Question 1(a) [3 marks]

Enlist Software Application Domain and explain Embedded Software

Answer:

Software Application Domains:

Domain	Description
System Software	Operating systems, device drivers
Application Software	Word processors, games, business apps
Engineering/Scientific Software	CAD, simulation tools
Embedded Software	Real-time control systems
Web Applications	Browser-based applications
AI Software	Machine learning, expert systems

Embedded Software is specialized software that runs on embedded systems with dedicated hardware. It controls specific functions in devices like washing machines, cars, and medical equipment.

- **Real-time operation**: Must respond within strict time limits
- **Resource constraints**: Limited memory and processing power
- **Hardware dependency**: Closely integrated with specific hardware

Mnemonic: "SAEEWA" - System, Application, Engineering, Embedded, Web, AI

Question 1(b) [4 marks]

Explain Generic Framework activities and umbrella activities

Answer:

Generic Framework Activities:

Activity	Purpose
Communication	Gather requirements from stakeholders
Planning	Define work plan and schedule
Modeling	Create analysis and design models
Construction	Code generation and testing
Deployment	Software delivery and support

Umbrella Activities:

Activity	Purpose
Project Management	Track progress and control
Risk Management	Identify and mitigate risks
Quality Assurance	Ensure software quality
Configuration Management	Control changes
Work Product Preparation	Document creation

- **Framework activities**: Core sequential activities in every project
- **Umbrella activities**: Continuous activities throughout project lifecycle

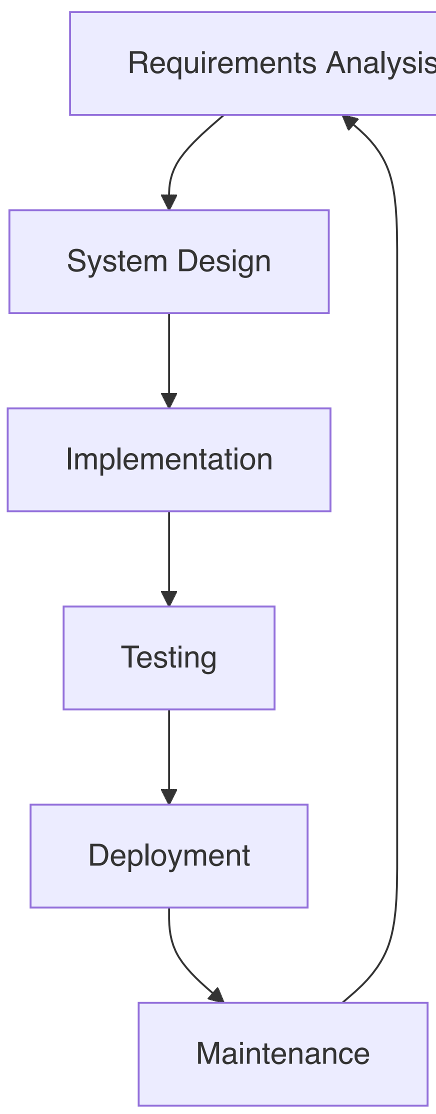
Mnemonic: "CPMCD" for Framework, "PRQCW" for Umbrella

Question 1(c) [7 marks]

Recreate the software development life cycle diagram and explain it's phases

Answer:

SDLC Diagram:



SDLC Phases:

Phase	Activities	Deliverables
Requirements Analysis	Gather user needs, create SRS	SRS Document
System Design	Architecture design, UI design	Design Document
Implementation	Code development, unit testing	Source Code
Testing	Integration, system testing	Test Reports
Deployment	Installation, user training	Deployed System
Maintenance	Bug fixes, enhancements	Updated System

- **Systematic approach**: Each phase has specific inputs and outputs
- **Quality gates**: Reviews between phases ensure quality
- **Iterative nature**: Feedback improves subsequent cycles

Mnemonic: "Real Systems Implement Tests During Maintenance"

Question 1(c) OR [7 marks]

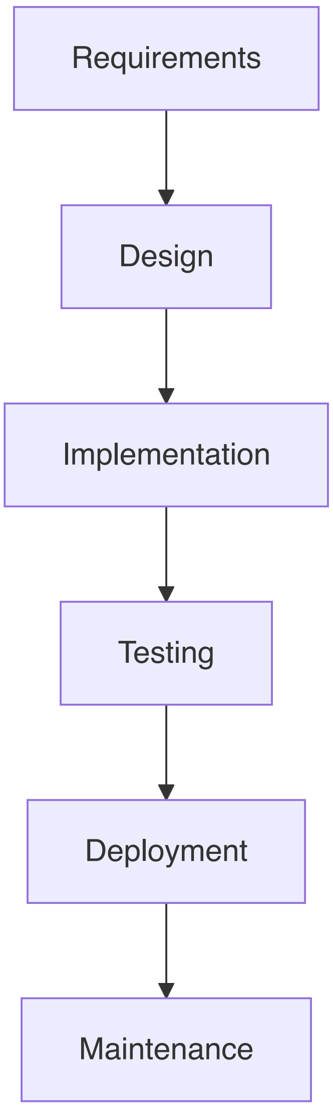
List software development models and explain any two models with necessary diagrams

Answer:

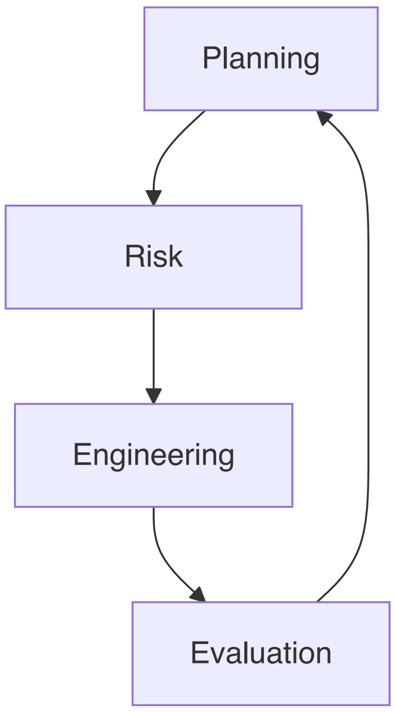
Software Development Models:

Model	Characteristics
Waterfall Model	Sequential, linear approach
Iterative Model	Repeated cycles of development
Spiral Model	Risk-driven, iterative
Agile Model	Flexible, customer collaboration
RAD Model	Rapid prototyping
V-Model	Verification and validation focus

1. Waterfall Model:



2. Spiral Model:



- **Waterfall**: Simple, suitable for well-understood requirements
- **Spiral**: Handles high-risk projects with iterative risk assessment

Mnemonic: "WIRRAV" - Waterfall, Iterative, RAD, Risk-driven, Agile, V-model

Question 2(a) [3 marks]

Differentiate SCRUM Agile process model with SPIRAL process model

Answer:

Aspect	SCRUM	SPIRAL
Approach	Agile, iterative	Risk-driven, iterative
Duration	Fixed sprints (2-4 weeks)	Variable spiral cycles
Focus	Customer collaboration	Risk management
Planning	Sprint planning	Comprehensive planning
Documentation	Minimal documentation	Detailed documentation
Team Size	Small teams (5-9 members)	Any team size

- **SCRUM**: Emphasizes rapid delivery and customer feedback
- **SPIRAL**: Focuses on risk identification and mitigation

Mnemonic: "SCRUM=Speed, SPIRAL=Safety"

Question 2(b) [4 marks]

List requirement gathering techniques and explain anyone

Answer:

Requirement Gathering Techniques:

Technique	Description
Interviews	Direct conversation with stakeholders
Questionnaires	Structured written questions
Observation	Watch users perform tasks
Document Analysis	Review existing documents
Prototyping	Build working models
Brainstorming	Group idea generation

Interview Technique Explained:

- **Structured interviews**: Predetermined questions, formal approach
- **Unstructured interviews**: Open-ended discussion, flexible
- **Semi-structured**: Combination of both approaches

Benefits: Direct stakeholder input, clarification possible, detailed information
Challenges: Time-consuming, interviewer bias, incomplete information

Mnemonic: "IQDPBB" - Interview, Questionnaire, Document, Prototype, Brainstorm, Observe

Question 2(c) [7 marks]

Define use case diagram. Explain it with example

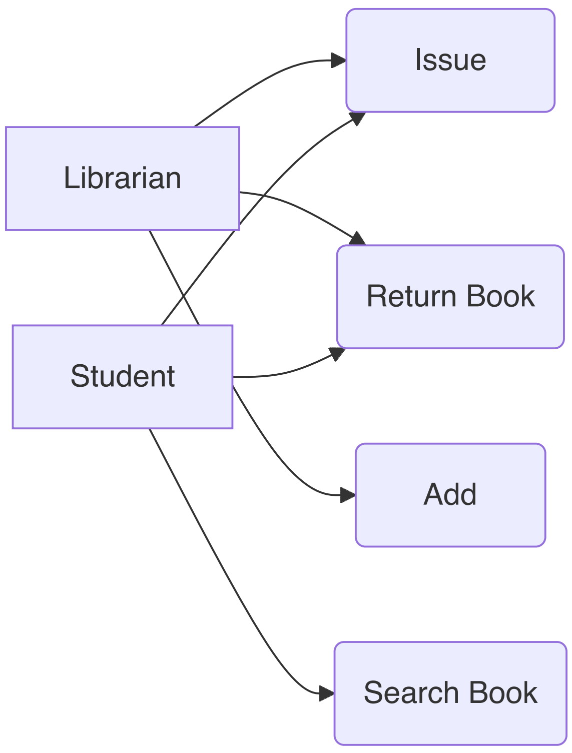
Answer:

Use Case Diagram Definition:
A use case diagram shows the functional requirements of a system by depicting actors and their interactions with use cases.

Components:

Component	Symbol	Purpose
Actor	Stick figure	External entity
Use Case	Oval	System function
Association	Line	Actor-use case relationship
System Boundary	Rectangle	System scope

Example: Library Management System



Relationships:

- **Include**: Common functionality shared by use cases
- **Extend**: Optional functionality added to base use case
- **Generalization**: Inheritance between actors or use cases

Benefits: Clear functional overview, communication tool, basis for testing

Mnemonic: "Actors Use Cases Inside Systems"

Question 2(a) OR [3 marks]

Compare Water fall model and Iterative waterfall model

Answer:

Aspect	Waterfall Model	Iterative Waterfall
Phases	Sequential, one-time	Repeated in iterations
Feedback	At end of project	After each iteration
Risk	High risk detection late	Early risk identification
Flexibility	Rigid, no changes	Accommodates changes
Testing	After development	Continuous testing
Delivery	Single final delivery	Multiple incremental deliveries

- **Waterfall**: Suitable for stable, well-defined requirements
- **Iterative Waterfall**: Better for evolving requirements with feedback

Mnemonic: "PFRTFD" - Phases, Feedback, Risk, Testing, Flexibility, Delivery

Question 2(b) OR [4 marks]

Define Functional and non-Functional Requirement and give examples of both

Answer:

Functional Requirements:
Requirements that define what the system should do - specific behaviors and functions.

Non-Functional Requirements:
Requirements that define how the system should perform - quality attributes and constraints.

Type	Functional	Non-Functional
Definition	System behavior	System quality
Examples	Login, Calculate, Store	Performance, Security
Testing	Black-box testing	Load, stress testing
Documentation	Use cases, scenarios	Quality metrics

Functional Examples:

- User authentication and login
- Calculate total bill amount
- Generate monthly reports

Non-Functional Examples:

- System response time < 2 seconds (Performance)
- 99.9% system availability (Reliability)
- Support 1000 concurrent users (Scalability)

Mnemonic: "Functional=What, Non-Functional=How"

Question 2(c) OR [7 marks]

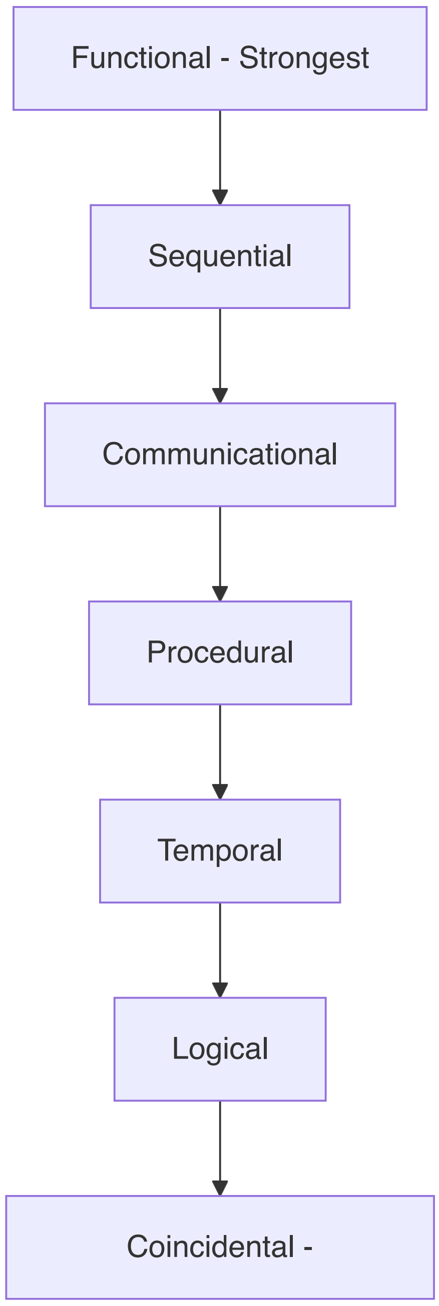
Define cohesion. Explain classification of cohesion

Answer:

Cohesion Definition:
Cohesion measures how closely related elements within a module are. High cohesion indicates a well-designed module.

Classification of Cohesion (Strongest to Weakest):

Type	Description	Example
Functional	Single, well-defined task	Calculate square root
Sequential	Output of one = input of next	Read→Process→Write
Communicational	Operate on same data	Update customer record
Procedural	Follow sequence of execution	Process payroll steps
Temporal	Execute at same time	System initialization
Logical	Similar logical functions	All input/output operations
Coincidental	No meaningful relationship	Random utilities



Goal: Achieve functional cohesion for maintainable, reliable modules

Mnemonic: "Frank's Smart Cat Plays Tennis Like Crazy"

Question 3(a) [3 marks]

List characteristics of good software design

Answer:

Characteristics of Good Software Design:

Characteristic	Description
Modularity	Divided into independent modules
Abstraction	Hide implementation details
Encapsulation	Bundle data and methods together
Hierarchy	Organized in layers/levels
Simplicity	Easy to understand and maintain
Flexibility	Accommodate future changes

- **High cohesion**: Related elements grouped together
- **Low coupling**: Minimal dependencies between modules
- **Reusability**: Components can be reused in other systems

Mnemonic: "MAEHSF" - Modularity, Abstraction, Encapsulation, Hierarchy, Simplicity, Flexibility

Question 3(b) [4 marks]

Explain Project Estimation Techniques using intermediate COCOMO model

Answer:

Intermediate COCOMO Model:
Extends basic COCOMO by considering cost drivers that affect productivity.

Formula:
Effort = a × (KLOC)^b × EAF

Cost Drivers:

Category	Drivers	Impact
Product	Reliability, Complexity	Effort multiplier
Hardware	Execution time, Storage	Performance constraints
Personnel	Analyst capability, Experience	Team skills
Project	Modern practices, Schedule	Development environment

Effort Adjustment Factor (EAF):
EAF = Product of all cost driver multipliers

Steps:

1. Estimate KLOC (thousands of lines of code)
2. Select appropriate a, b values based on project type
3. Evaluate cost drivers (scale 0.70 to 1.65)
4. Calculate EAF
5. Apply formula to get effort in person-months

Mnemonic: "PHPP" - Product, Hardware, Personnel, Project drivers

Question 3(c) [7 marks]

Draw and explain level-1 Data flow diagram for Online shopping system

Answer:

Level-1 DFD for Online Shopping System:

```
+----------+                    +----------+
|          |     Order Info     |          |
|Customer  |<------------------>| Process  |
|          |     Product Info   | Order    |
+----------+                    +----------+
                                      |
                                      | Order Details
                                      v
+----------+     Payment Info   +----------+
|Payment   |<------------------>| Process  |
|Gateway   |                    | Payment  |
+----------+                    +----------+
                                      |
                                      | Inventory Update
                                      v
+----------+     Stock Info     +----------+
|Inventory |<------------------>| Manage   |
|Manager   |                    |Inventory |
+----------+                    +----------+
```

Processes:

Process	Input	Output	Description
Process Order	Customer order	Order confirmation	Handle order placement
Process Payment	Payment details	Payment status	Process transactions
Manage Inventory	Stock queries	Stock status	Track product availability

Data Stores:

- **Product Database**: Store product information
- **Order Database**: Store order details
- **Customer Database**: Store customer profiles

External Entities:

- **Customer**: Places orders, makes payments
- **Payment Gateway**: Processes payments
- **Inventory Manager**: Updates stock levels

Mnemonic: "PPMI" - Process order, Process payment, Manage inventory

Question 3(a) OR [3 marks]

Differentiate analysis and design

Answer:

Aspect	Analysis	Design
Focus	What system should do	How system will work
Phase	Requirements phase	Design phase
Output	Problem understanding	Solution structure
Models	Use cases, requirements	Architecture, classes
Perspective	User's viewpoint	Developer's viewpoint
Level	Abstract, conceptual	Concrete, detailed

- **Analysis**: Problem-focused, understanding requirements
- **Design**: Solution-focused, creating system architecture

Mnemonic: "Analysis=WHAT, Design=HOW"

Question 3(b) OR [4 marks]

Explain Project Estimation Techniques using basic COCOMO model

Answer:

Basic COCOMO Model:
Estimates software development effort based on lines of code.

Formula:

- Effort = a × (KLOC)^b person-months
- Time = c × (Effort)^d months

Project Types:

Type	a	b	c	d	Description
Organic	2.4	1.05	2.5	0.38	Small, experienced team
Semi-detached	3.0	1.12	2.5	0.35	Medium size, mixed team
Embedded	3.6	1.20	2.5	0.32	Complex, tight constraints

Steps:

1. Estimate KLOC (thousands of lines of code)
2. Identify project type (organic/semi-detached/embedded)
3. Apply appropriate coefficients
4. Calculate effort and development time

Example: 10 KLOC organic project

- Effort = 2.4 × (10)^1.05 = 25.2 person-months
- Time = 2.5 × (25.2)^0.38 = 8.4 months

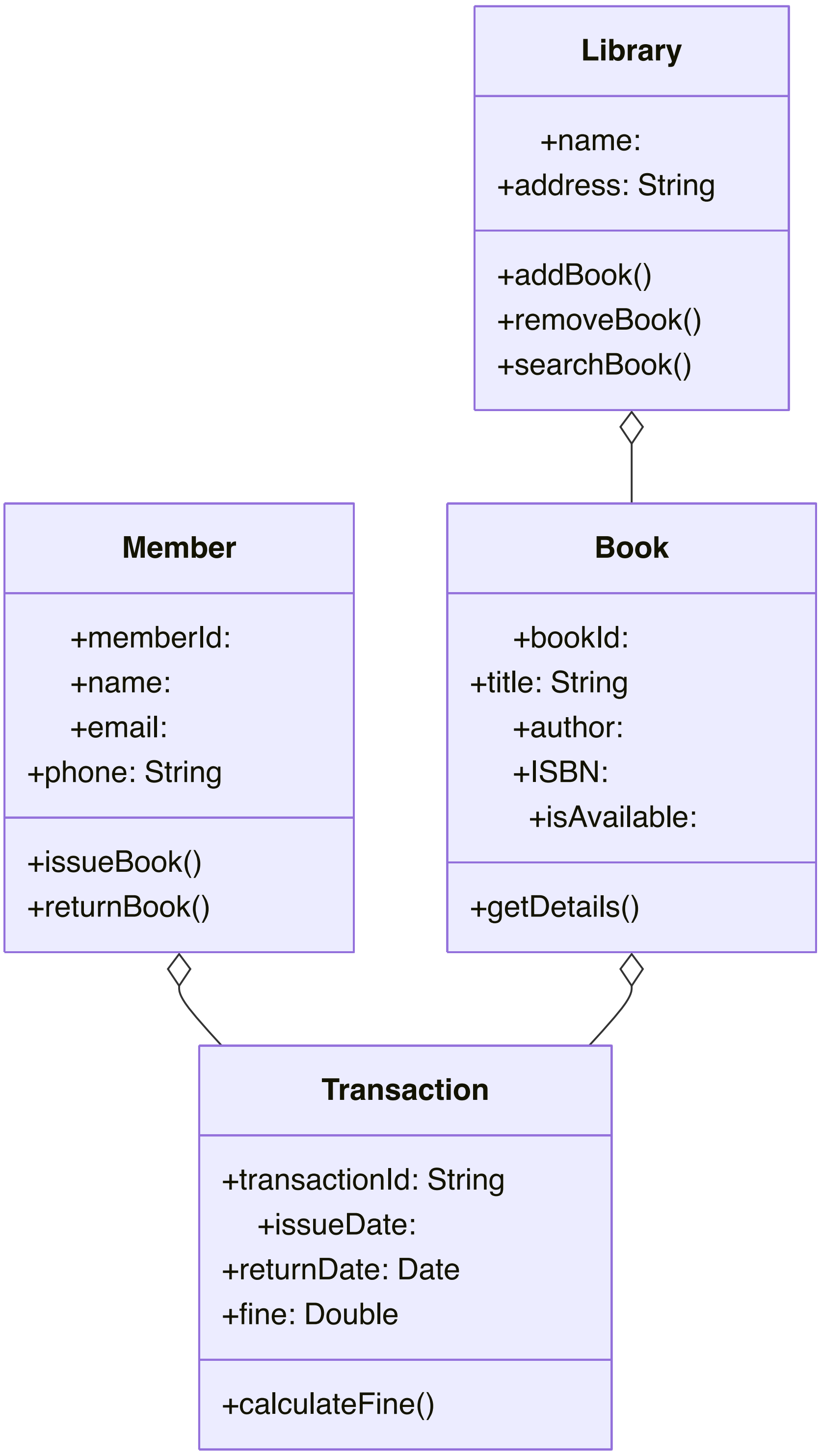
Mnemonic: "OSE" - Organic, Semi-detached, Embedded

Question 3(c) OR [7 marks]

Draw and explain Class Diagram for Library Management system

Answer:

Class Diagram for Library Management System:



Relationships:

Relationship	Description	Multiplicity
Library-Book	Library contains books	1 to many
Member-Transaction	Member has transactions	1 to many
Book-Transaction	Book involved in transactions	1 to many

Key Features:

- **Attributes**: Data members of each class
- **Methods**: Functions that operate on class data
- **Associations**: Relationships between classes showing how they interact

Mnemonic: "LBMT" - Library, Book, Member, Transaction

Question 4(a) [3 marks]

List Project Size Estimation Metrics and define them

Answer:

Project Size Estimation Metrics:

Metric	Definition	Usage
Lines of Code (LOC)	Count of executable code lines	Traditional sizing
Function Points (FP)	Measure based on functionality	Language-independent
Feature Points	Extended function points	Real-time systems
Object Points	Count of objects and methods	Object-oriented systems
Use Case Points	Based on use case complexity	Requirements-based

Function Points Components:

- **External Inputs**: Data entry screens
- **External Outputs**: Reports, messages
- **External Inquiries**: Interactive queries
- **Internal Files**: Master files
- **External Interfaces**: Shared data

Benefits: Early estimation, technology-independent, standardized approach

Mnemonic: "LFFOU" - LOC, Function Points, Feature Points, Object Points, Use Case Points

Question 4(b) [4 marks]

Explain Risk identification in detail

Answer:

Risk Identification:
Process of finding, recognizing, and describing potential risks that could affect project success.

Risk Categories:

Category	Examples	Impact
Technical	New technology, complexity	Development delays
Project	Schedule, budget constraints	Cost overruns
Business	Market changes, competition	Project cancellation
External	Vendor issues, regulations	Dependencies

Identification Techniques:

- **Brainstorming**: Team discussions to identify risks
- **Checklists**: Standard risk categories review
- **Expert judgment**: Experience-based identification
- **SWOT analysis**: Strengths, Weaknesses, Opportunities, Threats

Risk Register:
Document containing identified risks with:

- Risk description
- Probability of occurrence
- Impact severity
- Risk category
- Responsible person

Mnemonic: "TPBE" - Technical, Project, Business, External risks

Question 4(c) [7 marks]

Prepare Gantt Chart for any system of your choice

Answer:

Gantt Chart for Online Banking System:

Task	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8
Requirements Analysis	██████████	██████████						
System Design		██████████	██████████					
Database Design			██████████	██████████				
UI Development				██████████	██████████			
Backend Development					██████████	██████████		
Testing						██████████	██████████	
Deployment							██████████	██████████

Project Tasks:

Task	Duration	Dependencies	Resources
Requirements Analysis	2 weeks	None	Business Analyst
System Design	2 weeks	Requirements	System Designer
Database Design	2 weeks	System Design	Database Designer
UI Development	2 weeks	System Design	UI Developer
Backend Development	2 weeks	Database Design	Backend Developer
Testing	2 weeks	UI + Backend	QA Tester
Deployment	2 weeks	Testing	DevOps Engineer

Benefits: Visual progress tracking, resource allocation, dependency management

Mnemonic: "RSDUBtd" - Requirements, System design, Database, UI, Backend, Testing, Deployment

Question 4(a) OR [3 marks]

List Responsibilities of Project manager

Answer:

Project Manager Responsibilities:

Area	Responsibilities
Planning	Create project plans, define scope
Organizing	Allocate resources, form teams
Leading	Motivate team, resolve conflicts
Controlling	Monitor progress, manage changes
Communication	Stakeholder updates, team coordination
Risk Management	Identify and mitigate risks

Key Activities:

- **Project initiation**: Define objectives and constraints
- **Schedule management**: Create and maintain timelines
- **Budget control**: Monitor costs and expenses
- **Quality assurance**: Ensure deliverable standards
- **Team management**: Lead and develop team members

Mnemonic: "POLCR" - Planning, Organizing, Leading, Controlling, Risk management

Question 4(b) OR [4 marks]

Explain Risk Assessment in detail

Answer:

Risk Assessment:

Process of evaluating identified risks to determine their probability and impact on project success.

Assessment Components:

Component	Scale	Description
Probability	1-5 or %	Likelihood of risk occurrence
Impact	1-5 or $	Severity if risk occurs
Risk Score	P × I	Overall risk priority

Risk Assessment Matrix:

Probability/Impact	Low (1)	Medium (2)	High (3)
Low (1)	1	2	3
Medium (2)	2	4	6
High (3)	3	6	9

Assessment Techniques:

- **Qualitative assessment**: Descriptive scales (High/Medium/Low)
- **Quantitative assessment**: Numerical values and calculations
- **Expert judgment**: Experience-based evaluation
- **Historical data**: Past project analysis

Risk Categorization:

- **High risk** (7-9): Immediate attention required
- **Medium risk** (4-6): Monitor and plan mitigation
- **Low risk** (1-3): Accept or minimal mitigation

Mnemonic: "PIS" - Probability, Impact, Score

Question 4(c) OR [7 marks]

Prepare Sprint burn down chart for any system of your choice

Answer:

Sprint Burn Down Chart for E-commerce Mobile App (2-week Sprint):

```
Story Points
    |
 40 +---*
    |    \
 35 +     *
    |      \
 30 +       *
    |        \
 25 +         *---*
    |              \
 20 +               *
```

```
    |                 \
 15 +                  *
    |                   \
 10 +                    *
    |                     \
  5 +                      *
    |                       \
  0 +________________________*
    1  2  3  4  5  6  7  8  9  10 Days

    * = Actual Progress
    --- = Ideal Progress
```

Sprint Details:

Day	Ideal Remaining	Actual Remaining	Work Completed
Day 1	36	40	Sprint planning
Day 2	32	35	User login feature
Day 3	28	30	Product catalog
Day 4	24	25	Shopping cart
Day 5	20	25	Blocked by API issue
Day 6	16	20	Payment integration
Day 7	12	15	Order management
Day 8	8	10	Testing and fixes
Day 9	4	5	Final testing
Day 10	0	0	Sprint completed

Key Insights:

- **Slope**: Progress rate compared to ideal
- **Flat areas**: Blocked work or scope changes
- **Below ideal**: Ahead of schedule
- **Above ideal**: Behind schedule

Mnemonic: "DABC" - Days, Actual, Burn-down, Chart

Question 5(a) [3 marks]

List Code Review Techniques and explain anyone

Answer:

Code Review Techniques:

Technique	Description	Participants
Code Walkthrough	Informal review by author	Author + reviewers
Code Inspection	Formal, systematic review	Trained inspectors
Peer Review	Colleague examines code	Developer peers
Tool-based Review	Automated analysis	Tools + developers

Code Inspection Explained:

Process:

1. **Planning**: Select code, assign roles
2. **Overview**: Author explains code structure
3. **Preparation**: Individual review of code
4. **Inspection meeting**: Group examines code
5. **Rework**: Fix identified defects
6. **Follow-up**: Verify corrections

Roles:

- **Moderator**: Leads the inspection process
- **Author**: Code developer, explains logic
- **Reviewers**: Find defects and issues
- **Recorder**: Documents findings

Benefits: High defect detection rate, knowledge sharing, improved code quality

Mnemonic: "CWIP" - Code Walkthrough, Inspection, Peer review

Question 5(b) [4 marks]

Prepare test cases for online shopping system

Answer:

Test Cases for Online Shopping System:

Test Case ID	Test Scenario	Test Steps	Expected Result
TC001	User Registration	1. Enter valid details 2. Click Register	Account created successfully
TC002	User Login	1. Enter username/password 2. Click Login	User logged in
TC003	Add to Cart	1. Select product 2. Click Add to Cart	Product added to cart
TC004	Checkout Process	1. Go to cart 2. Click Checkout 3. Enter payment details	Order placed successfully

Detailed Test Case Example:

Test Case ID: TC003
Test Title: Add Product to Shopping Cart
Pre-conditions: User is logged in, product is available
Test Steps:

1. Navigate to product catalog
2. Select a product
3. Choose quantity
4. Click "Add to Cart" button

Expected Result: Product appears in cart with correct quantity and price
Post-conditions: Cart count increases, total amount updates

Mnemonic: "RAULC" - Registration, Authentication, User cart, Login, Checkout

Question 5(c) [7 marks]

Define White box technique. List various white box technique. Explain any two

Answer:

White Box Testing Definition:
Testing technique that examines internal code structure, logic paths, and implementation details.

White Box Techniques:

Technique	Coverage Criteria	Purpose
Statement Coverage	All statements executed	Basic code coverage
Branch Coverage	All branches taken	Decision testing
Path Coverage	All paths executed	Complete flow testing
Condition Coverage	All conditions tested	Logical expression testing
Loop Testing	All loop variations	Iterative structure testing

1. Statement Coverage:
Ensures every executable statement in code is executed at least once.

Formula: (Executed statements / Total statements) × 100%

Example:

```
if (x > 0)        // Statement 1
    y = x + 1;    // Statement 2
else
    y = x - 1;    // Statement 3
z = y * 2;        // Statement 4
```

Test Cases: x = 5 (covers statements 1,2,4), x = -1 (covers statements 1,3,4)
Coverage: 100% statement coverage achieved

2. Branch Coverage:
Ensures every branch (true/false) of decision points is executed.

Example:

```
if (a > b && c > d)     // Two conditions
    result = 1;         // True branch
else
    result = 0;         // False branch
```

Test Cases:

- a=5, b=3, c=7, d=2 (true branch)
- a=1, b=3, c=7, d=2 (false branch)

Benefits: Higher defect detection than statement coverage

Mnemonic: "SBPCL" - Statement, Branch, Path, Condition, Loop

Question 5(a) OR [3 marks]

Explain software documentation

Answer:

Software Documentation:
Written material that describes software system, its design, implementation, and usage.

Types of Documentation:

Type	Purpose	Audience
Internal Documentation	Code understanding	Developers
External Documentation	System usage	Users, operators
System Documentation	Design and architecture	Maintainers
User Documentation	Operation instructions	End users

Internal Documentation:

- **Comments**: Explain code logic and purpose
- **Code structure**: Class and method descriptions
- **Design rationale**: Why specific approaches chosen

External Documentation:

- **User manuals**: Step-by-step usage instructions
- **Installation guides**: Setup procedures
- **API documentation**: Interface specifications

Benefits: Easier maintenance, knowledge transfer, reduced training time

Mnemonic: "IESU" - Internal, External, System, User documentation

Question 5(b) OR [4 marks]

Prepare at least 4 test cases for ATM System

Answer:

Test Cases for ATM System:

Test Case ID	Test Scenario	Test Steps	Expected Result
TC001	Valid PIN Entry	1. Insert card 2. Enter correct PIN 3. Press Enter	Access granted to main menu
TC002	Invalid PIN Entry	1. Insert card 2. Enter wrong PIN 3. Press Enter	"Invalid PIN" message displayed
TC003	Cash Withdrawal	1. Login successfully 2. Select "Withdraw Cash" 3. Enter amount 4. Confirm	Cash dispensed, balance updated
TC004	Insufficient Balance	1. Login successfully 2. Select "Withdraw Cash" 3. Enter amount > balance	"Insufficient funds" message

Detailed Test Case:

Test Case ID: TC003
Test Description: Withdraw cash with sufficient balance
Pre-conditions: Valid ATM card, sufficient account balance
Test Data: PIN=1234, Withdrawal amount=₹1000, Account balance=₹5000

Post-conditions: Account balance reduced by ₹1000, transaction recorded

Mnemonic: "VPCI" - Valid PIN, PIN error, Cash withdrawal, Insufficient funds

Question 5(c) OR [7 marks]

Enlist all black box testing methodologies. Explain why it is known as functional testing? Explain at least 2 methods with diagram

Answer:

Black Box Testing Methodologies:

Method	Purpose	Input Focus
Equivalence Partitioning	Divide inputs into classes	Valid/invalid partitions
Boundary Value Analysis	Test edge values	Boundary conditions
Decision Table Testing	Complex business rules	Multiple input combinations
State Transition Testing	State-based systems	State changes
Use Case Testing	Functional scenarios	User interactions
Error Guessing	Experience-based testing	Likely error conditions

Why called Functional Testing?
Black box testing focuses on **what the system does** rather than **how it works**. It validates functional requirements by testing inputs and expected outputs without knowledge of internal code structure.

1. Equivalence Partitioning:

```
Input Range: Age (0-120)

Valid Partition:     Invalid Partitions:
   18-65 years       <0   0-17   66-120   >120
      |                |     |      |       |
      v                v     v      v       v
   [VALID]          [INVALID INPUTS]
```

Example: Age validation for job application

- **Valid partition**: 18-65 years
- **Invalid partitions**: <0, 0-17, 66-120, >120
- **Test cases**: One from each partition (e.g., 25, -5, 10, 70, 130)

2. Boundary Value Analysis:

```
    Input Range: Score (0-100)

    Invalid  |  Valid Range  | Invalid
      -1  0  |  1    99  100 | 101
       |  |  |   |    |   |  |  |
       v  v  v   v    v   v  v  v
    [Test boundary values]
```

Example: Student score validation (0-100)

- **Test values**: -1, 0, 1, 50, 99, 100, 101
- **Focus**: Just inside and outside boundaries
- **Rationale**: Most errors occur at boundaries

Benefits:

- **Independence**: No programming knowledge required
- **User perspective**: Tests from user's viewpoint
- **Requirement validation**: Verifies functional specifications

Mnemonic: "EBDSUE" - Equivalence, Boundary, Decision, State, Use case, Error guessing