Family name: ……………………………………………. Student ID (Matrikelnummer): …………………………………

Please use an empty sheet of paper (or the printed questions) to write down your name and your answers (also write the number of question). Adjust your camera so that you can be seen when writing. This is not an open-book exam, it is not allowed to use any notes, texts or other resource materials.
You have 30 minutes for the answers, then please take a photo or scan your answers and upload them to TUWEL or send via Email to paul.panek@tuwien.ac.at. Stay connected until confirmation that your answers are readable.

| S1: 19-17 | U2: 16,5-14,5 | B3: 14-12 | G4: 11,5-10 | N5: 9,5-0 |

Please only give SHORT answers especially if no description is requested, it's not the length that counts!

1. Which problems can obstacle **mounting heights** cause for users of **white canes**? (2 Pt.)

   Problems: ……………………………………………………………………………………………………

   ……………………………………………………………………………………………………

   Problematic range: …………………………………………………………………………………

2. **Cataract**, **Macular Degeneration** and **Glaucoma** cause impairments of different
   parts of an organ. Name the organ and describe the effect(s).   (2 Pt.)

   Organ affected: ……………………………………………………………………………………

   Effect(s) of a Cataract: ……………………………………………………………………………

   Effect(s) of Macular Degeneration: ………………………………………………………………

   Effect(s) of a Glaucoma: …………………………………………………………………………

3. Describe the **operating principle** of a piezo-electric **Braille display** and an advantage
   and a disadvantage   (2 Pt.)

   ……………………………………………………………………………………………………

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4. What environment/design **requirements do persons in wheelchair have** and why? (2 Pt.)

   a) ……………………………………………………………………………………………………

   ……………………………………………………………………………………………………

   b) ……………………………………………………………………………………………………

   ……………………………………………………………………………………………………

   c) ……………………………………………………………………………………………………

   ……………………………………………………………………………………………………

   d) ……………………………………………………………………………………………………

   ……………………………………………………………………………………………………

5. List human sensor systems (senses) and compare their characteristic properties (3 Pt.)

a) ....

....

b) ....

....

c) ....

....

6. What is the <u>definition</u> of the **Visus** and how is it <u>measured</u>? (2 Pt.)

Definition: ....

....

Measurement:..

....

7. Accessibility features for augmented input & output are integrated in today's operating systems (Windows, Android, MacOS, iOS etc.). Give 4 examples of typical **accessibility features** and briefly describe the **benefit** for certain user groups. (3 Pt.)

a) ....

....

b) ....

....

c) ....

....

d) ....

....

8. Which problems can interfaces of technical devices cause for persons with **epilepsy**? (1 Pt.)

Problem: ....

Problematic range: ....

9. Estimate roughly the **amount of disabled people** in the population. Why is it often difficult to compare national statistics on disability from different countries? (1 Pt.)

Percentage (%) of total population: ....

Difficulties comparing statistics: ....

10.Give one **application example** each for a <u>stationary</u> and a <u>mobile</u> **assistive robot** (1 Pt.)

Stationary: ....

Mobile: ....