Diploma Programme
Programme du diplôme
Programa del Diploma

Computer science
Higher level
Paper 3

Thursday 5 May 2016 (afternoon)

1 hour

Instructions to candidates

• Do not turn over this examination paper until instructed to do so.
• A clean copy of the **Computer Science case study** is required for this examination paper.
• Read the case study carefully.
• Answer all questions.
• The maximum mark for this examination paper is **[30 marks]**.

2 pages

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Answer **all** questions.

1.   (a)   Define the term *rendering equation*.   [2]

      (b)   Outline the use of *cels* in the construction of a 2D scene.   [2]

2.   (a)   Compare the process of *tweening* with the process of *morphing*.   [4]

      (b)   Explain why animators have to be aware of the degree of realism provided by their
             animations in order to avoid the *uncanny valley* effect.   [4]

3.   With the aid of a diagram, explain how fractal algorithms are able to generate terrain that
      looks realistic, starting from a simple rectangle.   [6]

4.   *Pacific FX* is planning a computer game for the home computer market. This game will
      involve realistic, animated humans. Xiao-Ling and her team must decide which techniques
      are most appropriate for this project.

      Discuss the techniques, for both the creation of the 3D wire-frame computer models and the
      rendering of each scene, which the team would consider before making their decision.
      Your answer should include detailed references to the relevant technologies.   [12]