BCH462 [PRACTICAL]

Biotechnology & Genetic Engineering

Mark Distribution

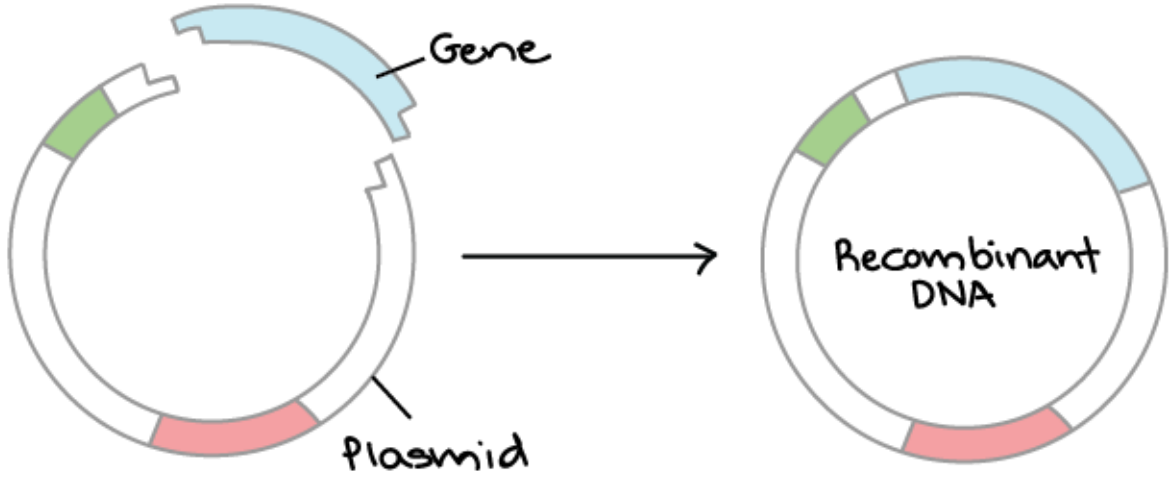
Tasks	Marks
Quiz	5 Marks
Questions Sheet/ Reports	Marks 6
Homework	2 Marks
Oral Exam	3 Marks
Final Exam	14 Marks
Total	30 marks

Writing a Report:

1. Cover page: Title, course number, student name.
2. Introduction: In this part you discuss the background that will help to understand your topic.
3. Objectives.
4. Materials and method: As lab sheet.
5. Results: You should report all your result that you get from your experiment. Any tables, figures or calculation.
6. Discussion: In this section you are required to describe of what happened in the experiment [Principle] , explain your results (reasons for why you get your results) and make conclusions by comparing your results to expected values. Even if you obtained unexpected results, the discussion section is the section to justify or explain the reasons why you have obtained such results.
7. References.

Brief introduction:

- Biotechnology is ……..
- **Genetic engineering** is the process by which the genome of an organism is **modified.**
  - This will produce organisms with desired heritable traits or characteristics.
  - Unexpected harmful effects.



General lab safety

- You must know all exits in your lab, eye washer, fire extinguisher, and first aid kit.
- Never eat, drink or chew gum in the lab. Do not taste , smell or touch any chemical.
- Tie your hair before doing an experiment.
- Closed-toed shoes should be worn at all times.
- Wash your hands with soap after an experiment.
- Do not touch any electrical sources.

Safe working protects:

- You.
- Other lab workers and visitors.
- Your work.

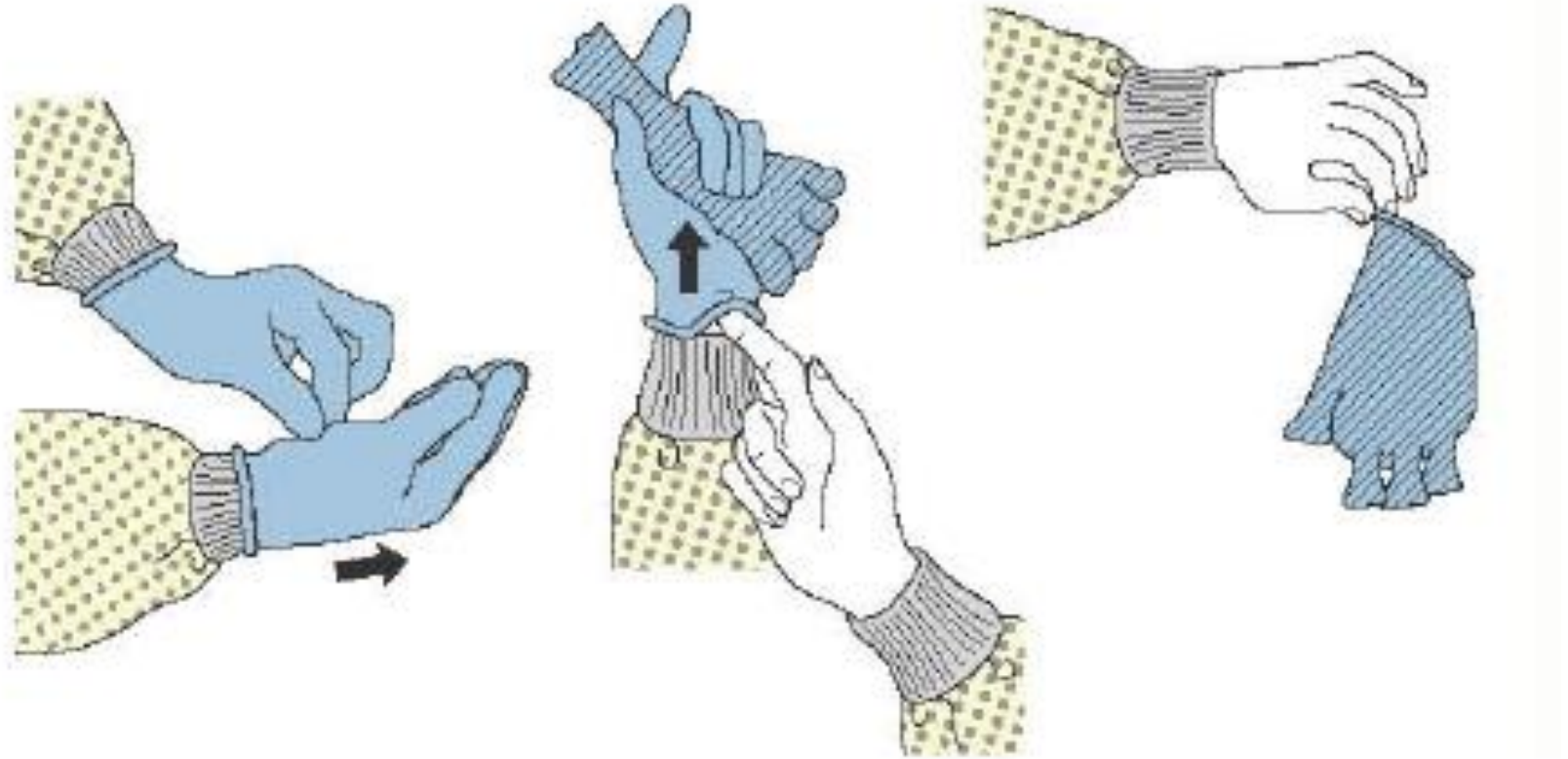
Personal Protective Equipment :

Place your bag in the correct area.

Lab coat should be worn all the time in the lab.

Protective gloves and glasses should be worn when handling hazardous materials.

How to remove gloves?



Sterile technique for Bacterial cultures

Safety Sterile technique

It has two major aims:

1) Preventing contaminant organisms from getting into your cultures.

Contamination sources: the air and unsterile equipment.

2) Preventing any organisms or accidental contaminants from getting out or escape from cultures.

Safety Sterile technique

How it’s done:

- Before used: The media and glassware must be autoclaved in steam at 121°C for 20 min.
- After used :Used pipettes and discarded tubes must be disposed of into disinfectant.

Why it’s done:

- Because you never know when a culture may have been contaminated, and you owe a duty of care to yourself and others not to filthy your lab space with potentially pathogenic bacteria.

Practical hints to remember during your work in biotechnology lab:

1) Always wash your hands and spray with 70% ethanol or wear gloves.
2) Always keep the caps on the polystyrene tubes loose so that air can circulate. Only cap tightly when the cells are no longer growing and are being stored in the refrigerator until the transformation efficiency has been calculated.
3) When scraping the frozen cell sample, hold the microcentrifuge tube at the top rather than at the bottom, so that the sample does not fully thaw (one may want to keep the frozen samples on dry ice).
4) Always have a negative control in the experiments. A negative control is used to show that the media is not contaminated and what is growing in the media are the bacteria cells and not contaminants.
5) Ampicillin can cause allergic reactions on contact with skin to those who are sensitive to penicillin. Do not touch the agar.

Sources of information