Questions from the "PAL Prüfungsbuch"
Conducting microbiological operations
All tasks are to be scored with 10 to 0 points

1:
Complete the following table with
- **YES** for consent
- **NO** for refusal

	Viruses	**Bacteria**
1. Own metabolism		
2. Cell division		
3. Reproduction always depending on a host cell		
4. Existence of a DNA as well as RNA		
5. Existence of proteins		

2:
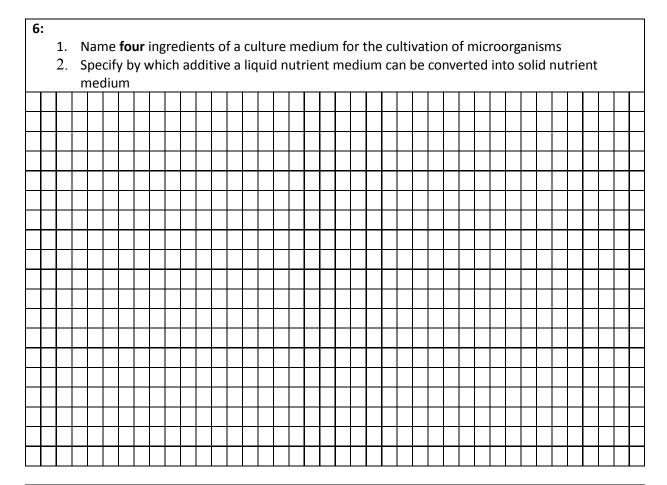State **five** rules for working with microbiological safety cabinets of classes 1 and 2

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3:

1. Name five procedural steps of the processing of a biological product after its fermentation
2. Specify a basic operation for each procedural step of the working up process

4:

Name **five** components of a microscope.

5:

A viable colony counting is carried out in a origin culture. For this the bacterial culture was twice diluted 1:100 and once 1:10

From the obtained dilution the volume V = 500 µL is spread out on a plate.

70 colonies grew on the plate.

Calculate the number of germs (in colony forming units CFU/mL) in the origin culture

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6:

1. Name **four** ingredients of a culture medium for the cultivation of microorganisms
2. Specify by which additive a liquid nutrient medium can be converted into solid nutrient medium

7:

In a bioreactor (fermenter) optimum growth conditions must be created for microorganisms. Specify **four** of these conditions.

8:

1. Describe in note form the execution of Gram staining (no information about duration necessary)
2. Briefly describe the results of Gram staining
3. Name the reasons why bacteria have a different staining behaviour

9:

A disinfectant concentrate contains 2.50 g active ingredient/100 mL. From this a disinfectant ready-to-use solution with 1.00 mL concentrate/100mL is to be produced. Of this ready-to-use solution 500 mL are necessary for a surface of 10.0 m².

Calculate what volume of the concentrate is necessary for the disinfection of a room with 62.5 m² surface and how many grams of active ingredient are contained.

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