9 Further Human–Computer Interaction (afb21)

(a) Augmented reality displays such as the Microsoft Hololens allow elements of the display to be registered against objects in the physical world. Briefly explain how such a display could be used for an Internet of Things application, setting different temperatures for multiple rooms in a home heating system. [1 mark]

(b) Explain how this compares to the use of visual metaphor on a conventional display for the same application, taking account of the correspondence between graphical resources and their representational purpose. [3 marks]

(c) Describe an alternative approach to visual representation that could be more efficient for setting desired temperature in a large number of rooms, for example in a multi-storey office building. Your description should mention three different categories of graphic resource, explaining the design principles for each of them in relation to this application. [8 marks]

(d) Choose three cognitive dimensions that are especially relevant to this problem, and explain how these dimensions would be different if the temperature settings were being adjusted using a speech interface such as Amazon Alexa or Google Assistant. [6 marks]

(e) How could an ethnographic approach be used to develop an alternative theory of correspondence relevant to this problem? [2 marks]