

1. Where is *Bacillus cereus* commonly found?

- A. In rice
- B. in Fish Exclusively
- C. In animal hides (fur)
- D. In Humans only
- E. In certain species of Birds

2. Which of the following are NOT traits of Mycobacterium?

- i. acid-fast Bacterium
- ii. can grow rapidly on artificial media
- iii. are Gram-positive cocci

- A. i only
- B. ii only
- C. iii only
- D. i and ii only
- E. ii and iii only

3. Which of the following statements about syphilis is false?

- A. Syphilis is caused by a spirochete bacterium

B. A positive VDRL test must be confirmed by specific treponemal antibody tests

C. A non-specific test involves cardiolipin as an antigen.

D. It can be transmitted to the fetus

E. It can be seen microscopically using acid fast stain.

4. Which of the following is not a parasitic disease?

A. Amoebiasis

B. Trichomoniasis

C. Giardiasis

D. Toxoplasmosis

E. Histoplasmosis

5. Which of the following disease is NOT caused by a bacterial exotoxin?

A. Botulism

B. Enteric Fever

C. Anthrax

D. Tetanus

E. Diphtheria

6. Which of the following is NOT a part of the metazoan family?

A. Enterobius vermicularis

B. Trichinella spiralis

C. Anisakis simplex

D. Schistosoma spp.

E. Giardia Lamblia

7. To be considered positive, a tuberculin test must show, after 48 hours, an induration:

A. Less than 5mm in diameter

B. Larger than the redness (erythema)

C. 10 mm or more in diameter

D. With some local hemorrhage

E. With scab formation

8. Malaria is caused by which of the following organisms?

A. Toxoplasma

B. Trypanosoma

C. Trichomonas

D. Giardia

E. Plasmodium

9. The Bacillus anthracis toxin:

- A. Is made up of the 3 separate proteins
- B. Is Encoded on the plasmid pXO2
- C. Is an endotoxin
- D. Causes flaccid muscle paralysis
- E. This organism does not make a toxin

10. Cats are the definitive hosts of which of the following parasites?

- A. Taenia solium
- B. Toxoplasma gondii
- C. Ascaris lumbricoides
- D. Cyclospora cayetanensis
- E. Giardia Lamblia

11. Which of the following is a symptom associated with tetanus?

- A. Severe muscle spasms such as lockjaw
- B. General muscle weakness

- C. Gas gangrene
- D. Spontaneous abortions
- E. Bilateral cranial nerve palsies

12. The unique characteristic of having wax-like material in its cell wall structure is a characteristic of:

- A. *Corynebacterium diphtheriae*
- B. *Listeria monocytogenes*
- C. *Clostridium perfringens*
- D. *Mycobacterium leprae*
- E. *Bacillus anthracis*

13. The most common route of infection with *Mycobacterium tuberculosis* is through:

- A. The skin by direct contact
- B. Ingestion of contaminated food
- C. Blood and blood products
- D. Inhalation of contaminated aerosols
- E. Hospitals instrumentation (e.g., bronchoscopy)

14. Which of the following pathogens is NOT a spore former?

- A. Clostridium tetani
- B. Bordetella pertussis
- C. Bacillus anthracos
- D. Clostridium difficile
- E. All of the above are sporeformers.

15. Listeria monocytogenes:

i. is able to cross three protective barriers in humans

ii. is a non-sporeformer, Gram-negative bacillus

iii. tolerates cold temperatures and can grow in the refrigerator

- A. i only
- B. ii only
- C. iii only
- D. i, ii, and iii
- E. i and iii

16. Endotoxins are found

- A. In Gram positive bacteria exclusively

- B. In acid-fast bacteria such as mycobacterium
- C. Only in protozoan parasites
- D. In Gram negative bacteria
- E. In parasitic organisms

17. Leprosy is:

- A. Caused by Mycobacterium Tuberculosis
- B. Commonly found in North America
- C. Caused by an acid-fast bacterium
- D. Caused by Mycoplasma leprae
- E. Is caused by a fungal infection that goes untreated.

18. Which of the following statements referring to acute gastroenteritis caused by salmonellae, is incorrect?

- A. is caused by salmonella typhi
- B. Is caused by a non-lactose fermenter
- C. Should generally not be treated with antibiotics
- D. Have animals as reservoirs
- E. Is manifested as acute diarrhea

19. What is correct about legionella pneumophila?

- i. is a gram negative opportunistic pathogen
- ii. Transmitted via aerosols from person-to-person
- iii. Grows in water and found in air cooling tanks

A. i only

B. ii only

C. iii only

D. i and iii

E. ii and iii

20. Malaria

A. Is characterized by spiking fever

B. May be prevented by vaccination globally

C. Can be prevented by vaccination globally

D. Is caused by a gram-positive bacterium

E. Is caused by a gram-negative bacterium

21. Overuse of broad spectrum antibiotics destroying the normal microbial flora can lead to

A. Infection with Legionella spp.

B. Infection with Bacillus cereus

C. Infection with Bordetella pertussis

D. infection with *Haemophilus influenzae*

E. Infection with *Clostridium difficile*

22. Which of the following gram-negative rods is commonly linked to bloody stool?

A. *Haemophilus influenzae*

B. *Salmonella enteritidis*

C. *Vibrio cholerae*

D. *Clostridium tetani*

E. *Shigella sonnei*

23. A common opportunistic infection associated with AIDS patient is caused by

A. *Cryptococcus neoformans*

B. *Tinea Corporis*

C. *Tinea Pedis*

D. *Candida albicans*

E. *Aspergillus flavus*

24. The most common route of exposure for tetanus is

A. Ingestion of neurotoxin that causes muscle paralysis

B. Skin trauma or puncture wound by an object containing

- C. stepping on a rusted nail
- D. From ingesting improperly prepared home-canned vegetables
- E. Nobody gets tetanus anymore because there exists a vaccine

25. Gas gangrene is caused by

- A. Clostridium botulinum
- B. Salmonella serovar Typhi
- C. Listeria monocytogenes
- D. Clostridium perfringens
- E. Shingella spp.

26. Powdered infant formula is most often associated with

- A. Enteroinvasive Escherichia coli
- B. Cronobacter (Enterobacter sakazakii)
- C. Vibrio cholerae
- D. Pseudomonas aeruginosa
- E. None of the above as powdered infant formula is a sterile product

27. Ulcers are most commonly a result of

- A. Infection with *Helicobacter pylori*
- B. Too much stress from studying for this midterm
- C. Alcohol abuse
- D. Being immunocompromised
- E. Infection with *Entamoeba ulceritica*

28. The campylobacter species are

- A. Anaerobic
- B. Microaerophilic
- C. Facultive anaerobes
- D. Aerobes
- E. Obligative thermophiles

29. Both EMB and MacConkey growth media:

- A. Are selective only
- B. Are selective and differential
- C. Only allow gram positive bacteria to grow
- D. Only allow lactose fermenters to grow

E. Are useful for growing viruses

30. The organism causing giardiasis is a

A. Protozoan

B. Retrovirus

C. Yeast

D. Bacteria

E. Spirochete

#### PART B: SHORT ANSWERS

1. Give an example of a PARASITE that can gain entry into the human host via each of the following modes of transmission. Use a different parasite for each. (4 marks)

i.) Waterborne: Cryptosporidiosis, Giardia Lambilia

ii.) Foodborne: Cyclosporiasis

iii.) Sexual contact: Trichonomas Vaginalis

iv.) Skin penetration: Schistosomiasis, Plasmodium (Malaria)

2. List the FOUR stages of Syphilis infection (4 marks)

1. Primary syphilis

2. Secondary Syphilis

3. Latent Syphilis

4. Late Syphilis

3. Chlamydia exists as 2 distinct forms during its life cycle. Name these 2 forms and list their roles in the life cycle. (4 marks)

**i) Elementary body: No growth or replication**

**ii) Replication body: Replication and growth**

4. List 4 gram negative bacilli bacteria that do not cause gastrointestinal illness (they are classified as enterics in the notes but cause problems elsewhere in the body) (4 marks)

***Pseudomonas cepacia***

***Haemophilus influenzae***

***Enterobacter***

***Bordetella pertussis***

***Legionella pneumophila***

5. List 2 similarities and 2 differences between Clostridium botulinum and Clostridium tetani

**Similarities: 1. Gram positive bacilli, 2. Spore forming rods**

**Differences: 1. Clostridium tetani requires booster every 10 years, 2. Clostridium botulinum causes is from improper canned vegetables EXTRA: C.Tetani causes tetanus EXTRA: C.botulinum causes Botulism**

6. What are the 2 types of toxins produced by Clostridium difficile and what are their effects on the infected host? (4 marks)

**1. Toxic A: Causes diarrhea**

**2. Toxic B: Cytotoxic to colonic cells**

7. List the four levels of fungal infections, starting from the least to serious to the most serious symptoms (4 marks)

**1. Superficial fungal infection**

2. Cutaneous fungal infection
3. Subcutaneous fungal infection
4. Systemic fungal infection

8. What are the 2 gram negative bacilli most commonly associated with infections in cystic Fibrosis patients. (2 marks)

1. *Pseudomonas aeruginosa*
2. *Pseudomonas cepacia*