Examiners' commentary 2018–2019

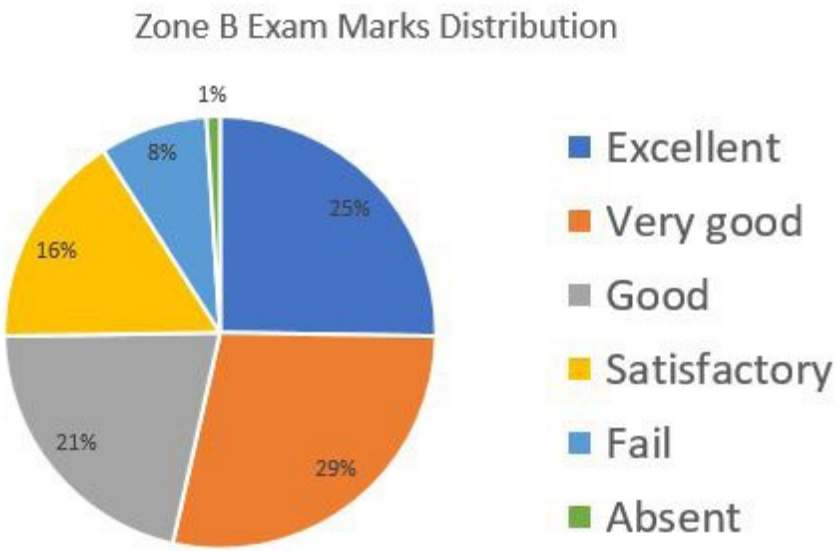
CO3348 Interaction design – Zone B

General remarks

This examination aimed to test candidates' general understanding of the syllabus, not only how well they had remembered the course text, and it involved application of knowledge to a variety of scenarios. It is important to read and answer questions carefully. Only three out of five questions should be answered and if more are answered, only the first three will be marked.

In general, while there were some outstanding answers, a common weakness was simply reproducing 'textbook' answers rather than fitting what was known to the context of the question.

The average grade for candidates who took this paper was 59.63 per cent, distributed as shown in the graph below:



Comments on specific questions

Question 1: Design scenario

The question aimed to test candidates' ability to demonstrate understanding and apply knowledge to this specific design scenario. There is a contemporary trend to embed smartness into many devices that previously depended on the skill or knowledge of an operator. Instead of users needing to learn how many clothes to put into a washing machine, the machine will now weigh clothes and assess how dirty they are, and adjust the wash cycle accordingly. Electric toothbrushes will warn users if they are pressing too hard. Radio receivers provide streaming functionality that can play stations from a completely different country beyond the range of radio waves. All this smartness is embedded in the device, and the interaction challenge is to provide control over and access to this extra functionality through a simple and intuitive

interface – so smartness has nothing necessarily to do with smartphones and touch screens. In this sense, a 'smart' wheelchair does not imply or require that the user will drive it via a touch screen or a mobile phone. It simply means that the wheelchair can safely negotiate obstacles on behalf of the user, using extra mechanical and computing resources, while still presenting a familiar driver control interface. This question was answered by **85** candidates from a cohort of **98**, with an average grade of **14.18/25**.

a. For Part (a), good answers would focus on a familiar control interface. Excellent answers might include extra information on a display to show risks or user intervention required when choosing particular obstacles, or invoking a map to plan alternative routes.

b. Concerning Part (b), prototypes are used to involve stakeholders in the design process and to validate or challenge assumptions made in a design. For this reason, expert-only evaluation techniques would be entirely inappropriate, and techniques such as *Wizard of Oz* for high-fidelity prototypes would not make sense as the end users would need to be able to contribute the reality of their perspectives. Good answers would emphasise the use of low-fidelity prototypes to eliminate risks through simulations and interface designs, and then the use of high-fidelity prototypes to explore the experience of using such a smart device. Excellent answers would explore the nature of the conversation and any necessary mediation that would enable disabled people to be involved in the prototyping process.

c. For Part (c), answers should explore more deeply the aspects of participation, informed consent and genuine risks for people with disabilities to participate in such a study. Weak answers would include shallow and stereotypical statements while good answers would acknowledge the rights of disabled people to participate. Excellent answers would explore some innovative ideas around participations such as the preparation of accessible experiment materials.

Question 2: Evaluation

This question required a good general knowledge of evaluation methods reflecting what is known about human behaviour. It was answered by **42** candidates from a cohort of **98**, with an average grade of **14.36/25**.

a. In answering Part (a) there is a temptation to make generic statements about frustration and patience. Background research and knowledge would remind us that a primary factor in interaction behaviour is attention and focus. A good answer would state that if systems are unresponsive, attention can wander and focus can be lost so tasks can be interrupted and users may find it difficult to refocus. This may indeed be evidenced in frustration or failure to complete tasks, but the cause is loss of attention due to response time exceeding the attention span.

b. Part (b) should focus on measurable evidence of loss of focus and potential physiological attributes of frustration such as perspiring. Focus and attention can be observed through for example tracking mouse movement, or, for an excellent mark, the use of eye gaze tracking to record where a user's attention is centred. Frustration as evidenced in sweating, could be measured by sweat detection sensors.

c. For Part (c) a good answer would include a classical sequence of hypothesis, measurement and analysis leading to conclusions. Excellent answers would indicate in detail appropriate tasks and how the experimental set up would be altered to simulate loss of response behaviour.

Question 3: Essay

This question was answered by **four** candidates from a cohort of **98**, with an average grade of **12.25/25**.

This essay was an opportunity for candidates to demonstrate their genuine interest in the evolution of technology and the implications for users of this innovation. At one level, interactions and user experience take place at the user interface. At a deeper level, interactions and user experience are more about the service provided by the technology and the appropriateness of the ethical framework governing that service. This question required an interest in and knowledge about AR/VR, and evidence of having thoughtfully considered ethics as an attribute of the deployment of technology. Few candidates attempted this question and most did not give strong answers, with the most common faults being:

- limited knowledge or imagination of AR/VR technology
- superficial argument.

Good answers were written in an appropriate essay style, with a coherent structure (for example introduction, discussion with balanced argument leading to conclusions). Excellent answers also showed evidence of wider reading.

Question 4: Usability

This question required knowledge of common design concepts and the associated usability concepts. It was answered by **82** candidates from a cohort of **98**, with an average grade of **16.37/25**.

a. For Part (a), a good answer would be centred on the interface enabling access to functionality and the need to be able to present the increased functionality through traditional controls and displays intended to give status and feedback for a restricted set of functions. Excellent answers would have illustrated these difficulties with concrete examples relevant to this scenario such as choosing recipes from the available set.

b. For Part (b), without being too stereotypical, good answers would give concrete examples such as the general tendency for older people to have difficulty reading small labels on controls, or their preference to use familiar mechanical controls such as knobs and buttons over active areas on a touch screen. Broad assumptions about technophobia on the part of people older than 55 are completely inappropriate.

c. Part (c) required concrete knowledge of the consequences of different disabilities for usability in the context of this scenario. Weak answers gave superficial scenarios, but excellent answers explained why, for example, people with learning difficulties would be disadvantaged by this type of design approach.

Question 5: Design scenario

This question was answered by **78** candidates from a cohort of **98**, with an average grade of **15.17/25**.

This question aimed to test candidates' ability to demonstrate knowledge of design scenarios and evaluation methods, and to apply this knowledge to a specific task. This question is based around a progression through the process from concrete scenarios and personas, finding representative experiment participants and then working with these participants to undertake an evaluation.

a. Part (a) required the creation of realistic and plausible scenarios focussing on the use of the device (for example, describe how a person would interact with the system to perform tasks and achieve goals). Good

marks were achieved where the scenario reflected the story of the user and activity (that is, it focussed on user needs, expectations, actions and reactions). **Two** scenarios were required; where only one scenario was provided, this immediately cost half the marks available. Implicit in the process is a clear idea of typical users, represented in a persona.

b. Recruitment of participants for a study is often only superficially considered when designing an evaluation study. So, for Part (b), good answers included well-reasoned and argued strategies for finding participants. Excellent answers made reference to the ethical aspects of recruiting participants, such as not assuming that providers of security systems would simply hand over lists of customers.

c. Part (c) required an outline of an evaluation plan including users, a timetable, methods, and metrics in the description. Good answers provided detail and realistic sequencing. The evaluation method should be appropriate for the task and the choice should be fully justified. The description of users should include the number of users, and how they would be found, together with a brief description of their characteristics. Answers should also mention the data to be collected, and how it would be analysed, as well as the performance measures to be used. Answers that focussed on expert based evaluations such as heuristic evaluations or cognitive walkthrough would be completely missing the reasoning discussed in parts (a) and (b) and would be considered very weak.