Certified ScrumMaster (CSM) Content Outline and Learning Objectives
January 2012

The following pages present the CSM taxonomy as validated through the 2011 Scrum Alliance Validation Study. Total questions on CSM exam = 35.

I. General Knowledge
  A. Agile Manifesto
  Define and describe the four values of Agile as stated in the Agile Manifesto.
  B. Scrum Foundations
    1. Empirical and defined processes
    Define and describe the two terms, including a description of inspect, adapt, and transparency as the three legs of an empirical process. Describe how the Scrum Framework is based on empirical process.
    2. Sprint
      a. Iterative and Incremental
      Describe how Scrum uses iterative and incremental development, and identify the benefits of developing products in an iterative-incremental fashion.
      b. Protected
      Identify in which ways the Sprint is protected and what it protects. Describe why the Sprint is protected.
      c. Timeboxed
        1) Describe what a timebox is, and identify the meaning of Sprints being "timeboxed."
        2) Describe the typical duration of a Sprint. Identify the trade-offs between shorter and longer duration Sprints.
    3. The Significance of "Done"
    Define the role of "done," and describe the importance of having a potentially shippable product increment at the end of each Sprint in order to optimize business value, mitigate risk, and maximize transparency.
    4. The Five Scrum Values
    Identify the five Scrum values, and use examples of how Scrum practices support the application of each.
    5. Applicability of Scrum
    Identify the environments in which the application of Scrum would lead to excellent results.

II. **Scrum Roles**
A. **Overview of Scrum Roles**
Identify the three Scrum roles and describe why these roles form the Scrum Team.
B. **ScrumMaster**
1. **Responsibilities**
a. Process-Related Responsibilities
Describe the responsibilities of the ScrumMaster to implement the Scrum Framework, teach and coach people on how to perform in the various roles.
b. Acts as a Change Agent
Describe how the ScrumMaster will use the learning points of the Scrum Team to push for changes in the organization in support of Scrum and how the ScrumMaster might do this.
c. Serves the Product Owner and Team
Identify how the ScrumMaster helps the Product Owner and Team in being better able to do their jobs by assisting them, facilitating creativity and fostering empowerment.
d. Removes Impediments
Identify how the ScrumMaster removes impediments
e. Coaches the Product Owner and Team
Identify how the ScrumMaster coaches the Product Owner and Team by teaching and helping improve productivity, working practices and tools.
f. Protects the Team
Identify how the ScrumMaster will shield the Team from interruptions or interferences during the Sprint and help ensure the organization respects the commitment of the Team during the Sprint.
g. Guides the Team
Describe how the ScrumMaster will model the values and principles of Agile and Scrum, encouraging the team to challenge themselves while remaining true to the spirit of Scrum.
2. **Authority**
Describe how the authority of the ScrumMaster is largely indirect and springs mainly from a deep knowledge of Scrum principles and practices. The ScrumMaster has no authority to make decisions on behalf of the Team, cannot commit to dates of delivery or scope but may enforce the Scrum process.
C. **Product Owner**
1. **Responsibilities**
a. Drives Product Success
Identify how the Product Owner will drive product success by maintaining the Product Backlog and guiding the Team with up-to-date knowledge of user and market need.
b. Creates the Product Vision

Describe how the Product Owner creates a Product Vision and shares it with the Team to provide it with a clear goal. Analyze how the creation of a Product Vision can motivate a Team to deliver a high quality product.

    c. Creates and Maintains the Product Backlog
Identify the responsibility of the Product Owner to create an initial Product Backlog, and refine and continuously maintain it. The Product Backlog should be regularly updated as new information is uncovered.

    d. Collaborates with the Team
Define and describe the Product Owner's responsibility to continuously collaborate with the Team to better understand requirements and support the Team to identify how to solve them.

    e. Collaborates with Stakeholders
Define different types of stakeholders and describe how the Product Owner facilitates collaboration between all stakeholders.

    f. Participates in Sprint meetings
Identify the requirement for the Product Owner to participate in both the Sprint Planning meeting and the Sprint Review meeting and that the Product Owner may also participate in the Daily Scrum meeting and Sprint Retrospective.

2. **Authority**
Define and describe the Product Owner's authority over the Product Backlog items and their priorities. Also describe the Product Owner's authority in determining when product increments will be released, without overruling Team's estimated effort required to complete those increments and without violating the Sprint commitment.

3. **Constraints**

4. **Single Overall Product Owner per Product**
    a. Define the role of the Product Owner in achieving the objectives of the Sprint.
    b. Describe the importance of having a single person playing this role.

5. **Organizational Respect**
Identify that the Product Owner should be given the authority to make the necessary decisions to achieve the ROI on the Product, as described in the Scrum Framework.

D. **The Team**
1. **Responsibilities**
    a. Self-Organizing and Whole Team Accountability
Analyze the reasons and implications of self-organization and whole Team accountability in Scrum, and identify the reasons to not have an appointed Team leader.

    b. Delivers a Product Increment
Describe the importance of creating a potentially shippable product increment in every Sprint, and what it means for the Team composition and collaboration.

    c. Manages the Sprint Backlog and Sprint Progress Tracking
Describe how the Team creates and maintains the Sprint Backlog and tracks Sprint progress.

d. Participates in Sprint Meetings
Identify the role the Team plays in Sprint Planning meeting, Sprint Review meeting, Daily Scrum meeting, and Sprint Retrospective. Describe how the team interacts and contributes to reach each meeting goal.

2. Authority
Describe the authority given to the Team and the balance with the responsibility the Team is accountable for. Identify the scope in which the Team authority is valid.

3. Teamwork
Describe how building a highly productive Team takes time and patience and that the Team will need to be guided through this journey by the ScrumMaster. Identify why it is more important that the Team succeeds than any individual member of the Team.

4. Team Characteristics
Identify the desirable characteristics of the Team in terms of its size, proximity, skills, and time availability.

E. Impact on Traditional Roles

1. No Project Manager
Analyze why the project manager role is not present in the Scrum Framework.

2. Specialists
Describe how highly specialized roles like business analyst and software architect are likely to change in Scrum.

III. Scrum Meetings

A. Sprint Planning Meeting
For the Sprint Planning meeting, describe the following:
- The objective of the meeting and required outcomes.
- Who participates in the meeting.
- When the meeting occurs.
- How long the meeting is allowed to last.
- Any necessary inputs for the meeting.
- Activities and techniques the Scrum Team can employ to achieve the objectives of the meeting.
- The goals of the two parts in which the meeting is usually split.

B. Daily Scrum Meeting
For the Daily Scrum meeting, describe the following:
- The objective of the meeting and required outcomes.
- Who participates in the meeting.
- When the meeting occurs.
- How long the meeting is allowed to last.
- Any necessary inputs for the meeting.
- Activities and techniques the Scrum Team can employ to achieve the objectives of the meeting.

C. Sprint Review Meeting

For the Sprint Review meeting, describe the following:
- The objective of the meeting and required outcomes.
- Who participates in the meeting.
- When the meeting occurs.
- How long the meeting is allowed to last.
- Any necessary inputs for the meeting.
- Activities and techniques the Scrum Team can employ to achieve the objectives of the meeting.

D. Sprint Retrospective Meeting

For the Sprint Retrospective meeting, describe the following:
- The objective of the meeting and required outcomes.
- Who participates in the meeting.
- When the meeting occurs.
- How long the meeting is allowed to last.
- Any necessary inputs for the meeting.
- Activities and techniques the Scrum Team can employ to achieve the objectives of the meeting.

E. Release Planning Meeting

For the Release Planning meeting, describe the following:
- Circumstances in which the Release Planning meeting may be helpful.
- The objective of the meeting and required outcomes.
- Who participates in the meeting.
- When the meeting occurs.
- How long the meeting is allowed to last.
- Any necessary inputs for the meeting.
- Activities and techniques the Scrum Team can employ to achieve the objectives of the meeting.
- The importance of updating release plans based on Sprint results and estimations

IV. Scrum Artifacts

A. Product Backlog

1. Definition

Identify the Product Backlog as an ordered and emerging list of user needs plus anything else that is required to fulfill the Product Vision.

2. Contents

a. Describe how the detail of the Product Backlog items will be tied to their position (or order) and how the Product Backlog contents will change over time.

b. Describe how the Product Backlog will contain functional, non-functional, architectural, and infrastructural elements as well as risks that need to be removed or mitigated. Wherever possible, items on the Product Backlog will be in vertical slices (i.e., each providing value to the user).

3. **Management and Refinement**
   Identify the need for the Product Backlog to be refined periodically in order for it to remain good enough for the next level of planning. The whole Scrum Team can participate in the refinement of the Product Backlog.
4. **Responsibility and Participation**
   Identify why the Product Owner is ultimately responsible for the content and state of the Product Backlog, though anyone is able and encouraged to contribute to the Product Backlog.
5. **Item Readiness**
   Describe that, in order for an item to be considered ready for inclusion in a Sprint, each Product Backlog item should be small enough to fit into a Sprint and must be clear in the expectations of the Product Owner (i.e., by specifying acceptance criteria).
6. **Item Estimation**
   Describe that the Team is responsible for estimating the items on the Product Backlog and that this estimate should be made in the simplest, most consistent, and most realistic manner possible. Scrum does not require any specific estimation techniques.

B. **Product Increment and the Definition of Done**
1. **Definition of Product Increment**
   Describe that, at the end of each Sprint, the Product Owner should have the opportunity to realize value from the investment put in to date as an increment of functionality perceivable to the final user of the Product. (i.e., they could begin the deployment process for the work that has been done this Sprint, if they choose).
2. **Development of a Product Increment**
   Identify that the Team will be developing every item from the Product Backlog with the view that this will be completed to a state of potentially shippable.
3. **Definition of Done (DoD)**
   Identify that Scrum's minimal DoD means potentially shippable. If the Team is using anything other than that minimal DoD, it should be explicitly captured.
4. **Understanding the DoD**
   Analyze the consequences of an inadequate DoD for the Team, the product, and the organization, and identify that any "undone" Product Backlog must be returned to the Product Backlog. Analyze the consequences of having a product in an "unstable/undefined" state due to accumulated "undone" work.

C. **Sprint Backlog**
1. **Definition**
   Identify the Sprint Backlog as the Team's plan for how it is going to turn the Product Backlog items selected for a Sprint into potentially shippable functionality.
2. **Purpose**
   Describe the Sprint Backlog's two main purposes: a detailed view of the Team's expected work for a Sprint and a tool for the Team to manage itself during the Sprint.

3. **Management**
   Define and describe at least one technique for managing the Sprint Backlog (e.g., a Sprint Backlog task board).
4. **Responsibility**
   Describe the responsibility of the Team for creating and maintaining the Sprint Backlog.
5. **Update Scope**
   Identify that the Sprint Backlog should, at all times, show what items are being worked on and by whom. Sometimes the Sprint Backlog should also show how much effort is still required to complete these items.
6. **Update Frequency**
   Describe the need for the Team to update the Sprint Backlog at least once a day.

D. **Burndown Charts**
   Describe the circumstances under which Burndown Charts are useful.
   1. **Sprint Burndown Chart**
      a. Definition
         Define the Sprint Burndown as a chart illustrating a comparison between the initial estimated amount of work at the Sprint Planning Meeting and the current estimated amount of work remaining.
      b. Purpose
         Describe how the Sprint Burndown chart is primarily used by the Team to manage themselves during the Sprint.
      c. Responsibility
         Describe that the ScrumMaster is responsible for ensuring that the Team is aware of its Sprint Burndown status and encouraging the Team to update the Sprint Burndown chart.
      d. Update Frequency
         Identify when the Sprint Burndown chart will typically be updated and describe the reason to do so.
   2. **Release Burndown Chart**
      a. Definition
         Describe the Release Burndown chart's use of empirical data and the estimations provided by the Team to indicate either the projected end date of the release or the projected amount of Product Backlog that will be completed.
      b. Purpose
         Describe the Release Burndown chart's use as a tool for the Product Owner in order to manage the plan for the product release.
      c. Responsibility
         Identify the Product Owner's responsibility to use the empirical data and estimations produced by the Team in each Sprint to update the Release Burndown chart.
      d. Update Frequency

Identify when the Release Burndown chart will typically be updated and describe the reason to do so.

Note: Scaling Scrum is a topic that is considered too advanced for the CSM assessment-based certificate program.

V. **Scaling Scrum**
   A. **Working with Multiple Scrum Teams**
      1. **Scaling Teams**
         a. Team set up
            Define at least one approach to setting up multiple teams working on the same product in Scrum, and describe the benefits of this approach.
         b. Scaling up
            Identify different approaches to scaling up Teams gradually, and describe the benefits of each approach.
      2. **Scaling Product Owners**
         Describe possible ways in which multiple Product Owners can collaborate to work on the same product.
      3. **Scaling the Product Backlog**
         Describe the common challenges of managing a large Product Backlog and which techniques to use to facilitate its management.
      4. **Scaling the Sprint Meetings**
         a. Sprint Planning Meeting
            Describe possible approaches to run a Sprint Planning meeting with multiple teams.
         b. Sprint Review Meeting
            Describe the challenges to an effective Sprint Review meeting with multiple teams and how those challenges may be addressed.
         c. Sprint Retrospective Meeting
            Describe the challenges to an effective Sprint Retrospective meeting with multiple teams and how those challenges may be addressed.
         d. Scrum of Scrums Meeting
            Describe the objectives of the Scrum of Scrums (SoS) and identify who participates in the SoS.
   B. **Working with Distributed Scrum Teams**
      1. **Product Owner in a Different Location**
         Identify common challenges when the Product Owner works in a different location from the rest of the Scrum Team and describe strategies to deal with these challenges.
      2. **Scrum Team Split among Different Locations**
         Identify common challenges of working with a dispersed team and describe strategies to deal with these challenges.
      3. **Importance of Infrastructure and Engineering Practices**

Describe the impacts of scaling Scrum and working with distributed Scrum Teams on the infrastructure and tools as well as the engineering practices.