

Question 1: Identify Business Process Model for Online Agriculture Store – (Goal, Inputs, Resources, Outputs, Activities, Value created to the end Customer)

Answer 1:

Goal: To develop an online agricultural product store to facilitate remote area farmers to buy products such as fertilizers, seeds and pesticides and establishing effective communication between farmers and companies.

Inputs: Farmer's demand for effective products, Product data from manufactures (price, description, stock), internet connectivity and mobile devices, Payment gateway integration.

Resources: Project Team (Developers, testers, Project manager), Technical (Web servers, Cloud hosting, APIs, database), Financial (CSR funding of Rs. 2 Crore), Partners like Manufacturers, logistics providers.

Outputs: Functioning online marketplace, verified manufacturer listings and farmer users, successful order & payment & invoice records, real time delivery tracking and feedback reports.

Activities: Farmer registration and profile creation > Product catalogue management > farmers search, compare and add products to the cart > payment processing and order confirmation > logistics partner pickup and delivery tracking > Customer support and feedback collection.

Value Creation: Easy access for farmers for fertilizers, seeds and pesticides, Time saving through online doorstep delivery, Transparent pricing and comparison, trust and reliability through verified manufacturers

Question 2: Mr Karthik is doing SWOT analysis before he accepts this project. What Aspects he Should consider as Strengths, as Weaknesses, as Opportunity and as Threats.

Answer 2:

Strength: Experienced delivery and management teams > Existing infrastructure > Strong software development expertise

Weakness: Medium sized firm > Resource constraint possible > Dependence on third party logistics and payment gateways

Opportunities: Expansion in digital agriculture market > Potential to scale the platform to other rural services > partnership with NGOs and CSR Foundations

Threat : Connectivity issues in rural region > Competition from established agri-tech companies
> Changes in CSR regulations

Question 3 : Mr Karthik is trying to do feasibility study on doing this project in Technology (Java), Please help him with points (HW SW Trained Resources Budget Time frame) to consider in feasibility Study.

Answer 3:

1. HW requirement : Application server,Database server ,Client system,Network infrastructure,Hosting environment
2. SW requirement: Programming language,Frontend,Database,Testing tools,Development tools,Integrations(payment gateway & logistics partner API)
3. Trained resources: Project Manager,Frontend developer,QA engineer,UI/UX designer
4. Budget: Hardware,Software Licences/tools,testing,deployment,Training and onboarding team,customer support team
5. Time frame: R&D > System design>Development>Testing and QA>pilot> Handover and support

Question 4: Mr Karthik must submit Gap Analysis to Mr Henry to convince to initiate this project. What points (compare AS-IS existing process with TO-BE future Process) to showcase in the GAP Analysis

Answer 4:

AS-IS (existing)	TO-BE (future process)
1.Farmers currently buy through local dealers which increases cost and decreases authenticity	Develop an online marketplace which connects farmers with directly verified manufacturers.
2.Price inconsistency because of local location	Implementation of transparent unified platform which shows same pricing real time
3.Manual ordering process as orders are placed offline through local shops	Enabling online ordering through web and mobile apps with real time tracking
4.Lack of customer support as farmers depend upon shopkeeper for after sales support	Provide an online helpdesk with chat and FAQs

Question5:List down different risk factors that may be involved (BA Risks And process/Project Risks)

Answer 5:

BA Risks

Risk	Impact	Mitigation
Unclear or incomplete requirements	Rework/scope changes	Conduct JAD session,get signoffs
Stakeholder misalignment	Delays, conflicts	Regular meetings and communication
Scope Creep/changing needs	Budget and timer overrun	Strict change control
Poor understanding of farmer needs	Low adoption	Field surveys
Missing documentation	Functionality gaps	Maintain RTM

Project Risks

Risk	Impact	Mitigation
Integration/Technology Issue	Delays,rework	Early testing and proven APIs
Resource or team unavailability	Project delay	Cross training and backups
Budget or schedule over-run	CSR fund exceedence	Phase wise delivery and montoring
Low farmer adoption	Low ROI	Awareness,multilingual UI,training
Data security issue	System risk	Secure hosting

Question 6: Perform stakeholder analysis (RACI Matrix) to find out the key stakeholders who can take Decisions and Who are the influencers.

Answer 6:

Project Activity	Henry (Sponsor)	Pandu (Finance Head)	Dooku (Project Coordinator)	Karthick (Delivery Head)	Vandanam (Project Manager)	Dev & QA Team	Farmers/users	Manufacturers	Logistics partners
Project Approval & Funding	A	A	C	R	I	I	I	I	I
Requirement gathering	C	I	C	A	R	I	I	I	I
System design and architecture	I	I	C	A	R	C	I	I	I
Development and coding	I	I	I	A	R	R	I	I	I
Testing and quality assurance	I	I	I	A	R	R	C	C	I
UAT	C	I	C	A	R	R	C	C	I
Deployment and go-live	I	I	C	R	R	R	I	I	I
Budget and cost control	C	A	C	C	I	I	I	I	I
Training and change management	I	I	C	A	R	R	C	I	I

Question 7: Help Mr Karthik to prepare a business case document

Answer 7:

Business Case Document – Online Agricultural product Store

Prepared by : Mr Karthik, Delivery Head – APT IT Solutions

Submitted to : Mr. Henry, Project Sponsor- CSR Division

1. PROBLEM/CURRENT SITUATION (AS-IS)

- a. Farmers currently buy through local dealers which increases cost and decreases authenticity
- b. Price inconsistency because of local location
- c. Manual ordering process as orders are placed offline through local shops
- d. Lack of customer support as farmers depend upon shopkeeper for after sales support

2. PROPOSED SOLUTION (TO-BE)

- a. Develop an online marketplace which connects farmers with directly verified manufacturers.
- b. Implementation of transparent unified platform which shows same pricing real time
- c. Enabling online ordering through web and mobile apps with real time tracking
- d. Provide an online helpdesk with chat and FAQs

3. Objectives

- a. Empower farmer through transparency and technology
- b. Reduce procurement cost by eliminating middlemen
- c. Ensure product authenticity and timely delivery

4. Project Overview

Parameter	Details
Technology	Java

Budget	Rs. 2 crores
Duration	18 months
Scope	Web+Mobile app,Paymnet & Logistics integration,Multilingual support
Methodology	V Model SDLC
Team	PM,5 Developers,2 Testers,1 designer,1devops

5. Key Risks and Mitigation

Risk	Mitigation
Low farmer adoption	Local language UI and training
Integration delays	Early API testing
Connectivity issues	SMS mode order
Budget over-run	Milestone based tracking
Security risks	SSL encryption,audits

6. Expected Benefits

Tangible benefits	Intangible benefits
15% cost savings for farmers	Rural empowerment
30% faster order processing	Digital literacy

Increased manufacturer reach	Enhanced transparency & trust
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7. Governance

- Sponsor: Mr. Henry
- Finance head: Mr. Pandu
- Coordinator: Mr. Dooku
- Delivery Head: Mr. Karthik
- PM: Mr. Vandanam

8. Recommendation: Approve project initiation under CSR program with Rs. 2 Crores budget & 18 months timeline.

9. Next Step: Approve Phase 1 (Requirements & Design) kickoff and allocate initial funding for project mobilization.

Question 8: Mr Karthik explained to Mr. Henry about SDLC. And four methodologies like Sequential Iterative, Evolutionary and Agile. Please share your thoughts and clarity on Methodologies.

Answer 8:

1. Sequential:

Approach: Step by step process, each phase completed before next begins

Pros: Simple, structured, clear documentation

Cons: Rigid, late testing, hard to handle changes

2. Iterative

Approach: Build in repeated cycles, improving system each time

Pros: Early feedback, manageable changes

Cons: Rework risk, more planning needed

3. Evolutionary

Approach: Develop working models that evolve through feedback

Pros: Higher user involvement, early usability testing

Cons: Hard to fix scope and budget

4. Agile

Approach: Short sprints, continuous feedback

Pros: Fast delivery, flexibility, teamwork, adaptability

Cons: Needs experienced team, less documentation

Question 9: They discussed models in SDLC like waterfall RUP Spiral and Scrum . You put forth your understanding on these models. When the APT IT SOLUTIONS company got the project to make this online agriculture product store, there is a difference of opinion between a couple of SMEs and the project team regarding which methodology would be more suitable for this project. SMEs are stressing on using the V model and the project team is leaning more onto the side of waterfall model. As a business analyst, which methodology do you think would be better for this project?

Answer 9:

Different models of SDLC

a) Waterfall Model (Sequential Approach):

- Follows a linear, phase-by-phase structure — each phase must be completed before the next begins.
- Best suited for projects with well-defined and stable requirements.
- Advantages: Simplicity, clear milestones, and easy management.
- Limitations: Testing occurs late, and changes are difficult to incorporate once development starts.

Phases / Steps:

1. Requirement Gathering & Analysis: Identify complete project requirements and document them.
2. System Design: Create system architecture, data models, and design specifications.
3. Implementation (Coding): Developers code the system based on the design.
4. Integration & Testing: Combine modules and perform testing after full development.
5. Deployment: Release the system to users.
6. Maintenance: Resolve issues and perform system updates.

b) RUP (Rational Unified Process):

- A framework-based iterative model divided into four phases: Inception, Elaboration, Construction, and Transition.
- Promotes component reusability, continuous integration, and iterative feedback.
- Advantages: Adaptable and documentation-rich.
- Limitations: Complex setup, higher overhead, and not ideal for smaller CSR-funded projects.

Phases / Steps:

1. Inception: Define project scope, objectives, feasibility, and basic architecture.
2. Elaboration: Analyze requirements in depth and design system architecture.
3. Construction: Build and integrate system components through iterations.
4. Transition: Deploy system to end users and fix final issues before production.

c) Spiral Model:

- Combines iterative development with risk management in every cycle.
- Each iteration includes planning, risk analysis, development, and evaluation.
- Advantages: Suitable for high-risk, large-scale projects with evolving requirements.
- Limitations: Expensive, resource-intensive, and less effective for fixed-scope CSR projects.

Phases / Steps (in each cycle):

1. Planning: Define objectives, alternatives, and constraints.
2. Risk Analysis: Identify and mitigate potential risks.
3. Engineering: Develop and test the product incrementally.
4. Evaluation: Customer feedback and planning for next iteration.

d) Scrum (Agile Methodology):

- Based on short development cycles (sprints) emphasizing flexibility and customer collaboration.
- Advantages: High adaptability and frequent product increments.
- Limitations: Requires continuous stakeholder engagement, which may not align with CSR or fixed-scope projects.

Phases / Steps:

1. Product Backlog Creation: Collect and prioritize all features and requirements.
2. Sprint Planning: Define sprint goals and allocate tasks.
3. Sprint Execution: Development and testing take place in short cycles (2–4 weeks).
4. Daily Stand-ups: Daily progress meetings to discuss blockers.
5. Sprint Review: Demonstrate completed features to stakeholders.
6. Sprint Retrospective: Review and improve team processes.

As a Business Analyst, I should consider both the stakeholder needs and project's requirement. Requirement – clearly defined, Budget – allocated, Quality need – requires strong documentation and audit readiness, User factor-Farmer usability feedback is vital. So as per the above facts, **V-Model fits the best**. Below are the certain advantages:

- 1.Ensures verification and validation at every phase
- 2.Provide quality assurance as per CSR compliance
- 3.Maintains clear structure with predictable timeline and cost

Comparison on the basis of 3 main aspects

Aspect	Waterfall	V-Model
Testing	End of the project	At each phase
Quality control	Low	Continuous
CSR Suitability	Moderate	High

Final recommendation: Adoption of V-Model as it combines Waterfalls structure with stronger quality control and validation- ideal for CSR driven project which requires precision and predictable outcomes.

Question 10: Write down the differences between waterfall model and V model.

Answer 10:

Aspect	Waterfall	V-Model
Approach	Linear & sequential-each phase follows the other	Extension of waterfall – with testing linked to each phase

Testing	Testing starts after the development	Testing is done in parallel with each development phase
Error detection	Error is detected late during testing phase	Error is found early during the parallel testing.
Flexibility	Less flexible, changes are difficult	Slightly more flexible and changes can be incorporated post testing
Best Suited For	Simple small projects with well defined requirements	Medium or large projects needing high quality and audit

Question 11: As a BA, state your reason for choosing one model for this project

Answer 11: As a BA, I've chosen V-Model on the basis of nature of the project and the requirements.

- a) V-Model provides clear and structured sequence of phases, making it easier to plan & track the CSR funded project.
- b) Each development phase has corresponding testing phase, ensuring early detection and high quality deliverables.
- c) As this is a CSR initiative so proper records, audit trails and quality documentations are essential – all inherent strengths of the V-Model.
- d) V-Model supports fixed cost projects like this – hence minimizing the risk of over-runs

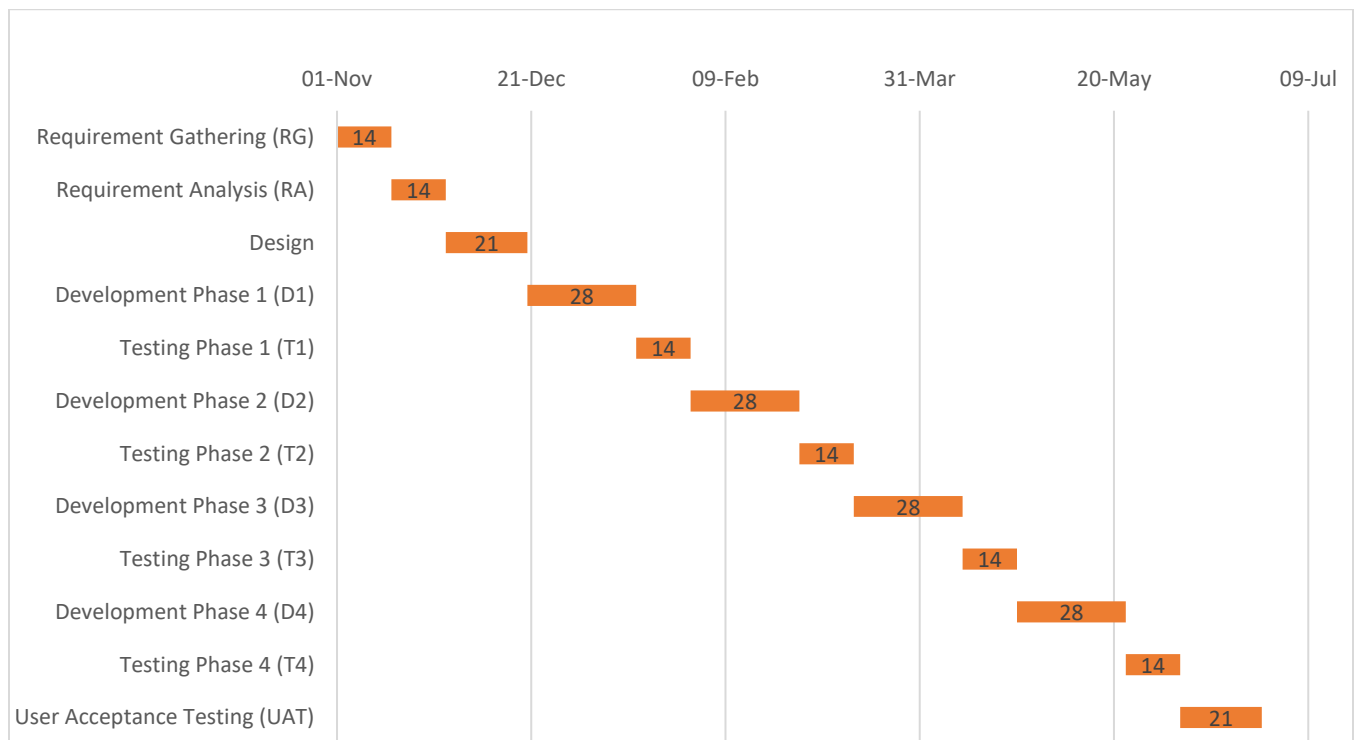
Question 12: The Committee of Mr. Henry, Mr Pandu, and Mr Dooku discussed with Mr Karthik and finalised on the V Model approach (RG, RA, Design, D1, T1, D2, T2, D3, T3, D4, T4 and UAT). Mr Vandanam is mapped as a PM to this project. He studies this Project and Prepares a Gantt chart with V Model (RG, RA, Design, D1, T1, D2, T2, D3, T3, D4, T4 and UAT) as development process and the Resources are PM, BA, Java Developers, testers, DB Admin, NW Admin

Answer 12:

A Gantt chart helps in visualizing the project timeline, showing task sequences, durations, dependencies, and assigned resources.

It provides a clear picture of how phases overlap and helps track progress efficiently.

Resources	1-3 Months	4-6 Months	7-9 Months	10-12 Months	13-15 Months	16-18 Months
Project Manager						
Business Analyst						
Java Developer						
Tester						
DB Admin						
Network Admin						



Question 13: Explain the difference between Fixed Bid and Billing projects

Answer 13:

Fixed Bid Project:

a) Total cost and timeline is defined before the start of the project.

b)Client pays a fixed amount irrespective of how much time taken by the team (APT solution as per the example).

c)This model works best when requirements are very clear and stable.

d)Vendor takes most of the risk because any rework or delay must be managed within the agreed budget.

Billing Project:

a)Client is charged on actual work done (hourly,weekly or monthly).

b)The scope is flexible and can evolve as per the progression

c)Model is ideal when requirements are not fully defined at the start and ongoing enhancements are expected.

d)Client takes most risk since changes or delays may increase the billing.

Question 14 – Preparer Timesheets of a BA in various stages of SDLC - 20 marks ➤ Design Timesheet of a BA ➤ Development Timesheet of a BA ➤ Testing Timesheet of a BA ➤ UAT Timesheet of a BA ➤ Deployment n Implementation Timesheet of a BA

Answer14:

1. Design Phase BA Timesheet

Task Description	Hours/Day	Remarks
Review approved BRD	2	Align with stakeholder expectations
Prepare FSD	3	Define features and workflow
Create Process Flow and Use case Diagram	2	Visualize requirements for the team
Conduct Design review	1	Clarify requirements and constraints
Total estimate effort/day	8	Design stage : 2 weeks

2. Development Phase BA Timesheet

Task Description	Hours/Day	Remarks
Clarify functional raised by developers	3	Continuous support

Participate in sprint/daily standup meetings	1	Track Progress
Review and approve change request	2	Maintain scope control
Update requirement documentations	1	Reflect minor scope updates
Communicate progress to stakeholders	1	Weekly reporting
Total estimate effort/day	8	Development stage:4 weeks per module (D1-D4)

3. Testing Phase BA Timesheet

Task Description	Hours/Day	Remarks
Review test cases prepared by QA team	2	Ensure coverage of all requirements
Validate fixes	4	Cross check with BRD/FSD
Maintain RTM	1	Map test cases to requirement
Document test summary and sign off notes	1	Prepare testing report
Total estimate effort/day	8	Testing phase : 2 weeks per cycle (T1-T4)

4. User Acceptance Test BA Timesheet

Task description	Hours/Day	Remarks
Coordinate UAT schedule with client team	1	Plan sessions
Prepare UAT scenarios and scripts	2	Real World validations
Conducting training with farmers and admin(end users)	2	Hands on demo
Log user feedback & issues in tracker	2	Document test results
Support users during live testing	1	Resolve queries
Total estimate effort/day	8	UAT Phase:3 weeks

5. Deployment & implementation Phase BA Timesheet

Task	Hours	Remarks
Validate product configuration	2	Check setup with technical team
Support go-live and monitor first transactions	2	Initial data verification
Prepare user manuals and help guides	2	CSR & end user enablement
Collect post deployment feedback	2	Continuous improvement
Total estimate effort/day	8	Deployment phase:2 Weeks

