UNIVERSITY OF COLOMBO, SRI LANKA

UNIVERSITY OF COLOMBO SCHOOL OF COMPUTING

DEGREE OF BACHELOR OF INFORMATION TECHNOLOGY
(EXTERNAL)
Academic Year 2017 – 2nd Year Examination – Semester 4

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

19th November 2017
(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 **10 pages.**

- All questions are of the MCQ (Multiple Choice Question) type.

- All questions will 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.**

Use the following terms Ⓐ-Ⓕ for answering question 1 and 2.

 Ⓐ Acceptance test-driven development

 Ⓑ Agile Unified Process

 Ⓒ Continuous integration

 Ⓓ Kanban

 Ⓔ Rapid application development

 Ⓕ Story-driven modelling

Answer the questions 1 -2 taking into account the above terms Ⓐ-Ⓕ.

1. Which of the above Ⓐ-Ⓕ refer to Agile Methods?

 (a) Ⓐ, Ⓑ and Ⓓ

 (b) Ⓐ, Ⓑ and Ⓔ

 (c) Ⓐ, Ⓑ and Ⓕ

 (d) Ⓑ, Ⓓ and Ⓔ

 (e) Ⓑ, Ⓓ and Ⓕ

2. Which of the above Ⓐ-Ⓕ refer to Agile Practices?

 (a) Ⓐ, Ⓑ and Ⓒ

 (b) Ⓐ, Ⓒ and Ⓔ

 (c) Ⓐ, Ⓒ and Ⓕ

 (d) Ⓑ, Ⓒ and Ⓔ

 (e) Ⓑ, Ⓒ and Ⓕ

3. What is/are the purpose(s) of limiting Work In Process (WIP) in the Kanban approach?

 (a) To identify queues and bottlenecks easily

 (b) To improve the focus of the developers.

 (c) To balance the team's development capacity

 (d) To analyze the workflow to increase productivity and constantly try to improve the smoothness of the flow

 (e) To describe the process accurately in order to improve it

Questions from 04 to 23 are based on SCRUM.

4. Scrum is a software development methodology. In Scrum, which of the following should be implemented?

>   (a) A model to estimate the cost of a software project
>   (b) Artifacts and events
>   (c) Business model to impress software clients
>   (d) Document guidelines
>   (e) Rules & Roles

5. The following diagram shows the pre-game scenario in a sprint of Scrum. What are the most suitable terms for labels A, B and C?
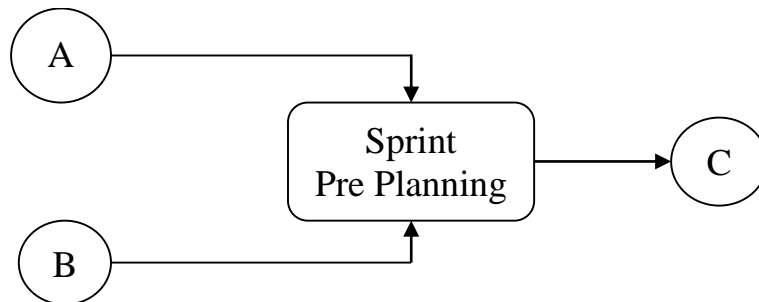
>   (a) A → Product Back log, B → User Case Business Value ,
>   C → Sprint   Backlog
>   (b) A → Sprint   Backlog, B → Product Back log,
>   C → User Case Business Value
>   (c) A → Sprint   Backlog, B → User Case Business Value ,
>   C → Groomed Product Back log
>   (d) A →Team Capabilities, B →User Case Business Value ,
>   C →Groomed Product Back log
>   (e) A →Velocity, B →Sprint Backlog , C →User Case Business Value

6. Match the levels of planning (A,B,C) and their main duties (i,ii,iii) in Scrum multi-level planning.

Planning Levels	Main Duties
Ⓐ-Portfolio Planning	i) The goal is to work upon an idea, describing the essence of the potential product and creating plans to achieve it.
Ⓑ-Product Planning	ii) Determine which products to work on, in what order, and for how long.
Ⓒ-Release Planning	iii) Helps to answer following questions –*"When will we be done?", "How much will this cost?"*

>   (a) Ⓐ → i, Ⓑ → ii, Ⓒ → iii
>
>   (b) Ⓐ →i, Ⓑ → iii, Ⓒ → ii
>
>   (c) Ⓐ → ii, Ⓑ →i, Ⓒ → iii
>
>   (d) Ⓐ → iii, Ⓑ → i, Ⓒ → ii
>
>   (e) Ⓐ → iii, Ⓑ → ii, Ⓒ → i

7. '*Welcome changing requirements, even in late development'* is one of the main principles in Agile methodologies. With respect to the Scrum framework what is/are (an) event(s) that provide(s) formal opportunity for inspection and adaptation?

    (a) Portfolio Planning
    (b) Project Planning
    (c) Sprint Retrospective
    (d) Sprint Review
    (e) The Daily Scrum

8. Which of the following is/are input for the sprint planning?

    (a) Initial Sprint Goal
    (b) Product Backlog
    (c) Sprint Backlog
    (d) Team Capabilities
    (e) Velocity

9. During a sprint, a Scrum Master engages in many activities. From the following activities, what is/are the most time consuming activity(ies)?

    (a) Assisting Product Owner.
    (b) Coaching Team
    (c) Coding
    (d) Communicating within team members
    (e) Removing Impediments (Obstacles)

10. Scrum is an agile methodology which is aligned with the agile manifesto. Which of the following can be considered as characteristic(s) of Scrum?

    (a) Appreciate individuals and interactions over process and tools
    (b) Focus on a working software over quality of the code.
    (c) Ensure customer collaboration over contract negotiation.
    (d) Play multiple scrum roles by the same person over switching roles among the team members.
    (e) Following a plan over responding to change.

11. Which of the following is/are **true** about a *Release Train*?

    i) Always "departs" on time and "waits" for no one.
    ii) Focuses on fast, flexible flow at the level of a larger product.
    iii) Enables Cross-team synchronization.

    (a) i only
    (b) ii only
    (c) i and ii only
    (d) ii and iii only
    (e) All i, ii and iii

12. Who is/are the **internal stakeholder(s)** that product owners should collaborate with?

   (a) Business systems owners
   (b) Customers
   (c) Executive management
   (d) Program management
   (e) Users

13. Which of the following is/are **true** about the Scrum Master?

   i) He/She can be the same person who is the product owner
   ii) He/She focuses on helping everyone understand and follow the Scrum values, principles, and practices
   iii) He/She is a well-experienced person and always solve problems of the team.

   (a) i only
   (b) ii only
   (c) i and ii only
   (d) ii and iii only
   (e) All i, ii and iii

14. Which of the following is/are Scrum Planning Principle(s)?

   i) Keep important options open until the last responsible moment
   ii) Frequent re planning to ensure adhering to change
   iii) Favours smaller, more frequent releases

   (a) i only
   (b) i and ii only
   (c) i and iii only
   (d) ii and iii only
   (e) All i, ii and iii

15. The following graph shows a comparison between Scrum SDLC and Traditional SDLC. Which of the following is/are most suitable for describe the Y axis of the given graph?
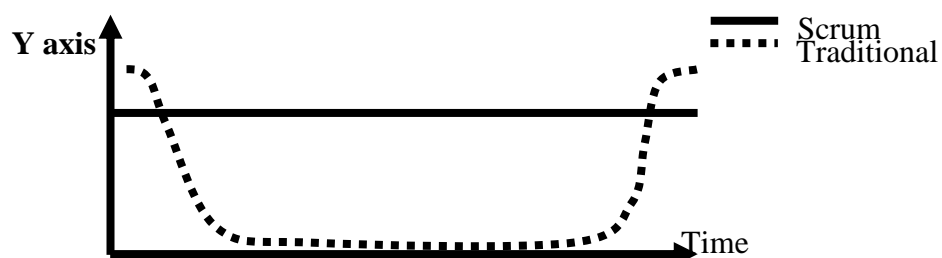
   (a) Project Risk
   (b) Product Visibility
   (c) Customer/Business Engagement
   (d) Business Value
   (e) Cost of Change

16. Which of the following Scrum roles should participate in product planning (Envisioning) as per the Scrum life cycle?
    i).   Product owner
    ii). Scrum Master
    iii). Specialists from various fields

    (a) i only
    (b) i and ii only
    (c) i and iii only
    (d) ii and iii only
    (e) All i, ii and iii

17. Which of the following is/are **true** statements with respect to Scrum?

    (a) Product owner can extend a sprint if and only if scrum master agrees to do so.
    (b) Sprint ends on planned date whether team has completed its commitment or not
    (c) Sprint is unstoppable due to any reason except the sprint time expires.
    (d) Sprint Retrospective is a meeting at the end of the sprint to evaluate methods and processes followed during the sprint.
    (e) Task Board is a chart that shows effort to put in each task of the project

18. Which of the following statement(s) is/are true regarding the 'Product Owner'?

    i).   Product owner acts as pass tester as well as business analyst
    ii). Product owner verifies acceptance criteria which are defined by the scrum master
    iii). Product owner is responsible for making sure that the product backlog grooming activities take place in the development process

    (a) ii only
    (b) i and ii only
    (c) i and iii only
    (d) ii and iii only
    (e) All i, ii and iii

19. A user story of a Scrum team is given below.

    "As a Students I can purchase monthly parking passes quickly online so that I can have access to parking area"

   What would be the most appropriate feedback to it?

    (a) Good. No need for any improvements.
    (b) Good. '*quickly*' should be reworded to make it measurable.
    (c) Good. Should include prerequisites of the requirement.
    (d) Bad. Need to restructure according to accepted template.
    (e) Bad. Need to rewrite from scratch.

20. Which of the following characteristics of a scrum master makes that role different from a project manager of a software project?

   i). The Scrum Master does not recruit or dismiss employees.
   ii). Scrum Master cannot give orders to the team on what tasks to do or how to do them.
   iii). Scrum Master is not responsible for making sure the work gets done

   (a) i only
   (b) ii only
   (c) i and ii only
   (d) i and iii only
   (e) All i, ii and iii

21. Consider the following *Sprint Burn Down Chart* during a sprint
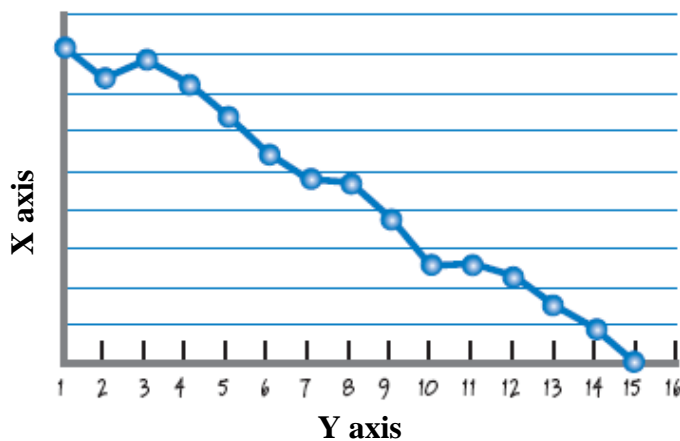
Which is the following correctly match(es) the axes labelled X and Y?

   (a) X axis → Estimated effort days remaining, Y axis → Completed Stories
   (b) X axis → Estimated effort hours remaining, Y axis → Days within a Sprint
   (c) X axis → Story Points,   Y axis → Estimated effort days remaining
   (d) X axis → Story Points, Y axis → Estimated effort days remaining
   (e) X axis → Story Points, Y axis → Days within a Sprint

22. What is/are inputs of *Release Planning*?

   i.   The product vision
   ii.   High-level product backlog
   iii.   Product roadmap

   (a) iii only
   (b) i and ii only
   (c) i and iii only
   (d) ii and iii only
   (e) All i, ii and iii

23. What is/are the activity(ies) performed during the 'Sprint review'?

> (a) Provide a summary of what has and has not been completed.
> (b) A demonstration of the product increment in order to get feedback to improve the product
> (c) Discuss the current state of the product, and adapt to the future product direction.
> (d) Create a shared understanding among the participants including on the project timeline.
> (e) Mainly discuss on 'what went right?', 'what went wrong?' and 'what could be improved in the next sprint?'

Questions from 24 to 30 are based on Extreme Programming.

24. Consider the roles in Extreme Programming listed in Ⓟ - Ⓢ and the expertise knowledge for roles in ① - ④.

Role	Expertise Knowledge
Ⓟ- Product Manager	①- Knows the way how the interactions should happen with the rest of the company
Ⓠ- Project Manager	②- Knows the way how the software should behave
Ⓡ- Domain Expert	③- Knows the reason why the software is important
Ⓢ- Interaction Designer	④- Knows the rules that the software should follow

Match the roles Ⓟ - Ⓢ with respective expertise knowledge in ① - ④.

> (a) Ⓟ → ②, Ⓠ → ③, Ⓡ → ①, Ⓢ → ④
>
> (b) Ⓟ → ②, Ⓠ → ①, Ⓡ → ④, Ⓢ → ③
>
> (c) Ⓟ → ③, Ⓠ → ①, Ⓡ → ④, Ⓢ → ②
>
> (d) Ⓟ → ③, Ⓠ → ④, Ⓡ → ②, Ⓢ → ①
>
> (e) Ⓟ → ④, Ⓠ → ①, Ⓡ → ③, Ⓢ → ②

25. The following figure shows the flow of one of the main five practices of Extreme Programming.

Norm Kerth's Prime Directive → Brainstorming → Mute Mapping → Retrospective objective

Which of the following XP practice is detailed above?

(a) Root-Cause Analysis
(b) Planning game
(c) Retrospectives
(d) Design improvement
(e) Continuous integration

26. There are several ways to express the user requirements in Extreme Programming. Which of the following practice(s) is/are used in XP to express the user requirements?

(a) Implementation Tasks
(b) Functionalities
(c) Scenarios
(d) User Stories
(e) Feedback

27. Consider the roles in Extreme Programming listed in Ⓟ - Ⓢ and their responsibilities listed in ① - ④.

Role	Responsibilities
Ⓟ- Customers	①- Estimates stories, defines Engineering Tasks from stories
Ⓠ- Coaches	②- Implements and runs Functional Tests
Ⓡ- Programmers	③- Sends doubtful signals, makes sure the project continues to Stay Extreme
Ⓢ- Testers	④- Writes User Stories

Match the roles of a software development team Ⓟ - Ⓢ with their respective responsibilities ① - ④.

(a) Ⓟ → ①, Ⓠ → ③, Ⓡ → ②, Ⓢ → ④

(b) Ⓟ → ③, Ⓠ → ①, Ⓡ → ④, Ⓢ → ②

(c) Ⓟ → ③, Ⓠ → ④, Ⓡ → ①, Ⓢ → ②

(d) Ⓟ → ④, Ⓠ → ①, Ⓡ → ③, Ⓢ → ②

(e) Ⓟ → ④, Ⓠ → ③, Ⓡ → ①, Ⓢ → ②

28. Which of the following is/are the correct activity sequence(s) for Test Driven Development (TDD) in XP?

> (a) Write code, write test, refactor
> (b) Write code, refactor, write test
> (c) Write test, write code, refactor
> (d) Design, write code, Write test
> (e) Design, Write code, refactor

29. There are values, principles and practices in Extreme Programming (XP). Identify the correct number of values, principles and practices.

> (a) 4 values , 5 principle and 12 practices
> (b) 4 values , 12 principle and 5 practices
> (c) 5 values , 4 principle and 12 practices
> (d) 5 values , 12 principle and 12 practices
> (e) 5 values , 14 principle and 24 practices

30. Three types of documents are used in product releasing in Extreme Programming. What are these 3 main document types?

> (a) Design, Work in Progress, Product
> (b) Design, Product, Hand-off
> (c) Estimation, Design, Product
> (d) Estimation, Work in Progress, Product
> (e) Work in Progress, Product, Hand-off

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