

ANSWER THE FOLLOWING QUESTIONS:

- 1- Discuss different parts of autoclave, precautions of autoclaving and Only Enumerate types of autoclave. (10 Marks)
- 2- Classify blood collection tubes according to their cap color, and their specifications. (10 Marks)
- 3- What are the indicators of sterilization? (3 Marks)
- 4- Write short notes on storage of cultivated microorganisms. (12 Marks)
- 5- Only enumerate different Chemical classes that are used in sterilization and give example of each class. (8 Marks)
- 6- Discuss in detail the different strategies of physical sterilization. (7 Marks)

Good Luck

Dr. Mohammed Asaad

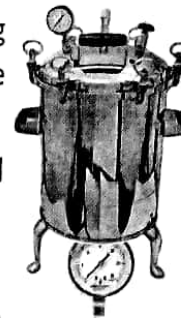
محمد اسعد

ANSWER THE FOLLOWING QUESTIONS: (FINAL EXAM MODEL ANSWER)

1- Discuss different parts of autoclave, precautions of autoclaving and Only Enumerate types of autoclave. (10 Marks)

Composition of autoclave

- Vertical or a horizontal cylinder with an opening at one end to allow for placing materials to be sterilized.
- Lid to close the autoclave efficiently is provided with.
- Pressure gauge to measure the pressure.
- Discharge valve is present to permit the escape of air from the chamber.
- Safety valve calibrated to prevent exceeding of the pressure more than maximum allowable pressure in the autoclave.
- Heating coil to allow for heating of water.
- Water discharge tape to get rid of water used in the autoclave.



Peracautions of autoclaving:

- Utilize containers and autoclave bags appropriate for autoclaving.
- Do not overfill containers unless porous separators are used.
- Autoclave clean items and waste separately.
- Always fill the autoclave with distilled water.
- Get rid of water used in sterilization after each time.
- Don't open the lid unless you are sure that the pressure in the gauge pressure is at 0 psi !!!

Tyes of autoclave:

According to design: Vertical and horizontal autoclaves.

According to size: Small , medium, and Large.

According to operation system: Manual or automatic.

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2- Classify blood collection tubes according to their cap color, and their specifications. (10 Marks)

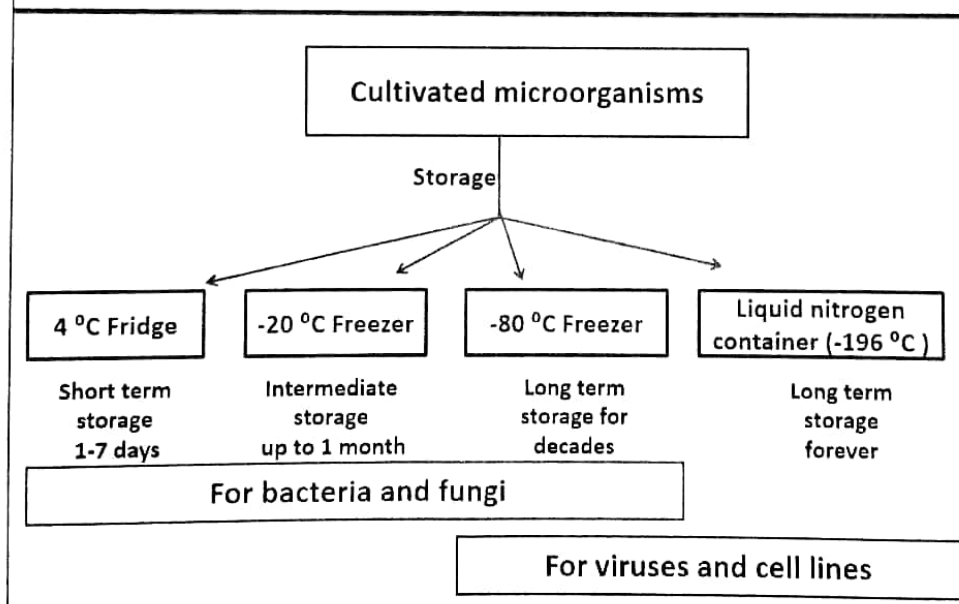
- Red: No coagulant
- Orange: contain coagulant
- Green: contains Heparin anticoagulant
- Violet: Contains EDTA anticoagulant
- Light blue: Contains Citrate anticoagulant

3- What are the indicators of sterilization? (3 Marks)

- 1) Browne's tube: Ampoule containing certain chemical which change in color at certain temp.
- 2) Paper tapes: Which change in color during sterilization.

4- Write short notes on storage of cultivated microorganisms. (12 Marks)

Storage of microorganisms after cultivation:



5- Only enumerate different Chemical classes that are used in sterilization and give example of each class. (8 Marks)

- 1) Halogens e.g. Chlorine
- 2) Phenols e.g. Triclosan

Immunology
2 hours

- 3) Acids e.g. boric acid
- 4) Salts e.g. Potassium permanganate
- 5) Aldehydes e.g. Formaldehyde
- 6) Quaternary ammonium compounds e.g. benzalkonium chloride.
- 7) Heavy metals e.g. Silver nitrate
- 8) Gases e.g. Ethylene oxide

6- Discuss in detail the different strategies of physical sterilization. (7 Marks)

1) Heat:

a) Dry heat:

- Flaming
- Red heat
- Incineration at 800 -6500 °C
- Hot air oven at 160 °C for 2 hours

b) Moist heat:

- At temperature below 100°C: Pasteurization and Tyndallization.
- At 100°C:
 - Heating for 10 min at 100 °C .
 - Steaming at 100°C Used in the sterilization of Bacterial cultivation media e.g sugar media and gelatin media which may be decomposed by higher temperatures.
 - Sterilization by heating with bactericidal: Dissolve or suspend the medicament in either 0.2% w/v chlorocresol or 0.002% w/v phenyl mercuric nitrate in water for injection and heat at 98-100°C for 30 min.
- Above 100 °C:
Autoclave: at 121°C for 20 min.

2) Radiation:

- Ionizing radiation: Gamma rays and Infrared rays
- Non-Ionizing radiation: Ultraviolet rays.

Good Luck

Dr. Mohammed Asaad