

Micro & Infection Control Exam Questions

1. Microorganisms that cause disease are known as
 - A. Carriers
 - B. Pathogens
 - C. Vectors
 - D. Saprophytes

Rationale: B. pathogens are disease-causing microorganisms

2. Microorganisms that can be macroscopic and treated with antihelminthic drugs are
 - A. Bacteria
 - B. Rickettsia
 - C. Protozoa
 - D. Parasitic worms

Rationale: D. Parasitic worms (helminths) such as pinworms, roundworms, or tapeworms reproduce in the intestinal tract and may be seen in feces

3. Mycotic infections (athlete's foot and ringworm) are caused by
 - A. Fungi
 - B. Viruses
 - C. Staphylococci
 - D. Rickettsia

Rationale: A. Tinea is a ring-shaped lesion caused by a fungus. *Tinea pedis* is a fungus infection of the foot known as ringworm

4. Organisms that cause hepatitis are
 - A. Bacteria
 - B. Streptococci
 - C. Protozoa
 - D. Viruses

Rationale: D. Hepatitis is caused by a virus

5. The bacteria that are spherical in shape, appear in clusters, and are the most common cause of postoperative wound infections are
 - A. *Treponema pallidum*
 - B. *Clostridium perfringens*
 - C. *Escherichia coli*
 - D. *Staphylococcus aureus*

Rationale: D. *Staphylococcus aureus* is a spherical-shaped (*coccus*) bacterium which appears in clusters (staphyl-) and produces coagulase (the enzyme which coagulates plasma), resulting in the formation of pus or abscesses

6. Bacteria that live only in the presence of oxygen are called
- Parasites
 - Anaerobes
 - Pathogens
 - Aerobes

Rationale: D. Aerobes are life forms which require air or oxygen for survival. Anaerobes can live without oxygen. Parasites live off a host. Pathogens are disease-causing microorganisms.

7. Which of the following bacilli are spore-forming anaerobes, found in soil, and capable of causing gas gangrene?
- Clostridium perfringens*
 - Mycobacteria
 - Pseudomonas aeruginosa*
 - Bacillus subtilis*

Rationale: A. *Clostridium perfringens* are anaerobic, found in soil, and cause gas gangrene as the result of a “dirty” wound, often a puncture wound

8. Which of the following infectious organisms is most likely to be transmitted through a contaminated needle stick?
- Clostridium perfringens*
 - Hepatitis B (HBV)
 - Mycobacterium tuberculosis*
 - Streptococcus pneumonia*

Rationale: B.

9. A tough, resistant “shell form” of some gram-positive bacilli which is extremely resistant to destruction and toward which all sterilization methods are aimed is a(n)
- Capsule
 - Endotoxin
 - Endospore
 - Flagellum

Rationale: C. Like seeds, an endospore can survive extreme environmental conditions such as freezing, drying, or boiling and is the most resistant of any life form to destruction

10. An enzyme produced by some virulent microorganisms, such as the *hemolytic streptococcus*, that breaks down fibrin and leads to wound infection is

- A. Fibrinolysin
- B. Coagulase
- C. Leukocidin
- D. Exotoxin

Rationale: A. Fibrinolysin is an enzyme produced by some virulent microorganisms that break down (lyse) fibrin (the basis of a blood clot), leading to wound infection

11. A microbial relationship in which one organism lives completely at the expense of the host is
- A. Parasitism
 - B. Commensalism
 - C. Symbiosis
 - D. Antibiosis

Rationale: A. parasitism is a microbial relationship in which one organism lives completely at the expense of the host.

12. The most widely used method for identifying bacteria by dividing them into two groups is
- A. Gram stain
 - B. Acid-fast stain
 - C. Simple stain
 - D. Sensitivity study

Rationale: A. Dr. Gram discovered that certain bacteria would retain a crystal violet stain (gram positive) after treatment with a fixative (Lugol's iodine) and decolorization with ethanol acetone. Organisms which lose the crystal violet stain by decolorization but stain with a counterstain (usually safranin) are gram negative. This method of differentiating bacteria into two groups can be done in a matter of minutes and is useful in selection of antibiotics, as most antibiotics are described as effective against gram-positive and/or gram-negative organisms.

13. Normal flora of the intestinal tract includes
- A. *Lactobacillus acidophilus*
 - B. *Staphylococcus albus*
 - C. *Streptococcus pyogens*
 - D. *Escherichia coli*

Rationale: D. *Escherichia coli* (a member of the coliform group of bacteria) are gram-negative facultative anaerobic, rod-shaped bacteria found in the large intestine of warm-blooded animals. They are nonpathogenic saprophytes in the colon, but opportunistic pathogens in the bladder or in a wound. Meticulous asepsis is required to contain *E. coli* during surgery of the colon

14. The most likely portal of entry for the *Terponema pallidum* organism is
- A. The respiratory tract
 - B. A break in the skin
 - C. The genitourinary (GU) tract
 - D. The alimentary canal

Rationale: *C. Treponema pallidum* is the causative agent of syphilis, a sexually transmitted disease

15. Which of the following factors would have the LEAST effect in determining whether or not one exposed to a disease would contract it?
- A. Weight of host
 - B. Resistance of the host
 - C. Dose and virulence of the organism
 - D. Duration of exposure

Rationale: A. The critical factors in determining whether or not one exposed to a disease will contract it are resistance of the host, dose of the organism, virulence of the organism, and duration of exposure

16. Host resistance to infection may be lowered by all of the following EXCEPT
- A. Poor circulation
 - B. Presence of another disease process
 - C. Emotional depression
 - D. Proper nutritional state

Rationale: D. Proper nutrition INCREASES resistance to disease

17. When a patient has a generalized (systemic) infection, the white blood cell (WBC) count would
- A. Increase
 - B. Decrease
 - C. Stay the same
 - D. Not be a factor

Rationale: A. WBCs are phagocytic, which serve as the body's second line of defense against infectious disease and would increase in number during an infections, when the body is "mobilizing the troops"

18. The type of isolation recommended for the immunocompromised, burn, or organ transplant patient is
- A. Protective
 - B. Strict
 - C. Enteric

D. Drainage and secretions

Rationale: A. Protective isolation (sometimes referred to as reverse isolation) protects a compromised host (i.e., burn or transplant patient) from being overcome with infection and mimics surgical asepsis, as the goal is to keep infectious organisms away from the patient

19. Pathogens that get past the first line of defense are engulfed by WBCs, a process known as
- A. Filtration
 - B. Phagocytosis
 - C. Antigen-antibody reaction
 - D. Immunization

Rationale: B. Phagocytosis is the process of phagocytes (WBCs) engulfing and destroying bacteria

20. The immunity received by having had a disease (i.e., measles) is known as
- A. Naturally acquired active immunity
 - B. Artificially acquired active immunity
 - C. Naturally acquired passive immunity
 - D. Artificially acquired passive immunity

Rationale: A. Naturally acquired active immunity is protection provided by the body actively producing antibodies in response to specific antigens. This type of immunity is naturally acquired as a result of having the disease and is long lasting.

21. When a person forms antibodies against his or her own tissues, it is known as
- A. Autoimmunity
 - B. Rejection syndrome
 - C. Anaphylaxis
 - D. Passive immunity

Rationale: A. Autoimmunity is a condition characterized by a specific humoral or cell-mediated immune response against constituents of the body's own tissues

22. An infection acquired while one is being treated in a health care facility is known as
- A. Primary infection
 - B. Acute infection
 - C. Community-acquired infection
 - D. Nosocomial infection

Rationale: D. A nosocomial infection is one that originates while a patient is in the hospital or other health care institution and may be referred to as iatrogenic or hospital-acquired

23. When an infection is caused by a patient's own normal flora, the source would be referred to as

- A. Endogenous
- B. Exogenous
- C. Transient
- D. Airborne

Rationale: A. The source of an infection caused by the patient's own normal flora would come from within (endogenous)

24. Airborne contamination in the operating room can be reduced by

- A. Negative air pressure
- B. Filtering out particles with high-efficiency particulate air (HEPA) filters
- C. Increasing traffic in and out of rooms
- D. Sterilization

Rationale: B. Airborne contamination can be reduced by using positive air pressure and high-efficiency filters to clean the air and decreasing air currents and traffic in and out of rooms (air currents spread dust and lint, which may be laden with microbes)

25. Standard precautions are to be implemented

- A. When the patient is immunocompromised
- B. For patients with Hepatitis B
- C. When the health care provider has open lesions on the hand
- D. When blood or body fluids may be encountered

Rationale: D. Standard Precautions are to be implemented any time blood or body fluids may be encountered

SURGERY SCHEDULE:

Rm.#	Time	Surgeon	Procedure	Anest.	Rm.#	Time	Surgeon	Procedure	Anest.
Rm00					Rm07				
OC	Dr.Z		Rt Knee Arthroscopy	Gen	7:00	Dr.M		Rhinoplasty	Gen
OC	Dr.C		Craniotomy	Gen					
OC	Dr.Z		BKA	Gen	TF	Dr. M		Lipoma Removal	MAC
Rm01					Rm08				
7:00	DrX		Lobectomy	Gen	11:00	Dr.E		Bovine Thrombecomy	MAC
TF	DrX		Thoracotomy	Gen					
TF	DrX		Tracheostomy	Gen					

Rm02 7:00 DrB Splenectomy Gen TF DrB Gastrectomy Gen	Rm09 8:30 Dr.T Cholecystectomy Gen TF Dr.T I & D Gen TF Dr.T Debridement Gen
Rm03 7:00 Dr.A Cystoscopy MAC TF Dr.A Cystoplasty Gen TF DrF Pyelogram MAC TF DrF Cystocele repair Gen	Rm10 7:00 Dr.K Nephrectomy Gen TF Dr.K Choledocholithotripsy MAC TF Dr.K Colectomy Gen
Rm04 7:00 DrY Carpal Tunnel MAC TF DrY Fasciotomy Gen	Rm11 7:00 Dr.L Cervical Cone Biopsy Gen TF Dr.L Sentinal Node Biopsy Gen
Rm05 7:00 Dr.G Trans-sphenoidal Adenoidectomy Gen TF Dr.G Transurethral resection of the prostate Gen TF Dr.G Bletharoplasty Gen	Rm12 7:00 Dr.W Transmetatarsal amputation Gen TF Dr.W Osteotomy Gen TF Dr.W Rt Knee Arthroplasty Gen
Rm06 7:00 Dr.R Lumbar laminectomy Gen	Rm13 7:00 Dr.O Hysterectomy Gen

The following questions should be answered using the surgery schedule above

26. Room 9 has a debridement scheduled to follow an I&D. Why is this procedure being performed?
- To remove necrotic or infected tissue
 - To remove scarred tissue
 - To culture the wound
 - To prevent infection

A. Rationale: Debridement is commonly done to remove infected or necrotic tissue. There are specific types of bacteria that grow well in necrotic tissue, including Clostridium Perfringens and other anaerobic bacteria. Generally, the surgeon will remove all of the necrosed infected tissue along with a margin of healthy tissue to ensure that the infection does not spread. The surgeon may also culture the wound to determine the type of infection present, but, while the goal of the surgery may be to prevent the further spread of and determine the type of infection, it is primarily done to remove tissue already damaged.

27. The patient undergoing the Colectomy in Room 10 will be at an increased risk of infection from what?
- Endogenous bacteria
 - Nosocomial infection
 - Viral infection
 - Exogenous Bacteria

A. Rationale: The patient undergoing a surgical procedure involving entry into the digestive tract is at an increased risk of endogenous infections. The bowel contains many types of bacteria that aid in the digestive process. These bacteria are harmless in their natural location, but become extremely pathogenic and aggressive when they are allowed into other areas of the body. The surgeon in this case may request antibiotics in the irrigation to reduce the risk of an infection.

28. The patient in Room 5 was given penicillin and suffered anaphylactic shock. What is the treatment that needs to be followed?
- A. Levophed should be administered
 - B. Dantrolene should be given
 - C. Epinephrine should be given
 - D. Protamine sulfate should be given

C. Rationale: Epinephrine is routinely given to patients in anaphylactic shock.

29. The patient in Room 12 is having a trans-metatarsal amputation due to clostridium perfringens. What does this patient have?
- A. Tetanus
 - B. Gas gangrene
 - C. Viral streptococcus
 - D. Necrotizing fasciitis

B. Rationale: Clostridium perfringens is an anaerobic bacterial infection that requires aggressive treatment, including amputation. This bacterium can be found in the soil, and can enter the body through a break in the skin, usually the foot.

30. The I&D was originally scheduled before the knee replacement in Room 12. Why was it moved?
- A. The surgeon was already scheduled in Room 9
 - B. The patient requested an earlier surgery
 - C. An infected case should never be performed before a clean orthopedic case
 - D. The equipment that has already been placed in Room 9 is more conducive to the procedure

C. Rationale: It is good practice to try to keep infected cases out of rooms that have a sterile case following. In the case of orthopedics, this is an extremely important practice. Orthopedic procedures are easily contaminated, and represent a distinct threat of infection for the patient who may require more surgery, longer hospital stays, and possible amputation. For these reasons, most ORs will not schedule an infected case before a sterile procedure.

31. There is an on call below knee amputation that needs to be placed in a Room. Where should this surgery be performed?
- A. Room 12
 - B. Room 9
 - C. Room 6
 - D. It should not be performed

B. Rationale: Most amputations are performed due to infection that has not been contained. Therefore, every effort should be made to place this procedure in a room that is already dealing with contaminated cases.

32. One room has a possible issue with cases being performed. Which room should be changed?
- A. Room 12
 - B. Room 8
 - C. Room 11
 - D. Room 13

A. Rationale: For the reasons stated in **questions 5 and 6**, the trans-metatarsal surgery should be rescheduled for another room.

33. Dr. X in Room 1 wants to know if there is an infectious process going on with his patient. What lab test will he want?

- A. C&S
- B. I&D
- C. Frozen section
- D. CBC

A. Rationale: A culture and sensitivity test will identify the bacteria that cause the infection.

34. Sharon, the Surgical Technologist assigned to Room 3 has learned that the patient is HIV positive. What precautions should she take?

- A. Isolation
- B. Standard
- C. Universal
- D. She should refuse to scrub the case

B. Rationale: Surgical Technologists should treat all patients with Standard Precautions. The CDC adopted these precautions that combine body substance isolation and Universal Precautions after the AIDS epidemic spread. STs may not always know if a person is infected, so they should treat each patient as a possible source of infection and always follow the standard precaution protocol.

35. The patient undergoing the lumbar laminectomy has severe rheumatoid arthritis. This is an example of what disease process?

- A. Autoimmune
- B. Acquired immunity
- C. Metabolic disorder
- D. Immunosuppression

A. Rationale: Rheumatoid arthritis is an autoimmune disease that targets the joints.