

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.

<p>1. _____ is the degree to which the VR environment surrounds and captivates the user's senses, creating a convincing illusion of reality</p> <ol style="list-style-type: none"> <li>Immersion</li> <li>Social Interaction</li> <li>Spatial Awareness</li> <li>Emotional Engagement</li> </ol>	<p>4. The eye tracking metric "Time for first fixation (TFF)" is:</p> <ol style="list-style-type: none"> <li>The amount of time that it takes a respondent to look at a specific stimulus</li> <li>The state in which the gaze remains stationary at a point from 100 to 500 ms</li> <li>The number of fixations per second</li> <li>A graphical combination of Fixations and Saccades</li> </ol>
<p>2. When all participants perform all the experimental conditions, the experimental design is a:</p> <ol style="list-style-type: none"> <li>Within-subject design</li> <li>Between-subject design</li> <li>One-tailed design</li> <li>Two-tailed design</li> </ol>	<p>5. In Human-Robot Interaction, the design process that emphasizes the characteristics of the users and the context of use is called:</p> <ol style="list-style-type: none"> <li>Industrial robot design</li> <li>Exploration robot design</li> <li>Inside-out approach</li> <li>Outside-in approach</li> </ol>
<p>3. In a top-down video analysis:</p> <ol style="list-style-type: none"> <li>Events of interest are determined during the analysis</li> <li>Analyzed videos are less than 10 minutes long</li> <li>Events of interest are determined a priori</li> <li>Analyzed videos are longer than 10 minutes</li> </ol>	<p>6. Dependent variables are:</p> <ol style="list-style-type: none"> <li>What the researcher manipulates</li> <li>Variables that show a positive correlation between them</li> <li>What the researcher measures</li> <li>Variables that show a negative correlation between them</li> </ol>

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 virtual reality (VR) systems for teleoperating robots. The company just developed a new VR feature that supposedly enhances the efficiency and effectiveness of operators in guiding the robot from point A to point B and then to point C by using the VR system. The research team is thus asked to measure the efficiency and effectiveness of the newly developed VR system, and particularly:

- quantify the time required for an operator to guide the robot from point A to point B and then C;
- identify possible erroneous behaviors of the operators when using the newly developed VR system.

1.1 As an HCI expert, which method would you use to identify erroneous behaviors and quantify the time required for an operator to guide the robot from point A to point B and then C?

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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 e-commerce website layouts (Layout A, Layout B, and Layout C) to determine which one facilitates the quickest product search and purchase process. The goal is to ensure that users can find and purchase products efficiently, thus enhancing overall satisfaction and usability. Besides self-reports, you want to add an additional measure of the users' attention distribution over the website layout.

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

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