

# APPLIED MICROBIOLOGY

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## ESSAY(10 MARKS):

1. What are the pathogens transmitted through blood. Discuss in detail the methods of Prevention of these infections in hospital environment.  
Name Pathogen transmitted through blood
  - Explain infection control measures
2. Classify chemical agents used as disinfectants and sterilizing agents in hospital and Laboratories. Describe the mechanisms of actions and uses of any five such agents.
  - Chemical method of sterilization
  - Mechanism of action
  - Uses
3. Define sterilization and disinfection. Classify different methods of sterilization. Describe the Principle of working of hot air oven and their controls of sterilization.
  - Definition
  - Different method of sterilization
  - Principle and working of hot air oven
  - Control of sterilization
4. Describe in detail the components of standard precautions for prevention of hospital acquired Infections.
  - Explain components of standard precautions
5. Define sterilization and disinfection. Classify methods of sterilization by heat. Describe briefly The functions of an autoclave and its application in the operation theatre's
  - Definition
  - Method of sterilization by heat
  - Function of autoclave
  - Application in OT

6. List the major hospital acquired infections. Discuss the laboratory diagnosis of any one of them and the prophylactic methods adopted.
  - Major HAIs
  - Prevention
  - Precautions
7. Discuss the sterilization in detail
  - Sterilization definition
  - Classification
  - Principle
  - Uses
8. Discuss the biomedical waste management in detail
  - Biomedical waste management definition
  - Segregation
  - Disposal method of sterilization
9. What are hospital acquired infections. Briefly discuss the preventive measures to be adopted to Reduce the incidence of the common hospital acquired infections.
  - Definition HAIs
  - Classification
  - Infection control measures
10. Describe the cleaning, preparation, packing and autoclaving of surgical instruments in CSSD.
  - Mention about CSSD
  - Cleaning, preparation, packaging of materials
  - autoclaving procedure and precautions

## 5 MARKS: SHORT ANSWERS

1. Methods of moist heat sterilization.
  - Definition
  - Classification
  - Temperature below 100 – methods, principle, uses
  - Temperature at 100 - methods, principle, uses
  - Temperature above 100 - methods, principle, uses
2. Ethylene oxide sterilization.
  - Principle
  - Procedure
  - Sterilization control
  - Uses
3. Monitoring and prevention of transmission of respiratory tract infections in hospitals.
  - Monitoring
  - Standard precaution
  - Transmission based precaution
4. Hand hygiene.
  - Uses
  - Steps
5. Describe the most appropriate method of sterilization of following articles and their rationale A) cardiac catheters b) single use prepacked plastic syringes c) stainless steel surgical Instruments d) glass wares e) paraffin oil
  - Appropriate method of sterilization of each item and the principle and uses
6. Gaseous disinfectants.
  - Classification
  - Uses
  - Principle

7. Catheter related blood stream infections and their prevention.
  - Catheter related blood stream infection definition
  - Pathogens
  - Pathogenesis
  - Prevention
8. Disinfection of patient care instruments.
  - Methods
  - Principle
9. Blood borne transmitted viruses. Prevention and lab diagnosis
  - Blood borne transmitted viruses
  - Infection control measures
  - Lab diagnosis
10. Universal precaution
  - Definition
  - Components
11. High level disinfectants
  - Definition
  - Classification
  - Principle
  - Uses
12. Methicilin resistant staphylococcus aureus.
  - Definition
  - Mechanism
  - Types
  - Diagnosis
  - Prevention
13. *Mycobacterium tuberculosis*.
  - Morphology
  - Types

- Pathogenesis
- Clinical features
- Lab diagnosis
- Treatment

14. Antibiotic resistance

- Definition
- Factors affecting
- Classification
- Mechanism of action
- Diagram

15. Intravenous catheter related blood stream infection

- Catheter related blood stream infection definition
- Pathogens
- Pathogenesis
- Prevention

16. Gas sterilization

- Methods
- Principle
- Uses

**ANSWER BRIEFLY (2 MARKS):**

1. Give four examples of pathogens transmitted by oro-fecal route.
  - List the pathogens
2. Give holding time, temperature and pressure for autoclaving.
  - Holding time
  - Temperature
  - Pressure of autoclave
3. Name any four environmental sources/procedures that can lead to hospital acquired Infections.

- List 4 sources
- 4. Mention three drug resistant nosocomial pathogens
  - List the drug resistant nosocomial pathogens
- 5. Mention four blood borne transmitted viruses.
  - List Blood borne transmitted viruses
- 6. Enumerate methods of sterilization of operating rooms.
  - Methods
- 7. Mechanisms of plasma sterilization.
  - Principle of plasma sterilization
  - Uses
- 8. Four bacteria causing catheter related urinary tract infections.
  - List the bacteria
- 9. Vaccines used to protect health care workers
  - List the Vaccines
- 10. Cold sterilization
  - Principle and uses of Ionising radiation
- 11. Formaldehyde
  - Mechanism of action and uses of formaldehyde
- 12. Air sampling
  - Methods
  - Uses
- 13. Staphylococcus aureus
  - Morphology
  - Biochemical reactions
  - Clinical features
  - Lab diagnosis

- Treatment
14. Disinfection of blood spills
- Sodium hypochlorite
  - Procedure
15. Ventilator associated pneumonia
- Definition
  - Pathogens
  - Diagnosis
  - Treatment and prevention
16. Four antiseptics used in skin disinfection
- List the antiseptic
17. Coliform count.
- Methods
  - Uses
18. Glutaraldehyde.
- Mechanism of action
  - Uses

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