



Subject: General Microbiology

- 1- Account the five stages of the multiplication cycle of phages, then describe the first and the final stages.
- 2- What is dimorphism in fungi? Explain it with an example.
- 3- Explain, why?
 - A- In the stationary phase the growth rate slows.
 - B- You can get influenza more than once.
- 4- What are the differences between catabolism and anabolism.
- 5- Write about the following
 - a. How microbes neutralize the toxic effect of O_2^{2-} and H_2O_2 (explain briefly with equations).
 - b. The two main mechanisms that protect the endospore's DNA
- 6- What is microbial antagonism? Explain briefly with an example:
- 7- Certain regions of the body are subjected to mechanical forces that may affect colonization by the normal microbiota, explain briefly an example
- 8- Define uncoating, then explain how this process varies with the type of virus (10 mark)
- 9- How do these factors contribute to the bacterial invasiveness?
 - A- The waxy lipid of the cell wall,
 - B- IgA protease
- 10- Differentiate between Teleomorphic and anamorphic fungi.

11- What is the LD50 for the bacterial toxin tested in the example below.

Dilution ($\mu\text{g}/\text{kg}$)	No. of Animals Died	No. of Animals Survived
a. 6	0	6
b. 12.5	0	6
c. 25	3	3
d. 50	4	2
e. 100	6	0

12- Choose the correct answer

1- Which of the following is *false* about fimbriae?

- a. They are composed of protein.
- b. They may be used for attachment.
- c. They are composed of pilin.
- d. They can be important in formation of biofilms

2- Which of the following is *not* a characteristic of algae?

- a. have cell walls made of chitin
- b. are able to photosynthesize
- c. produce molecular and organic compounds
- d. inhabit water, soil, and plants

3- Which of the following pairs is *mismatched*?

- a. glycocalyx—adherence
- b. pili—reproduction
- c. cell wall—toxin
- d. cell wall—protection

4- Spherical bacterial cells in chains would be referred to as a _____ arrangement.

- A. vibrio
- B. streptococcus
- C. staphylococcus
- D. tetrad

5- Gram-negative bacteria would stain _____ with the Gram stain and have _____ in the wall.

- A. pink-red; teichoic acid
- B. pink-red; lipopolysaccharide
- C. purple; peptidoglycan
- D. purple; teichoic acid

13- Differentiate between

- a- Passive and active processes of membrane transport
- b- endotoxin and exotoxin

14- Mention the four basic advantages of plasmids

15- The microbial cell can be killed by erythromycin and chloramphenicol (antibiotic) while the eukaryotic host cell remains unaffected, why?

16- Write the three functions of type IV pilus.

17- What is Spontaneous Generation theory? Who disproved this theory? and what is the idea of the Theory of Biogenesis?

18- why we do stain *Mycobacterium* and *Nocardia* with acid-fast stain and not gram stain?

19- Determine the four types of bacteria depending on the location of the flagella on the bacterial cell wall.

20- True or False

- 1- *Helicobacter pylori*: is associated with causing gastric ulcers, it is an acidophile.
- 2- Acidity (below pH 4) used in the preservation of food.
- 3- Nitrogen makes up about 4% of the dry weight of a bacterial cell.
- 4- All organisms attempting to grow in atmospheric oxygen must produce an enzyme, superoxide dismutase.
- 5- Psychrotrophs can grow at 0°C, their optimum temperatures, usually 20–30°C and cannot grow above 40°C.

21- Classify bacteria according to their requirement for oxygen.

22- Write three main differences between the cell wall of Gram-positive and Gram-negative bacteria.

23- Draw and label the action of antimicrobial drugs on bacterial cells and give an example for each drug.

24- what is the difference between:

- 1- Teleomorphic fungi and anamorphic fungi
- 2- Antibiotic and Antimicrobial drugs
- 3- pathogenicity and virulence