Q: What is Scrum?

A: Scrum: A simple process **framework** that is focused on doing just enough preparation in just enough time for development work to begin

Why Scrum Project Delivery Framework: For fixing the **scope, cost, and schedule.**
1. Focuses on "Just enough, Just in time"
2. Incorporate the customer into the team

In Scrum, we give more to **"Individuals and Interactions"** than "Processes and tools"
"Working software" than "Comprehensive documentation"
"Customer collaboration" than "Contract Negotiation"
"Responding to change" than "Following a plan"

Emperical : Transparency; Inspection; Adoptation

Five Scrum phases:
A: Initiate; Plan and Estimate; Implement, Review and Retrospect; and Release

Key Benefits:
Adaptability; Transparency; Continuous Feedback; Continuous Improvement; Continuous Delivery of Value; Sustainable Pace; Early Delivery of High Value; Efficient Development Process; Motivation; Faster Problem Resolution; Effective Deliverables; Customer Centric; High Trust Environment; Collective Ownership; High Velocity; Innovative Environment

Metrices:
1. Burndown: Sprint, Epic, Release level
2. Velocity: Story points in a sprint
3. Cycle time: WIP to done time
4. Lead time: Request to release
5. Process Efficiency: Wastage

Agile is a mindset described by 4 values, defined by 12 principles, manifested by numerous framework and practices

Scrum is applicable to:
1. Portfolios, programs, and/or projects in any industry
2. **Products,** services, or any other results to be delivered to stakeholders
3. **Projects** of any size or complexity

1. Portfolio backlog meeting takes place after 4 to 12 months of interval
2. Program backlog meeting takes place after 2 to 6 months of interval
3. Project backlog meeting takes place after 1 to 6 weeks of interval

1. Project—A project is a collaborative enterprise to either create new products or services or to deliver results as defined in the Project Vision Statement.

2. Program—A program is a group of related projects, with the objective to deliver business outcomes as defined in the Program Vision Statement.
3. Portfolio—A portfolio is a group of related programs, with the objective to deliver business outcomes as defined in the Portfolio Vision Statement.

Q: What is the difference between Epic, User Story and Sprint?

A: Epic (Story Points) --> User Story --> Sprint
Sprint - Short, completed deliverable. A period of time in which the development team is expected to produce a potentially shippable product increment.
The Development team is the best suited to identify PBIs that will create the product increment

Q: Describe Six Principles.

A: **Transparency**: The idea that all aspects of a process must be visible to the people doing it

Inspection: Close, continuous reviews of work being done to ensure that a project is moving toward the projected goal

Adaptation: Changing practices to fix processes that are not helping the work advance toward a goal
1. Empirical Process Control: Based on the three main ideas of transparency, inspection, and adaptation
2. Self-organization: Each team member is responsible for determining what work he or she will be doing.
3. Collaboration: Focuses on awareness (of other's work), articulation (reintegrate individual's work), and appropriation (Adapting new technology)

Some of the **benefits** of Collaboration are the following:
1. Questions get answered quickly.
2. Problems are fixed on the spot.
3. Less friction occurs between interactions.
4. Trust is gained and awarded much more quickly.

Collaboration tools
1. Collaboration Teams (i.e., teams working in the same office) -- Preferred
2. Distributed Teams (i.e., teams working in different physical locations)

The processes in which the principle of Value-based Prioritization is put into practice are Create Prioritized Product Backlog and Groom Prioritized Product Backlog.

4. Value-based Prioritization:
Factors are
Value
Risk or uncertainty
Dependencies

Benefits
1. Efficient development process

2. Less overheads
3. High velocity for teams

5. Time-boxing:
Time-boxed elements in Scrum include Sprints, Daily Standup Meetings, Sprint Planning Meetings, and Sprint Review Meetings

Q: Factors determining frequency of team meeting

1. The amount of inter-team dependency
2. Size of the project
3. Level of complexity
4. Recommendations from the Scrum Guidance Body

Q: Define Sprint?

Sprint: Scrum-specific term for fixed iterations of developing a usable and potentially reusable product
One of the greatest impacts of changing the Length of Sprint is that it causes a reset on all tracking at the project level.
It is recommended that the Product Owner should spend a significant amount of the time in each Sprint for Prioritized Product Backlog grooming The Product Owner and Stakeholder(s) approve Change Requests and reprioritize the Backlog accordingly.

Types: Sprints of 1 to 6 weeks
1. Daily Standup Meeting of 15 Minutes:
Team members discuss daily progress. To Know.. What did I complete yesterday?
What will I complete today?
What impediments or obstacles (if any) are we currently facing?
Events: Sprint Planning (When a team scoops stories out of the product backlog and puts them into the sprint) --> Daily Scrum --> Sprint Review --> Sprint Retrospective

2. Sprint Planning Meeting of 8 hrs for a one-month Sprint: 1st half in defining the objective, 2nd half in task estimation

3. Sprint Review Meeting: 4 hrs for a one-month Sprint
A. At the end of the Sprint, Product Owner and relevant stakeholders are provided a demonstration of the Deliverables
B. User Stories are either accepted or rejected

4. Retrospect Sprint Meeting: 4 hrs for a one-month Sprint
Team discusses on what went well and any improvement(s) to follow

6. Iterative Development: Epic is broken down into User Stories as the epic are like high level user Stories

Q: Describe about Five Aspects

1. Organization --

Product Owner decides the user roles considering:
Context
Character
Creteria

Core Roles:

1. Product Owner: The Product Owner represents the Voice of the Customer. Types: Program Product Owner for a program or a Portfolio Product Owner for a portfolio. The sole accountable party for the product the development team is
building
2. Scrum Master: Scrum Master is a "Servant Leader" who ensures that Scrum processes are being followed. Types: there could be a Program Scrum Master for a program or a Portfolio Scrum Master for a portfolio."Consists of the product owner, Scrum master, and the development team". An individual that manages the Scrum process
3. Scrum Team: "understanding the business
requirements specified by the Product Owner, estimating User Stories, and final creation of the project Deliverables."

Non-core Roles

1. Stakeholder(s) -- like customers, users, and sponsors Stakeholders include customers, users, and sponsors. Sponsors provides resources and support for the project.
2. Scrum Guidance Body (SGB) (Optional): SGB is group of documents and/or a group of experts who are typically involved with defining objectives related to quality, government regulations, security, and other key organizational parameters.
3. Vendors
4. Chief Product Owner
5. Chief Scrum Master

2. Business Justification -- (factors are…) Project Reasoning, Business Needs, Project Benefits, Opportunity Cost, Major Risks, Project Timescales, Project Costs

3. Quality -- Note: The Prioritized Product Backlog is simply never complete until the closure or termination of the project.

4. Change (or requirements churn):

5. Risk --

"1. Positive Impact --> Opportunities; Negative impact --> Threats
2. Risk Management must be done proactively
3. It is an iterative process
4. Identified, assessed, and responded as per high/low 'Probability' and 'Impact'"

Q: Describe Nineteen Processes (Phase-wise Processes)

A. Initiate

1. Create Project Vision - (also Product Owner is identified here)
2. Identify Scrum Master and Stakeholder(s)
3. Form Scrum Team
4. Develop Epic(s): (Is a way to organize stories into groups) Using Project Vision Statement document
5. Create Prioritized Product Backlog
6. Conduct Release Planning

B. Plan and Estimate

7. Create User Stories: "The Scrum Team (with consultation from the Product Owner, if required) finalizes
which User Stories they will be working on during the Sprint"
8. Approve, Estimate, and Commit User Stories
9. Create Tasks "Often a Task Planning Meeting is held for creating the Tasks."
10. Estimate Tasks
11. Create Sprint Backlog/User stories

C. Implement

12. Create Deliverables
13. Conduct Daily Standup
14. Groom Prioritized Product Backlog

D. Review and Retrospect

15. Convene Scrum of Scrums (SoS)
16. Demonstrate and Validate Sprint
17. Retrospect Sprint

E. Release

18. Ship Deliverables
19. Retrospect Project

Q: Describe Epic Splitting method (FEEDBACK)

F - Flow -
E - Effort -- Dev effort
E - Entry -
D - Data operation
B - Business rule
A - Alternatives
C - Complexity
K – Knowledge

Q: Describe the difference between Scrum and Traditional Project Management.

Scrum vs. Traditional Project Management		
Pointers	Scrum	Traditional Project Management

Emphasis is on	People	Processes
Documentation	Minimal—only as required	Comprehensive
Process style	Iterative	Linear
Upfront planning	Low	High
Prioritization of Requirements	Based on business value and regularly updated	Fixed in the Project Plan
Quality assurance	Customer centric	Process centric
Organization	Self-organized	Managed
Management style	**Decentralized**	Centralized
Change	Updates to Productized Product Backlog	Formal Change Management System
Leadership	**Collaborative, Servant Leadership**	Command and control
Performance measurement	Business value	Plan conformity
Return on Investment (ROI)	Early/throughout project life	End of project life
Customer involvement	High throughout the project	Varies depending on the project lifecycle

To deliver the greatest amount of value in the shortest amount of time, Scrum promotes prioritization and Time-boxing over fixing the scope, cost and schedule of a project.

Q: Mention popular HR Theories and their Relevance to Scrum

1. Tuckman's Model of Group Dynamics: New Scrum team evolves through a four-stage process

2. Conflict Management Techniques: "Sources of conflict evolve primarily due to schedules, priorities, resources, reporting hierarchy, technical issues, procedures, personality, and costs."

Win-Win: "Org should promote an environment where employees feel comfortable to openly discuss problems or issues"

Lose-Win: "Some team members feel that their contributions are not being recognized. This may lead them to withdraw from contributing effectively to the project and agree to whatever they are being told to do"

Lose-Lose: Lose-Lose -- This approach typically involves some "give and take" to satisfy every team member—instead of trying to solve the actual problem.

Win-Lose: Win-Lose -- This situation comes when any team member believe he or she is a de facto leader or manager and try to exert their viewpoint at the expense of the viewpoints of others

3. Leadership Styles: Servant Leadership -- 10 traits that every effective servant-leader should possess: "Servant Leadership" term was first described by Robert K. Greenleaf in an essay entitled The Servant as Leader

Delegating

Autocratic: Autocratic leaders make decisions on their own

Directing

Laissez Faire: Team is left largely unsupervised, leads to a state of anarchy.

Coaching/Supportive
Task-Oriented
Assertive: Assertive leaders confront issues and display confidence to establish authority with respect.

4. Maslow's Hierarchy of Needs Theory Physiological
Safety
Love/Belonging
Esteem
Self-Actualization

5. Theory X and Theory Y
Theory X: Theory X leaders assume employees are inherently unmotivated and will avoid work if possible, warranting an authoritarian style of management
Theory Y: Theory Y leaders, on the other hand, assume employees are self-motivated and seek to accept greater responsibility. Theory Y involves a more participative management style

Q: Who is a product owner?

Product Owner should create a Project Vision Statement and obtain approval of the Project Vision Statement from the key decision-makers in the organization.

Q: Business Justification and the Project Lifecycle –

Steps…
Assess and Present a Business Case
Continuous Value Justification
Confirm Benefits Realization

Q: Estimation of Project Value

Methods …
Return on Investment (ROI): ROI = (Project Revenue - Project Cost) / Project Cost

Net Present Value (NPV)
Internal Rate of Return (IRR)

Q: Planning for Value -- Tools…

A:
1. Value Stream Mapping
2. Customer Value-based Prioritization
Simple Schemes: labeling items as Priority "1", "2", "3" or "High", "Medium" and "Low" and so on

MoSCoW Prioritization: **OM**ust have," "**S**hould have," "**CO**uld have," and "**W**on't have".

Paired Comparison: Each time two User Stories are compared, a decision is made regarding which of the two is more important. Through this process, a prioritized list of User Stories can be generated.

Monopoly Money: This technique involves giving the customer "monopoly money" or "false money" equal to the amount of the project budget and asking them to distribute it among the User Stories under consideration. In this way, the customer prioritizes based on what they are willing to pay for each User Story.

100-Point Method: developed by Dean Leffingwell and Don Widrig (2003). It involves giving the customer 100 points they can use to vote for the features that they feel are most important.

Kano Analysis: Classify requirements into four categories based on customer preferences: 1. Exciters/Delighters; 2.Satisfiers; 3. Dissatisfiers; 4. Indifferent

Q: Quality management-- three interrelated activities

A: **1. Quality planning:** A key benefit of quality planning is the reduction of technical debt (design debt or code debt)
2. Quality control
3. Quality assurance

Q: Plan-Do-Check-Act (PDCA) Cycle: Also known as Deming or Shewhart Cycle—was developed by Dr. W. Edwards Deming. Later on Deming modified Plan-Do-Check-Act to Plan-Do-Study-Act (PDSA)

Q: Achieving Flexibility -- achieved through five key characteristics

1. Iterative product development
2. Time-boxing
3. Cross-functional teams
4. Customer value-based prioritization
5. Continuous integration

Q: Risk Attitude -- Factors

Risk appetite: Refers to how much uncertainty the stakeholder or organization is willing to take on
Risk tolerance: Indicates the degree, amount, or volume of risk stakeholders will withstand.
Risk threshold: Refers to the level at which a risk is acceptable to the stakeholder organization

Utility Function -- categories: Is a model used for measuring stakeholder risk preference or attitude toward risk

Risk averse: Stakeholder is unwilling to accept a risk no matter what the anticipated benefit or opportunity.

Risk neutral: Stakeholder is neither risk averse nor risk seeking

Risk seeking: Stakeholder is willing to accept risk even if it delivers a marginal increase in return or benefit to the project

Risk Management -Steps: Using various techniques to identify all potential risks.

1. Risk identification -- Techniques
    - Review Lessons Learned from Retrospect Sprint or Retrospect Project Processes
    - Risk Checklists
    - Risk Prompt Lists
    - Brainstorming
    - Risk Breakdown Structure (RBS)

2. Risk assessment: Evaluating and estimating the identified risks.
3. Risk prioritization: Prioritizing risk to be included in the Prioritized Product Backlog
4. Risk mitigation: Developing an appropriate strategy to deal with the risk
5. Risk communication: Communicating the findings from the first four steps to the appropriate stakeholders and determining their perception regarding the uncertain events

Expected Monetary Value (EMV): Expected Monetary Value = Risk impact (in dollars) x Risk probability (as percentage)

Minimizing Risks through Scrum

- Flexibility reduces business-environment-related risk
- Regular feedback reduces expectations-related risk
- Team ownership reduces estimation risk
- Transparency reduces non-detection risk
- Iterative delivery reduces investment risk: INVEST: A helpful way to figure out the challenges with your user story (independent, negotiable, valuable, estimateable, small)

Q: Initiation of a project

- Create Project Vision
- Identify Scrum Master and Stakeholder(s)—
- Form Scrum Team
- Develop Epic(s)—
- Create Prioritized Product Backlog: Product Backlog: Ranked list of work
- Conduct Release Planning

Q: Joint Application Design (JAD) Session:

JAD is a requirements gathering technique. It is a highly structured facilitated workshop which hastens the Create Project Vision process as it enables the Stakeholder(s) and other decision makers to come to a consensus on the scope, objectives, and other specifications of the project.

Q: Project Charter:

Project Charter is an official statement of the desired objectives and outcomes of the project. Includes three main sections that show the overall direction of a project—vision, mission, and success criteria

Project Budget: Signed off by the sponsor(s)

Q: Skill required for Scrum Master

Problem-solving skills
Availability
Commitment
Servant Leadership Style

Q: Collaboration Plan:

Collaboration is a very important element in Scrum. Planning for how the various decision makers, stakeholders, and team members engage and collaborate with each other is vital

Q: Contracts -- Types

Incremental Delivery Contract: This contract includes inspection points at regular intervals
Joint Venture Contract
Development in Phases Contract: Funds are released after each phase delivery. monetary risk for the customer is limited to that particular time period since unsuccessful releases are not funded
Incentive and Penalty Contract

Q: Personas:

Personas are highly detailed fictional characters, representative of the majority of users and of other stakeholders who may not directly use the end product

Q: User Story Estimation Methods

1. User Group Meetings: "User Story: A short Description of the product's value from the user's perspective. These are usually written by the Product Owner. He approves US for a Sprint. US can only be either Done or not Done.

E.g. ""As a <user role>, I <want/need/can/> <goal> so that <reason>
""As a Standard customer, I want to see a list of benefits of upgrading so that I can see if it's worth the cost

Write US, considering ""Card"", ""Conversation"" and ""Confirmation"""

2. Planning Poker/Estimation Poker: Team member selects a card with an estimate on that. "PP - Agile-influenced card game used to facilitate estimation and reduce groupthink. A card game that helps the team get the best story estimates with less than perfect information
(The way that people tend to agree with the most popular idea is called groupthink)"

3. Fist of Five: "Team members are each asked to
vote on a scale of 1 to 5 using their fingers. Each team member is then asked to explain the reason for their ranking". """Unlike the Sprint Burndown Chart which shows the amount of work
remaining, the Sprint Burnup Chart depicts the work completed as part of the Sprint."""

4. Points for Cost Estimation: Number of stories—refers to how many User Stories are delivered as part of a single Sprint. It can be expressed in terms of simple count or weighted count

5. Wideband Delphi "Team's initial estimates for for determining how much work is involved and how
long it will take to complete are plotted on a chart. Next round of estimation is continued till team achieves on one etimate"

6. Relative Sizing/Story Points Consedering risk, amount of effort required, and level of complexity, user stories are assigned some points

7. Affinity Estimation: "Evaluate US considering
I - Independently valued
N - Negotiable --
V - Valuable -- should have some importance
E - Estimable --
S - Small
T - Testable"