

D.P.Bhosale College, Koregaon.

Department of Microbiology

Question Bank Semester I

Microbial Diversity

Multiple choice question

1. The term prokaryotes refers to which of the following?
 - A. very small organisms
 - B. unicellular organisms that have no nucleus**
 - C. multicellular organisms
 - D. cells that resemble animal cells more than plant cells

2. The term microbiota refers to which of the following?
 - A. all microorganisms of the same species
 - B. all of the microorganisms involved in a symbiotic relationship
 - C. all human microorganisms in a certain region of the body**
 - D. all microorganisms in a certain geographic region

3. Which of the following refers to the type of interaction between two prokaryotic populations in which one population benefits and the other is not affected?
 - A. mutualism
 - B. commensalism**
 - C. parasitism
 - D. neutralism

5. Which of the following describes Proteobacteria in domain Bacteria?
 - A. phylum**
 - B. class
 - C. species
 - D. genus

5. All Alphaproteobacteria are which of the following?
 - A. oligotrophs**
 - B. intracellular
 - C. pathogenic

- D. all of the above
- E. none of the above

6.

Class Betaproteobacteria includes all but which of the following genera?

- A. *Neisseria*.
- B. *Bordetella*.
- C. *Leptothrix*.
- D. *Campylobacter*.**

7.

Haemophilus influenzae is a common cause of which of the following?

- A. influenza
- B. dysentery
- C. upper respiratory tract infections**
- D. hemophilia

8.

Which of the following is the organelle that spirochetes use to propel themselves?

- A. plasma membrane
- B. axial filament**
- C. pilum
- D. fimbria

9.

Which of the following bacteria are the most prevalent in the human gut?

- A. cyanobacteria
- B. staphylococci
- C. *Borrelia*
- D. *Bacteroides***

10.

Which of the following refers to photosynthesis performed by bacteria with the use of water as the donor of electrons?

- A. oxygenic**
- B. anoxygenic
- C. heterotrophic
- D. phototrophic

11.

Which of the following bacterial species is classified as high G+C gram-positive?

- A. *Corynebacterium diphtheriae***
- B. *Staphylococcus aureus*
- C. *Bacillus anthracis*
- D. *Streptococcus pneumoniae*

12.

The term “deeply branching” refers to which of the following?

- A. the cellular shape of deeply branching bacteria
- B. the position in the evolutionary tree of deeply branching bacteria**

- C. the ability of deeply branching bacteria to live in deep ocean waters
- D. the pattern of growth in culture of deeply branching bacteria

13.

Which of these deeply branching bacteria is considered a polyextremophile?

- A. *Aquifex pyrophilus*
- B. *Deinococcus radiodurans***
- C. *Staphylococcus aureus*
- D. *Mycobacterium tuberculosis*

14.

Archaea and Bacteria are most similar in terms of their _____.

- A. genetics
- B. cell wall structure
- C. ecology
- D. unicellular structure**

15.

Which of the following is true of archaea that produce methane?

- A. They reduce carbon dioxide in the presence of nitrogen.
- B. They live in the most extreme environments.**
- C. They are always anaerobes.
- D. They have been discovered on Mars.

Long answers

1. Describe in detail Mechanism of Gram staining.
2. Describe in detail acid fast staining.
3. Special staining methods.
4. Describe the various parts and their functions of the compound microscope.
5. Draw the ray diagram and explain the principle and working of a Compound microscope.
6. Draw the ray diagram and explain the working of Transmission Electron Microscope.
7. Draw the ray diagram and explain the working of Scanning Electron Microscope.
8. Describe in detail sterilization by radiations.
9. Describe in detail sterilization of gaseous agents.
10. Describe in detail sterilization of halogen compounds.

Short note

1. Simple staining
2. Negative staining
3. Capsule staining
4. Cell wall staining
5. Types of stain
6. Volutin granule staining
7. Lipid content theory
8. Factors affecting Gram staining
9. Peptidoglycan theory
10. Image formation
11. Objective lenses
12. Condenser
13. Ocular lens
14. Irish diaphragm
15. Magnification
16. Resolving Power
17. Numerical aperture
18. Immersion lens
19. Working Distance
20. Difference between light and electron microscope
21. Difference between TEM and SEM
22. Working of the compound microscope