23/05/2024 - EXAM FOR ATTENDING STUDENTS - B

HCI FIRST AND LAST NAME _____ STUDENT ID_____

Read carefully the questions below and for each indicate the correct answer. Please note that only one option is correct.

1. During _____, eyes stop scanning the scene and hold the foveal area of our field of vision in one place **a.** Saccades **b.** Tremors **c.** Smooth pursuit **d.** Fixations	**4. Technology that overlays digitally created content onto the real world, typically through the use of devices such as smartphones, tablets, or specialized glasses, is called:** **a.** Virtual Reality (VR) **b.** Augmented Reality (AR) **c.** VR CAVE **d.** IoT
2. Referred to the type of setting chosen for an evaluation study, natural settings involving users: **a.** Show how people use technology in a natural context but are time-consuming and more difficult to conduct. **a.** Reveal usability problems but poorly capture the context of use. **b.** Are time-saving and easy to conduct but make it difficult to capture usability problems. **c.** Are time-saving and easy to conduct but can miss subtle aspects of the user experience.	**5. Examples of robot design patterns include:** **a.** Motion pattern, Transform pattern, Initial introduction pattern **b.** Affordance pattern, Initial introduction pattern, Anthropomorphization pattern **c.** Didactic communication pattern, Motion pattern, Initial introduction pattern **d.** Didactic communication pattern, Appearance pattern, Affordance pattern
3. Pupil dilatation variation can be caused by: **a.** Saccades velocity, Light, Cognitive load **b.** Light, Saccades frequency, Emotional stimuli **c.** Cognitive load, Emotional stimuli, Light **d.** Overt attention, Light, Cognitive load	**6. In the video analysis methodology, _____ is a list of events of interest within the video** **a.** Modifier **b.** State Event **c.** Breakdown **d.** Coding scheme

Read carefully the text below. For each of the following questions, provide short and precise answers in the lines provided.

EXERCISE 1.

You are part of a research team working for a company that produces collaborative robots (cobots). The company just developed a new feature of the cobot that supposedly increases the efficiency and effectiveness of the human operator in assembling various mechanical components (A, B, C). The research team is thus asked to measure the efficiency and effectiveness related to using the newly developed cobot, and particularly:

a) quantify the time required for an operator to assemble the three mechanical components (A, B, C);
b) identify possible erroneous behaviors of the operator when using the newly developed cobot.

1.1 As an HCI expert, which method would you use to identify erroneous behaviors and quantify the time required for an operator to assemble the three mechanical components (A, B, and C)?

_____

1.2 Describe the chosen method, detailing which data you would acquire, how you would collect them and how you would analyze them. Be as detailed as possible.

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EXERCISE 2.

You are part of a research team tasked with evaluating three different in-car display systems (Display A, Display B, and Display C) to determine which one is least distracting for drivers. The goal is to ensure that drivers can access necessary information quickly and with minimal distraction, without looking away from the road for too long, thus enhancing driving safety. Besides self-reports, you want to add an additional measure of the users' attention distribution over the car dashboard.

Describe your evaluation plan, including research questions, experimental design, experimental setting, and methods (i.e., data you would collect, metrics you would analyze).