

CS6115 Sample Exam Paper

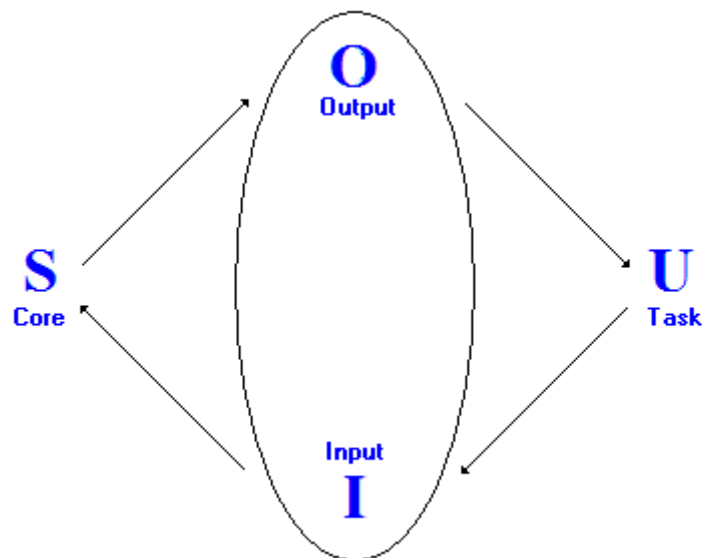
- 1 The World-Wide Web Consortium has proposed a set of guidelines as part of its Web
(a) Accessibility Initiative. Guideline number 1.3 states:

Create content that can be presented in different ways without losing information or structure.

Explain the significance of this guideline.

Using an example (e.g., a calendar), show how you would create content that meets this requirement.

- (b) Shown below is a representation of the Interaction Framework model.



Briefly describe the model. Explain the function of each of the four phases represented by the arrows.

Indicate how the Interaction Framework might be used to model interaction in different types of computer, e.g.:

- * an early computer that uses binary for both input and output
- * a modern computer that uses a GUI.

- (c) Listed below are two of Shneiderman's Eight Golden Rules for Interface Design.

Strive for consistency

Reduce short-term memory load

Using examples, show how each of these guidelines might be applied in practice.

- 2 Explain the major differences between the following interaction styles, indicating the type(s) of application each is suited to.
- (a)

Command-Line
Form-Fill
Menu-Selection
Direct-Manipulation

- (b) Explain the meaning of the following terms:

Re-engineering and mental models
Task Analysis and Cognitive Modelling
Normative, Expressed and Felt needs

- (c) A number of attempts have been made to use 3D sound in interfaces, e.g., to enable blind computer-users to identify the location (direction, distance) of virtual objects. However, it has been found that localisation of sound sources presents more problems than localisation of visual items.

Describe the mechanisms used within the human auditory system to locate the source of a sound. Indicate the strengths and weaknesses of the system, and identify likely sources of error in localisation. Suggest some steps that might be taken to minimise localisation errors.

- 3 An important aspect of Usability Engineering is user-profiling - identifying the target users, gathering relevant information about them, and assembling this information in such a way that it can be used by developers.
- (a)

Using examples, explain the meaning of the terms *segmentation* and *persona* in the context of user-profiling.

Describe the advantages of using segmentation and personas compared with other approaches to user-profiling.

- (b) Studies have shown that people experience more difficulty reading text from a computer display than from a printed sheet.

Summarise the research findings in this area, and suggest some measures that might be taken to minimise these problems when presenting text on computers.

- (c) It has often been predicted that we will one day be able to interact with computers entirely through speech. However, despite enormous advances in speech recognition and related technologies, speech-based interaction remains confined to a few specialised applications.

Describe the major problems involved in creating speech-based interfaces to interactive systems, and discuss their significance for the future development of such systems.