**UNIVERSITY OF COLOMBO, SRI LANKA**

**UNIVERSITY OF COLOMBO SCHOOL OF COMPUTING**

**DEGREE OF BACHELOR OF INFORMATION TECHNOLOGY (EXTERNAL)**

***Academic Year 2020 – 2nd Year Examination – Semester 4***

***IT4305: Rapid Software Development***
***Part I - Multiple Choice Question Paper***

**21st February 2021**
***(ONE HOUR)***

**Important Instructions :**

- The duration of the paper is **1 (one) hour.**
- The medium of instruction and questions is English.
- The paper has **30 questions** in **9 pages.**
- All questions are of the MCQ (Multiple Choice Question) type.
- All questions carry equal marks.
- **Answer All** questions.
- Each question will have 5 (five) choices with **one or more** correct answers.
- There will be a penalty for incorrect responses to discourage guessing.
- The mark given for a question will vary from –1 (*All the incorrect choices are marked & no correct choices marked*) to +1 (*All the correct choices are marked & no incorrect choices are marked*).
- Answers should be marked on the special answer sheet provided.
- Note that questions appear on both sides of the paper.
  If a page is not printed, please inform the supervisor immediately.
- Mark the correct choices on the question paper first and then transfer them to the given answer sheet which will be machine marked. **Please completely read and follow the instructions given on the other side of the answer sheet before you shade your correct choices.**
- **Calculators are not allowed.**

1. Under which situation should an organization choose Agile Methodology for their software project?

(a) Customer collaboration only occurs at the contract negotiation stage.
(b) The project requires comprehensive documentation.
(c) The requirements are stable and will not change, even late in development.
(d) The team only needs to deliver working software at the very end of the project.
(e) Working software is the principal measure of progress.

2. Agile development especially focuses on achieving three success types. Select the most suitable option that matches the success types to their importance.

| Success type | Importance |
|---|---|
| Ⓐ- Personal Success | ① - Without it, the source code will eventually collapse under its own weight. |
| Ⓑ- Technical Success | ② - Without it, the team might find that they are no longer wanted in the company. |
| Ⓒ- Organizational success | ③ - Without it, you would find it troubling to motivate yourself and other employees. |

(a) Ⓐ → ①, Ⓑ →②, Ⓒ → ③
(b) Ⓐ → ①, Ⓑ →③, Ⓒ → ②
(c) Ⓐ → ②, Ⓑ →③, Ⓒ → ①
(d) Ⓐ → ③, Ⓑ →②, Ⓒ → ①
(e) Ⓐ → ③, Ⓑ →①, Ⓒ → ②

3. Which of the following statements is/are **true** regarding how Agile Methodology saves costs in software projects?

(a) Avoiding unexpected opportunities to reduce risk.
(b) Halting project progress when key individuals are unavailable.
(c) Making the software easier to maintain.
(d) Releasing the least valuable features first.
(e) Waiting until the very last moment to cancel a bad project.

4. Which of the following statements is/are **correct** regarding *Lean* values?

(a) Avoiding unpredictable customer behavior is essential.
(b) They ignore various human conditions.
(c) They focus on the productivity of employees rather than on their well-being.
(d) Offshoring processes to other countries with unfair labor costs is a Lean value.
(e) Seek, embrace and question ideas from a wide range of disciplines.

5. Select the most suitable option for filling the blanks in the following statements.

A. _____①_____ development is a planned rework strategy that uses multiple passes to improve what we are building so that we can come together on a good solution.

B. In _____②_____ development, we assume that we will understand everything right at the beginning and the product will come together late in the development.

C. In _____③_____ development, we break the product into smaller pieces so that we can build some of it and learn how each piece behaves in the environment.

(a) ①: Iterative, ②: Plan-driven, ③: Incremental
(b) ①: Iterative, ②: Incremental, ③: Plan-driven
(c) ①: Plan-driven, ②: Incremental, ③: Iterative
(d) ①: Incremental, ②: Iterative, ③: Plan-driven
(e) ①: Incremental, ②: Plan-driven, ③: Iterative

6. Developing a new product is surrounded by several forms of uncertainty. Among them, what is the most suitable definition for '*Means uncertainty*'?

The uncertainty surrounding the,

(a) features of the final product.
(b) inexperienced development team.
(c) product backlog grooming.
(d) process and technologies used to develop a product.
(e) sprint execution.

7. Which of the following statements is/are **correct** regarding *principles* in the *Agile Manifesto*?

(a) It is enough to deliver a working software only at the end of the project.
(b) Prioritizing user requirements over other stakeholders.
(c) Tightly controlling the software development team and limiting their resources.
(d) Continuous attention in maintaining high-quality design and technical aspects of the project.
(e) Fixing requirements at the end of the requirement gathering phase of the project.

8. Which of the following statements is/are **correct** regarding *performance* in *Agile development*?

(a) In Agile, there is minimal ceremony.
(b) Agile is a document-centric, process-heavy approach.
(c) Testing in Agile happens at the very end of the lifecycle.
(d) Through Agile, we can carefully and sequentially perform work to get a high-quality product.
(e) In Agile it is important to follow the plan and do the right thing the first time, so we can avoid costly reworks later.

9. Which of the following statements is/are **correct** regarding Scrum?

(a) A Scrum project formally begins by holding a daily Scrum meeting.
(b) A Scrum team should be self-organizing and cross-functional.
(c) Scrum is a sequential, plan-driven approach for software development.
(d) Scrum is not a suitable approach when the requirements are changing frequently.
(e) Scrum is suitable for any software development project.

10. F*igure 1* shows the pre-game stage of Scrum. What are the most suitable terms for labels A and B?

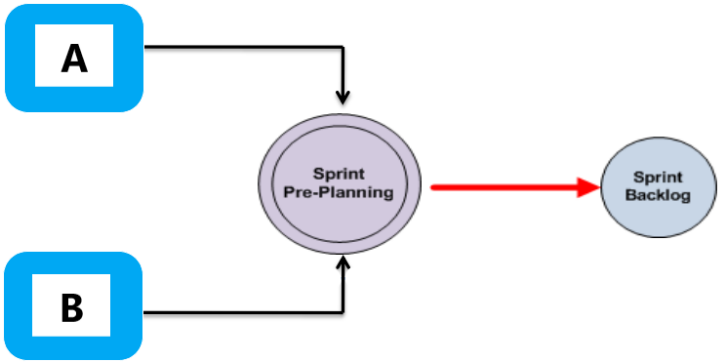


***Figure 1: - Scrum Pre-game***

*Source: Essential Scrum, A Practical Guide to the Most Popular Agile Process by Kenneth S. Rubin*

(a) Ⓐ - Iteration plan, Ⓑ - Sprint review
(b) Ⓐ - Release plan, Ⓑ - Product backlog
(c) Ⓐ - Product roadmap, Ⓑ - Iteration cycle
(d) Ⓐ - Product backlog, Ⓑ - User case business value
(e) Ⓐ - System requirement specification, Ⓑ - Sprint review

11. Which of the following statements is/are **correct** regarding Scrum rules?

I. The recommended Scrum team size is 15 – 20 members.
II. A single Scrum team should only be responsible for performing a single function. (Ex: one team for coding, one team for testing, etc.)
III. In Scrum, work should be performed in short, time-boxed iterations.

(a) I only
(b) II only
(c) III only
(d) I and II only
(e) I and III only

12. Consider the following activities and artefacts of the Scrum framework and select the most suitable terms for labels Ⓐ-Ⓓ.

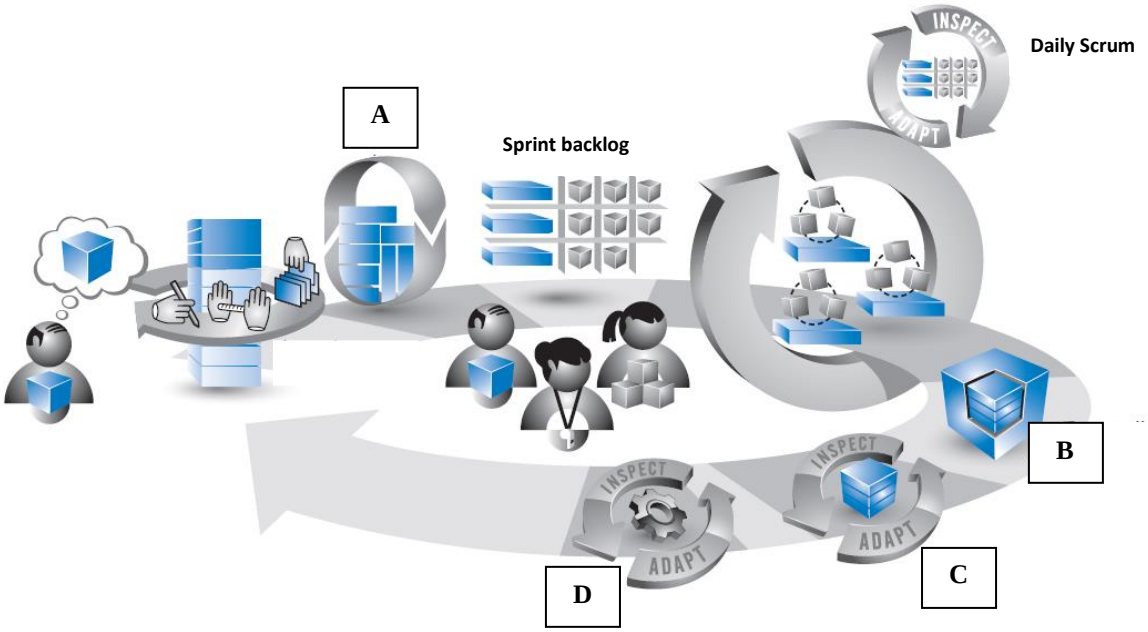


***Figure 2: - Scrum framework***

*Source: Essential Scrum, A Practical Guide to the Most Popular Agile Process by Kenneth S. Rubin*

(a) Ⓐ - Product backlog, Ⓑ - Sprint execution, Ⓒ - Sprint retrospective, Ⓓ - Product increment
(b) Ⓐ - Product backlog grooming, Ⓑ - Sprint retrospective, Ⓒ - Sprint review, Ⓓ - Product increment
(c) Ⓐ - Product backlog grooming, Ⓑ - Sprint planning, Ⓒ - Sprint review, Ⓓ - Sprint retrospective
(d) Ⓐ - Sprint planning, Ⓑ - Product increment, Ⓒ - Sprint retrospective, Ⓓ - Sprint review
(e) Ⓐ - Sprint planning, Ⓑ - Product increment, Ⓒ - Sprint review, Ⓓ - Sprint retrospective

13. Which of the following roles is involved in Scrum methodology?

(a) Tech lead
(b) Product owner
(c) Business analyst
(d) Product manager
(e) Software quality assurance engineer

14. Who will usually participate in sprint planning?

I. Scrum master
II. Product owner
III. Development team

(a) I only
(b) I and II only
(c) I and III only
(d) II and III only
(e) I, II, and III

15. Which of the following statements is/are **correct** regarding the given *burndown chart*?

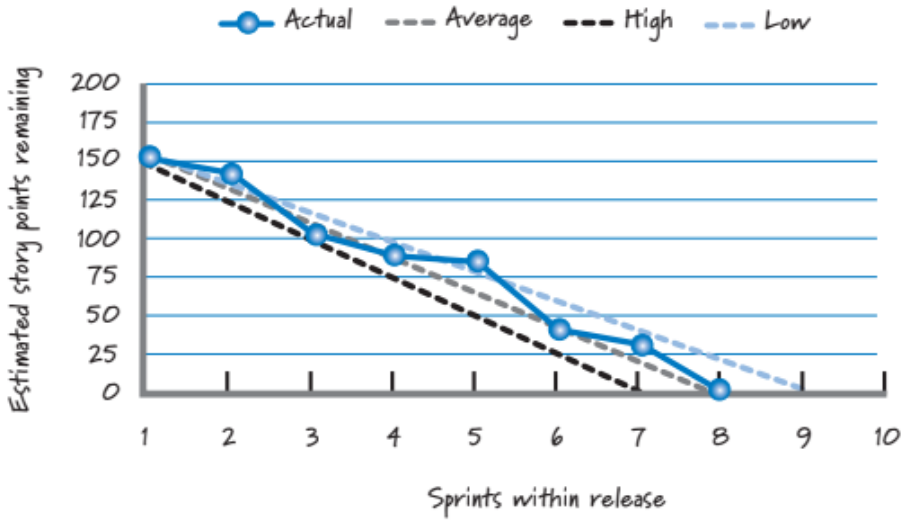


***Figure 3: - Fixed-scope-release burndown chart***

*Source: Essential Scrum, A Practical Guide to the Most Popular Agile Process by Kenneth S. Rubin*

The team,

(a) has completed 100 story points at the 3rd sprint.
(b) has completed 80 story points at the 5th sprint.
(c) has 150 story points remaining at the end of the given release planning.
(d) will finish all the work allocated for the given release by the 7th sprint if they work with the lowest velocity.
(e) will finish all the work allocated for the given release by the 8th sprint if they work with the highest velocity.

16. Which of the following is an output of *portfolio planning*?

(a) Sprint backlog
(b) In-progress data
(c) Product backlog
(d) Portfolio backlog
(e) Daily Backlog

17. Which of the following is/are the responsibilities of a product owner?

I. Groom the product backlog
II. Participate in planning
III. Collaborate with the development team

(a) I only
(b) II only
(c) III only
(d) I and III only
(e) I, II, and III

18. What is the role of the Scrum Master in Agile?

(a) Prioritize the product backlog.
(b) Remove Impediments.
(c) Decide on the features to be built.
(d) Create the product backlog.
(e) Provide the acceptance criteria.

19. What is the measure taken to calculate the velocity of a team in Scrum?

(a) Iterations
(b) Story points
(c) User stories
(d) Total days of the sprint
(e) Remaining days of the sprint

*Fill in the blanks with the suitable answer for questions from (20) – (22).*

20. Development team members are expected to participate in each _____, during which the team progress will be inspected and the plan adapted for the current day's work.

(a) daily Scrum
(b) sprint review
(c) sprint planning
(d) sprint Retrospective
(e) sprint backlog refinement

21. Which of the following type of chart for a fixed-scope release shows the total amount of work completed?

(a) Burnup chart
(b) Burndown chart
(c) Team holiday chart
(d) Company performance chart
(e) Scrum ceremony chart

22. At the _____ of each sprint, we update the burndown chart to show the total amount of work remaining within the release.

(a) 2nd date
(b) 5th date
(c) 7th date
(d) End
(e) Start

23. When is a *Sprint retrospective* ceremony performed?

(a) Whenever needed.
(b) At the end of each sprint.
(c) Whenever the team suggests.
(d) Whenever the Scrum master suggests.
(e) Whenever the Product owner suggests.

24. What is done during a *Sprint review* meeting?

(a) Demo of the increment.
(b) Discussing the project's architectural and technical aspects.
(c) Discussion on improvements applicable in a future sprint.
(d) Collecting team members' ideas on the past sprint.
(e) Creating the sprint backlog.

25. Which of the following statements express(es) the meaning of a *cross-functional development team*?

(a) The team consists of developers and testers.
(b) Every team member is capable of everything.
(c) Both development and testing can be done in a single person.
(d) Teams work with other teams collaboratively.
(e) The team comprises members with different skills necessary to deliver the increment.

26. What are *Minimum Releasable Features (MRF)?*

(a) A randomly selected feature set.
(b) The topmost feature set of the backlog.
(c) The features simply have to be in the release, if we are to meet customer value and quality expectations.
(d) The largest set of features costs the most money, takes the most time, and has the most risk.
(e) The smallest possible feature set that costs the least money, takes the least time, and has the least risk.

27. Which of the following statements is/are **correct** regarding the Extreme Programming (XP) lifecycle?

(a) A team can make deployable software once every 4 weeks.
(b) The real customer must be sitting with the team full-time.
(c) Only qualified testers participate in testing.
(d) Programmers share the ownership of the code.
(e) The same developer is responsible for maintaining his/her code.

28. Which of the following statements is/are **correct** regarding an XP team?

(a) The daily standup meeting takes 2 - 4 hours.
(b) The project manager divides the workload among team members.
(c) Requirements are provided by the on-site customer.
(d) Only domain experts can be on-site customers in XP.
(e) The programming coach does not have to participate in coding.

29. Which of the following statements is/are **correct** regarding Pair programming?

(a) The person who codes is known as *Navigator*.
(b) Switching *Navigator*, *Driver* roles frequently is a good practice.
(c) The navigator should criticize the Driver's code.
(d) It is recommended to keep the same pair for several weeks.
(e) The programming pair should always be at the same experience level.

30. Which of the following statement is **correct** regarding Refactoring in XP?

Refactoring is the process of,

(a) changing the design of the code without changing its behavior.
(b) describing the business logic in your current system to a non-programmer domain expert.
(c) following coding standards and keeping the code consistent.
(d) keeping the build up-to-date and integrating continuously.
(e) combining the expertise of the whole team to create achievable plans.

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