COMPUTER SCIENCE TRIPOS Part IB, Part II 50% − 2022 − **Paper 7**

9 Further Human–Computer Interaction (afb21)

Many people start each day with the same set of actions on their phone, for example, checking the weather forecast, their calendar, looking at updates on Twitter, BBC News, email etc. This question asks you to imagine that you are leading the design team at a phone company, creating an interactive personal assistant that will automate this sequence of tasks. The app will be marketed as an "AI" assistant, but the company has not placed any constraint on what algorithms, representations or interaction techniques will be used.

(a) The initial design budget will support a team of four people working for two months to carry out formative research. Explain i) what research methods the members of the team would use, ii) what empirical data they would collect, iii) what analytic activities they would carry out, and iv) how the results would be presented. [4 marks]

(b) The company has allocated a prototyping budget that will support the development of two prototype apps using different technical approaches. Describe in general terms *two* approaches to interaction that would address this problem. Compare i) the elements of the visual representation that would be required for each, and ii) the cognitive implications for the user in terms of attention and decisions. [8 marks]

(c) Describe how you would carry out a summative evaluation that compares the efficiency of the two prototypes in quantitative terms. [4 marks]

(d) Which wave of theoretical development in HCI is best represented by this application concept? If you were to approach this market opportunity from the perspective of a different wave, which one would you choose and why?
[4 marks]