner's myths. Definition: 1 mark, description: 3 marks	04 (1+3)
2. a.	Defining a Framework activity, identifying a task, Process Patterns. Description: 3 X 2 = 6 Marks	06 (3*2)

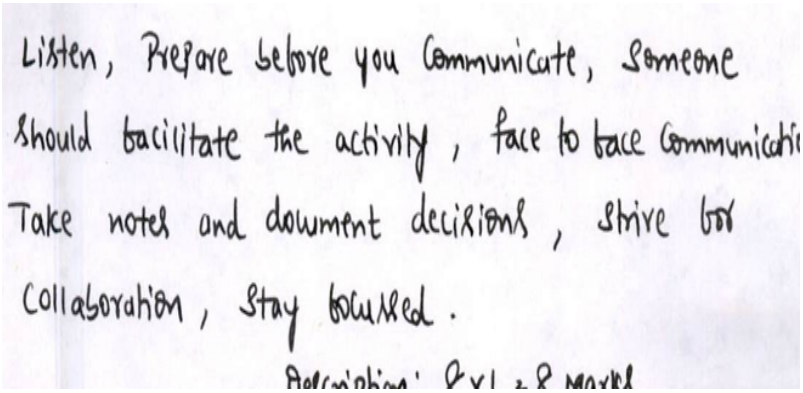
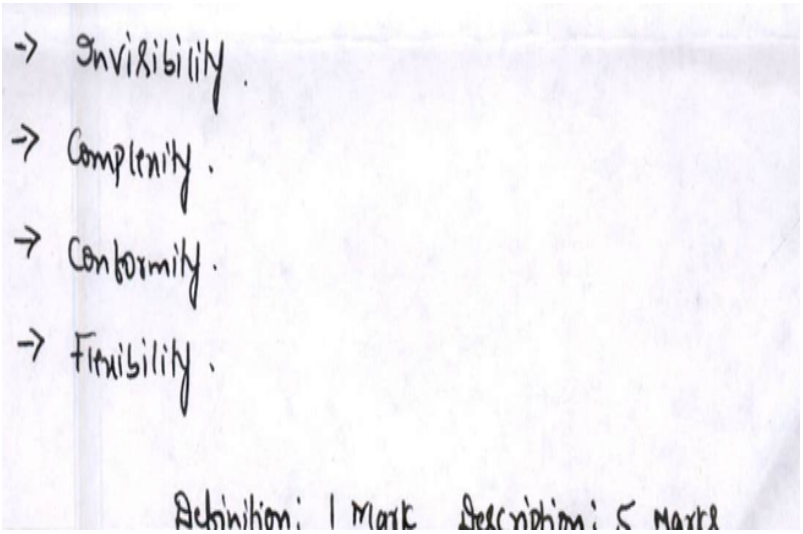
b.	 fig 1: The waterfall model ● Real projects rarely follow the sequential flow that the model proposes. ● It is often difficult for the customer to state all requirements explicitly ● The customer must have patience Description: 4 marks, pros and cons: 4 marks	08 (4+2+2)
c	Component based development, The formal Methods Model, Aspect-oriented Software development. Description: 3 x 2 = 6 Marks	06 (3*2)
3. a	Identifying Stakeholders, Recognizing Multiple viewpoints, working toword collaboration, Asking the first Questions Description: 4 x 2 = 8 Marks	08 (4*2)
b.	Normal requirements, Expected requirements, Exciting requirements. Description: 3 x 2 = 6 Marks	06 (3*2)

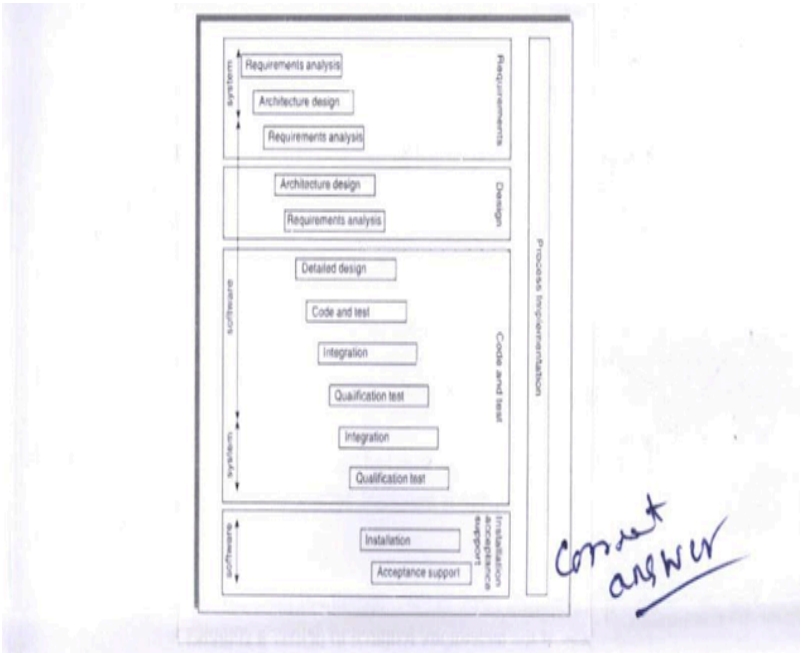
c.	→ Is each requirement consistent with the overall objectives for the system. → Have all requirements been specified at the proper level of abstraction. → Is each requirement bounded and unambiguous. Description: 3X2 = 6 Marks	06 (3*2)
4. a	• Creating a preliminary use case • Refining a preliminary use case • Writing a formal use case Description: 4+3+3	10 (4+3+3)

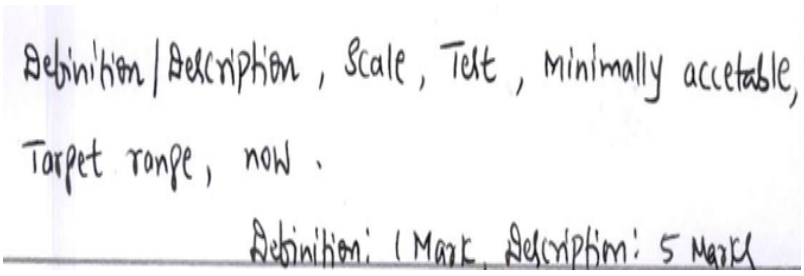
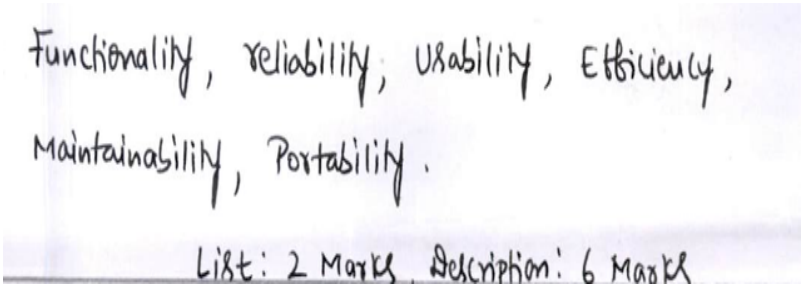
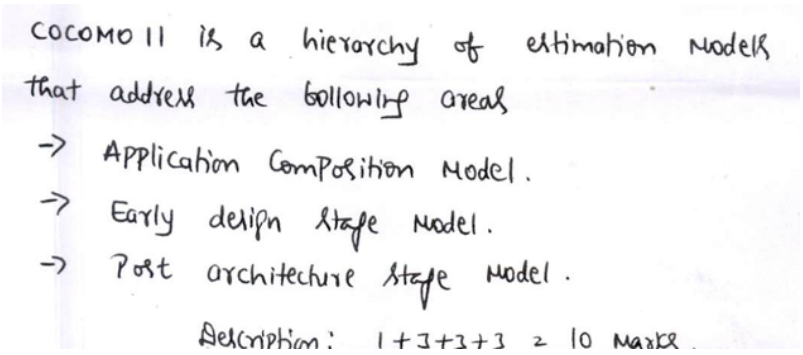
b.	• Identifying events with the use case
	• State representations
	  ○ State diagrams for analysis classes
	  ○ Sequence diagrams
	Desciption: 4+6
		10
		(4+6)

5. a	Customer satisfaction, Welcome changing requirement, Deliver working software frequently, Clients and developers working together, Motivated individuals, face to face conversation, working Software, Simplicity. Description: 1+9 = 10 Marks	10 (1+9)

b.	 fig 2: The XP Process Diagram: 1 Mark, Description: 5 Marks	06 (1+5)
c	Requirements volatility, conflicting customer needs, requirements are expressed informally, lack of formal design Description: 4*1=4 marks	04 (4*1)
6. a	Scrum is an Agile software development method. It emphasizes the use of a set of software process patterns with tight timelines, changing requirements and business criticality. → Backlog. → Sprints. → Scrum meetings. → Demos. Definition: 1 Mark, Description: 7 Marks	08 (1+7)

b.		08 (8*1)
c	Validate: ● Conduct a code walkthrough when appropriate ● Perform unit tests ● Refactor the code Testing: ● Process of executing a program with the intent of finding an error ● A good test case finds an undiscovered error Description: 2+2=4 marks	04 (2+2)
7. a		06 (1+5)

b.	 fig 3: ISO 12207 SDLC Diagram: 2 Marks, Description: 4x2 = 8 Marks	10 (2+4*2)
c	Outsourcing some part of the work to other companies Example 1 Description with example: 2+2 = 4 marks	04 (2+2)
8.a.	Net Profit, Payback Period, Return on investment, Net Present value, Internal rate of return. Description: 5 x 2 = 10 Marks	10 (5*2)
b	-> Risk identification and ranking -> Risk and net Present value. -> Risk Profile analysis. -> Using decision Trees. Definition: 2 Marks. Description: 4 x 2 = 8 Marks	10 (2+4*2)

9.a		06 (1+5)
b		08 (2+6)
c	Entry requirements, implementation requirements , exit requirements Description: 3*2=6 marks	06 (3*2)
10.a	Software sizing, problem based estimation, process based estimation, estimation with use cases List: 2 marks, description: 4*2=8 marks	10 (2+4*2)
b		10 (1+3+3 +3)