Exam : Software Processes and Management (SWEN90016_2020_SM2)

Started: Nov 10 at 10:00

Quiz Instructions

Academic Integrity Declaration

By commencing and/or submitting this assessment I agree that I have read and understood the **University's policy on academic integrity.** **(https://academicintegrity.unimelb.edu.au/#online-exams)**

I also agree that:

1. Unless paragraph 2 applies, the work I submit will be original and solely my own work (cheating);
2. I will not seek or receive any assistance from any other person (collusion) except where the work is for a designated collaborative task, in which case the individual contributions will be indicated; and,
3. I will not use any sources without proper acknowledgment or referencing (plagiarism).
4. Where the work I submit is a computer program or code, I will ensure that:
   a. any code I have copied is clearly noted by identifying the source of that code at the start of the program or in a header file or, that comments inline identify the start and end of the copied code; and
   b. any modifications to code sourced from elsewhere will be commented upon to show the nature of the modification.

Question 1	0.5 pts

Joe works for a software development company DCo. DCo have grown very quickly with 15 new employees in 2019 and 18 new employees in 2020. Joe wants to convince his boss to have some documentation standards as there seems to be little consistency between the teams. Which is the most correct answer describing the consistency between documents for the software development using a Formal approach.

○ Change highlighting, structure, naming convention

○ Standards for the SDLC process ✓

○ A consistent use of one SDLC for all the groups ✓

○ All the possible answers

Question 2   0.5 pts

A Project Manager is preparing a Project Schedule network diagram. During the diagram development, he removes a dependency between two tasks that was defined in an earlier stage. The project then continues using the new network diagram. This is an example of (please choose the **best** option):

○ Lack of change control.

○ The developer should update the task dependencies.

○ Updating the WBS.

○ That the PM didn't do the job correctly initially and should be fired.

○ Updating the Gantt chart.

Question 3   0.5 pts

All of the following are hygiene factors according to Herzberg's Theory EXCEPT:

○ Salary

○ Relationships at work

○ Security

○ Professional Growth

○ They are all hygiene factors

Question 4   0.5 pts

Fred the QA engineer wants to review the quality artefacts the development team is using. The dev team must work at an unsustainably high rate of productivity to

meet their next delivery deadline. What would be the **best** process to integrate these diverse priorities?

○ Let the customer know a (non-deliverable) quality cycle would deliver long term efficiency. Ask the customer to identify a time slot for non-delivery.

○ Schedule the quality cycle at a convenient time for Fred

○ Abandon the quality process for this product, as it is generating good income already, and retrench Fred, who has annoyed the dev team with negative suggestions

○ Schedule a quality cycle and team celebration for the next cycle, to rehabilitate Fred's poor interpersonal relationship with the dev team

○ There is no need to do anything as quality was considered initially. The audit can come after the product is complete.

Question 5
0.5 pts

You are the PM of a project developing a file transfer system and are 2 months into a 5 month project. You have done your calculations and your CPI is 0.75. What does this mean?

EV/AU

○ Project is progressing at 75% over budget.

○ Project is ahead of schedule.

○ Project is behind schedule.

○ Project is progressing at 25% over budget.

○ Project is under budget.

Question 6
0.5 pts

An activity has an early start (ES) of day 3, a late start (LS) of day 3, an early finish (EF) of day 9, and a late finish (LF) of day 9. The activity:

3 6 9

○ is not on the critical path.

○ has a lag.

3 0 9

○ is progressing as expected.

○ is on the critical path.

○ is not progressing as expected.

Question 7   1 pts

Below is a product backlog for a project.

Code	Description	Story points	
T1	Investigate solutions for speeding up credit card validation (check target performance metrics)	20	
T2	As a shopper, I want to add or delete items on my wish list	20	
T3	Improve transaction processing performance (check target performance metrics)	13	
T4	Upgrade servers to the latest version of Apache	13	
T5	As a buyer I want to place a book in a shopping cart	5	
T6	As a shopper of books I want to create and save a wish list	40	
T7	As a buyer I want to remove a book in a shopping cart	2	
T8	Diagnose and fix the order processing errors	14	

$40 + 26 + 47 + 14 = 127$

Based on historical information, the scrum master originally estimated that the team's velocity is 32. Using this estimate how many sprints will it take to complete the project? The actual velocity is 28. How many sprints will it actually take to complete the project?

fix—scope

○ Estimated = 4, Actual = 5 $127 / 32 = 3.8 = 4$

○ Estimated = 5, Actual = 5 $127 / 28 = 4.5, = 5$

○ Estimated = 5, Actual = 6

○ Estimated = 5, Actual = 4

○ Estimated = 4, Actual = 4

Question 8   1 pts

Risk Description	Probability of Occurrence	Loss Size (Days)	Risk Exposure (Days)
Insufficient QA time to validate on all browsers and OS types.	45%	6	2.7
Lack of verifiable sample data may affect the ability of the primary external stakeholder to validate end product.	35%	18	6.3
Inadequate staff available from external stakeholders until very late in cycle.	70%	7	4.9
Following end-user testing, more effort on the user guide may be necessary.	25%	10	2.5
Backup and restore requires 3rd-party solutions (not evaluated yet).	20%	12	2.4
Insufficient time for external stakeholders to submit feedback on layout and composition of reports.	80%	5	4

Use the table above to calculate the risk exposure. Which one of the following statements is **correct**?

○ The risks with the highest exposure involve the external stakeholder.

○ The risks with the highest probability should be addressed first. ✗

○ The risk with the highest exposure involves a 3rd party solution. ✗

○ The risk involving QA has the highest exposure

○ The total risk exposure is 10. ✗

Question 9   1 pts

Factor	Description		Weight

E1	Familiarity with development process used	1.5
E2	Application experience	0.5
E3	Object-oriented experience of team	1.0
E4	Lead analyst capability	0.5
E5	Motivation of the team	1.0
E6	Stability of requirements	2.0
E7	Part-time staff	-1.0
E8	Difficult programming language	-1.0

Please see the environmental complexity factor table above.

The project manager has assessed the team as follows:

E1 (0)   *1.5*

E2 (5)   *0.5*

E3 (1)   *1*

E4 (4)   *0.5*

E5 (1)   *1*

E6 (3)   *2*

E7 (1)   *-1*

E8 (0)   *-1*

$$0 + 2.5 + 1 + 2 + 1 + 6 - 1 + 0$$
$$= 3.5 + 8$$
$$= 11.5$$
$$\Sigma F$$
$$\Sigma CF = 1.055$$

TCF=0.6+TF/100

ECF=1.4+(-.03*EF)

Which of the following statements is **correct**?

○ ECF=1.396

⊗ ECF=11.5

○ The PM has assessed security as not very relevant.

The PM has assessed the programming language as being highly relevant.

TCF=0.8

TCF=20

Beth's Beauty Care website is up and running and Beth has decided to expand to include other beauty care services such as manicures and pedicure. She is planning on extending and re-doing the website to include more functionality. She also want to redesign the website to reflect that there are many different types of beauty care services, not only hairdressers. She approaches IPCo to help with this development. This development may or may not include beginning the project again and using the existing website as a prototype.

Joe is the project manager for the project. Joe has 4 team members who will be working on the development

Umair- a graduate who is very enthusiastic and has good grades at University; but very little work experience

Clarisca- a developer with extensive experience who has some experience with architecture and infrastructure; an information giver

Jie- has been working for a number of years in different roles including testing and development; an encourager

Xiatong - who is a dominating personality but also who a database expert

Please answer the questions 10-14 based on the scenario described above.

Question 10   2 pts

The PM for IPco wants to improve the software quality of this project. What suggestions would you make to the PM? Provide 2 suggestions.

Edit   View   Insert   Format   Tools   Table

12pt ∨   Paragraph ∨ | **B**   *I*   U   A ∨   ✎ ∨   T² ∨ | ⋮

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Question 11   2 pts

Which individuals/stakeholders should the PM discuss his plans to improve the software quality of this project. Name 2 individuals/stakeholders and justify your choice.

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Question 12

2 pts

You are being hired as the chief technology officer for IPCo. What would you do to assess the current quality management processes of the organisation? Ensure that you explain and justify your suggestions.

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Question 13

2 pts

How would you motivate the members of your team? Ensure that you justify using facts from the scenario. (2 marks)

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Question 14   2 pts

1 month into the project and everyone is now working virtually due to Covid. Discuss the changes the PM would make to the communication plan based on this change. In order to discuss this fully, please include the communication plan before covid, what changes were made and why the PM should make them.

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p

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Question 15   1 pts

The computer scientists and researchers at the University of Melbourne have completed an initial Greenhouse remote control software system. The system has basic functionality namely

- it can adjust the settings for a number of different types of equipment (there is a list of the equipment with model numbers)

-the data from the greenhouse can be stored for specific intervals

-a user can manually override settings

The computer scientists and researchers have received industry funding to include other data such as weather information to create an AI component that will give the system recommendations on settings for the greenhouse. The computer scientist team originally used an Agile approach to develop the application. The new work will by another computer scientist team at the University of Melbourne. This team specialises in AI.

You are deciding on an SDLC to use. What questions would you ask the new AI team to help guide your decision? (1 mark)

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Question 16   3 pts

Based on the scenario above describing the Greenhouse, describe a challenge
(not generic) and risk (not generic) that you identify from the scenario, choose a
SDLC that the new team should use to complete the project. Ensure that you
describe the challenge and the risk in terms of impact on the project. Please use
the facts from the scenario to justify your answer. (3 marks)

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Question 17   3 pts

The computer scientists want to change the existing code before the changes or
extensions are made to the software. This is in order to modify the functionality as
they still want to have some advantage over other software systems. The code will
still work but not optimally. Discuss what the computer scientists should do.

Edit   View   Insert   Format   Tools   Table

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Question 18   **2 pts**

An agile team are creating an app for users to track their sugar intake. This is part of a larger project to help combat poor eating habits and raise the awareness of diseases such as diabetes. This scrum team is 4 sprints into a 7 sprint project, and using fortnightly (2 week) sprints. The expected velocity is 35 story points per sprint.

Here is some information about the completed sprints
Sprint 1-completed 25 story points
Sprint 2-completed 37 story points
Sprint 3-completed 42 story points
Sprint 4-completed 30 story points
There are 245 story points initially

The team have now completed their 4th sprint. Here are the notes from the sprint retrospective.

What worked well

Scrum master checking in more frequently on bigger tasks to ensure that there is less effect on impediments

<u>What didn't work well</u>

Some requirements were added and expanded to include more functionality by product owner.

The scrum master estimated the story points for the sprint.

<u>Actions</u>

Clarify user stories with product owner before assigning story points.

<u>Acknowledgements</u>
Product owner and scrum master acknowledges the extra effort of the team.

Please answer the questions 18-21 based on the information given above.

What do you think are necessary characteristics for an individual working in a scrum team, explain and justify your answer. (2 marks)

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p

0 words

Question 19

1 pts

Was the scrum master role performed correctly? Be sure to justify your answer using facts from the scenario. (1 marks)

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Question 20   **1 pts**

Did the team perform their roles correctly? Be sure to justify your answer using facts from the scenario. (1 marks)

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Question 21   1 pts

Was the product owner role performed correctly? Be sure to justify your answer using facts from the scenario. (1 marks)

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Question 22   6 pts

You have just started working at a company Bagio that creates software solutions. On your first day of work you are assigned to a project as the project manager.

Bagio specialises in designing luxury travel bags of varying sizes. Their operations are being outsourced to India. The company currently generates more than 500 000 euros in annual revenues. They require a logistics management tool to help manage the operations. This software was scheduled for deployment in 7 months at a cost of 150 000 euros. You are a new project manager joining the company. The recent project manager left the company mid project (after 10 months) and the day before you started.

On your first day, one of the internal stakeholders tell you that the Bagio project is failing because the project was using an incremental approach and the project process was not followed as the previous project manager did not have a PRINCE2 certification.

You are now in charge of the project, what 3 actions (with justification) would you do, to put the project back on track and ensure that your new employer thinks you are a good PM. Justify using facts from the case study to support your answer. (6 marks)

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12pt ⌄   Paragraph ⌄ | **B**   *I*   U̲   A ⌄   ✎ ⌄   T² ⌄ | ⋮

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Question 23   3 pts

Below is a product backlog for a project.

Code	Description	Story points	
A1	Investigate solutions for payment.	30	
A2	As a shopper, I want to add or delete items on my wish list	10	
A3	Improve website performance	45	
A4	Upgrade servers to the latest version of Apache	15	
A5	As a buyer I want to place a book in a shopping cart	10	
A6	As a shopper of books I want to create and save a wish list	20	
A7	As a buyer I want to remove a book in a shopping cart	10	
A8	Diagnose and fix the order processing errors	15	
A9	Implement payment solution	10	

The team has a velocity of 30 user stories per sprint. Using the product backlog, plan and prioritise which user stories will be completed in which sprint. You can use the codes for the activities in your answer. There is no need to rewrite the description of the activity. (3 marks)

Edit   View   Insert   Format   Tools   Table

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Question 24   **2 pts**

You are the owner of the company that is going to develop this website with the product backlog shown above. Would you choose fixed date release or fixed scope release? Explain your choice.

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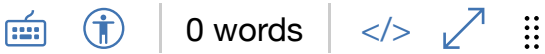## Question 25   2 pts

Beauty_Care, Beth's business is doing well and she has a number of hairdressers working for her. She has decided to expand to include other beauty care services such as make-up and manicures (pedicures). She is still using the initial website built by the SWEN90016 team. As the SWEN90016 team has graduated, she asks the subject co-ordinator to ask the new SWEN90016 students (you and your team members) to extend the software.

What type of testing would you ensure that you do as part of the development. Write down an argument with one pro and one con for testing that you would tell Beth. Please use the scenario to justify your advice for testing. (2 marks)

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p   ⌨ ⓘ │ 0 words │ </> ↗ ⋮

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