

Closed Book, Open Notes (two handwritten pages), 75 minutes. *Please answer concisely.*

/45

1. [13] True or False:
 - a. **T F** In participatory design, users help design the interface.
 - b. **T F** Focus groups are groups of people you observe in their natural environment.
 - c. **T F** Verdana is another name for Georgia.
 - d. **T F** Verdana is another name for Helvetica.
 - e. **T F** This line is set in a serif font.
 - f. **T F** Users who are unable to understand the current state of the system can be said to be struggling with the Gulf of Execution.
 - g. **T F** Using color in displays can be a good way to achieve greater information density.
 - h. **T F** Gestures, such as swipe, pinch, and double tap, have low discoverability.
 - i. **T F** Icons need not be interpretable in isolation, as their main purpose is to allow rapid visual identification of how to access functions that the user is already familiar with.
 - j. **T F** The “CRAP” layout principles are related to human perception.
 - k. **T F** The “CRAP” layout principles are related to how humans use metaphor.
 - l. **T F** Graphical User Interfaces were first proposed in 1943, during the Second World War.
 - m. **T F** A “storyboard” is a kind of low-fidelity prototype.

2. [1] Which 3 of the following are core properties of direct-manipulation interfaces?
 - a. Continuous representations of the objects and actions of interest, with meaningful visual metaphors.
 - b. Physical actions on visible objects
 - c. Efficient operation
 - d. Rapid, incremental, reversible actions whose effects on the objects of interest are visible immediately

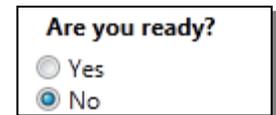
3. [2] Why do we do cognitive walkthroughs?

4. [2] Why would you want to include affordances in a design?

5. [3] Many dialog boxes have two buttons at the bottom, OK and Cancel, and these are usually very similar in size, appearance, and salience. However Jakob Nielsen has persuasively argued that one of the buttons should be larger than the other, or otherwise emphasized. Which one should it be? Why?

6. [1] Sketch 5 repetitions of a simple representation of a person feeling confused about what to do next.

7. [2] While radio buttons may be used for binary choices, such as “on/off” or “yes/no”, other widgets are more common for this, especially where space is limited. Sketch a binary-choice widget, either an existing one or one of your own design. Show how it appears in both the “on” state and the “off” state.



8. [3] For information-presentation apps, it's important to minimize the amount of interactivity and navigation that users are required to perform, especially for mobile (small-screen) devices. Give two examples of how such overhead can be reduced. (Hint: recall Bret Victor's MagicInk essay.)

9. [4] Basketball is a fast-moving, high-scoring game. Scorekeepers need to record not only the points but also, for each player, every shot taken, the type of each shot, and the fouls. Traditionally scorekeepers record this on a paper form, using player numbers and conventional symbols.

Name two interaction styles that would be appropriate for this task, and briefly give reasons why.

10. [8] Imagine a cell phone for kids that can only receive calls, and can only be in one of four states: vibrating-for-incoming-call-from-Mom, connected-to-Mom, on-but-not-connected, and off. Draw a transition diagram, showing the events causing each transition. Document any assumptions about the number of buttons on the phone and what they do.

11. [6] MyFitnessPal can lead to unhealthy obsessions, some involving over-acute awareness of exact numbers. Describe how you might redesign the app to reduce this danger, and sketch out one or more key elements of an improved design. (Hint: consider information visualization techniques.)

