Open University *of* Mauritius

BSc (Hons) Computer Science [OUbs033]

EXAMINATION FOR: June – July 2024

MODULE: Software Engineering [OUbs033214]

DATE:

DURATION: 2 Hours

INSTRUCTIONS TO CANDIDATES

1. This paper consists of **4 questions.**

2. Answer **ALL QUESTIONS.**

3. Always start a new question on a fresh page.

4. Total marks: **100.**

This question paper contains 4 questions and 3 pages.

Question 1 [25 marks]

a) Elaborate on each of the **five (5)** stages of the waterfall model. **[10 marks]**

b) Explain why incremental development is the most effective approach for developing business software systems. Why is this model less appropriate for real-time systems engineering? **[8 marks]**

c) Discuss on the possible benefits and problems of using the re-use software model in a software development project. **[7 marks]**

Question 2 [25 marks]

a) Explain what use cases and use case diagrams are, and how they can be used to capture the functional requirements for a software system. **[10 marks]**

b) Draw a use case diagram for a simple ATM machine system. **[15 marks]**

Question 3 [25 marks]

a) Explain the importance of using tools for source code management. **[3 marks]**

b) Outline the code management best practices. **[6 marks]**

c) Testing is an important aspect of software development and maintenance. Elaborate on the purpose of each of the following different types of testing:

      i) Unit testing;
      ii) White Box testing;
      iii) Black Box testing;
      iv) Integration testing.

[8 marks]

d) Discuss the difference between functional and non-functional requirements in software engineering. Provide two (2) examples of each. **[8 marks]**

Question 4 [25 marks]

a) Outline any **six (6)** principles of the Agile Manifesto. **[6 marks]**

b) Differentiate between scrum and a sprint. **[6 marks]**

c) Justify the importance of a sprint review. **[6 marks]**

d) Explain what do you understand by Digital Transformation and why is it important to go for Digital Transformation since the COVID-19? **[7 marks]**