

BASIC MICROBIOLOGY QUESTIONS AND ANSWER

1. **What type of microorganism is known to lack a true nucleus?**

- A) Fungi
- B) Viruses
- C) Bacteria
- D) Protozoa

Answer: C) Bacteria

2. **Which staining technique is used to differentiate between Gram-positive and Gram-negative bacteria?**

- A) Acid-fast stain
- B) Gram stain
- C) Endospore stain
- D) Negative stain

Answer: B) [Gram stain](#)

3. **What structure allows bacteria to move?**

- A) Pili
- B) Capsule
- C) Flagella
- D) Ribosome

Answer: C) Flagella

4. **Which of the following is the primary component of bacterial cell walls in Gram-positive bacteria?**

- A) Peptidoglycan
- B) Lipopolysaccharides
- C) Phospholipids
- D) Proteins

Answer: A) Peptidoglycan

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5. **Which microorganism is responsible for causing malaria?**

- A) Escherichia coli
- B) Plasmodium
- C) Staphylococcus aureus
- D) Candida albicans

Answer: B) Plasmodium

6. Which of the following bacteria is an example of a Gram-negative organism?

- A) Staphylococcus aureus
- B) Bacillus subtilis
- C) Escherichia coli
- D) Mycobacterium tuberculosis

Answer: C) Escherichia coli

7. Which viral structure is responsible for attachment to a host cell?

- A) Nucleic acid
- B) Envelope
- C) Capsid
- D) Spike proteins

Answer: D) Spike proteins

8. Which of the following is a type of horizontal gene transfer in bacteria?

- A) Transformation
- B) Transcription
- C) Translation
- D) Mutation

9. Which of the following is not a form of sterilization?

- A) Autoclaving
- B) Filtration
- C) Refrigeration
- D) Radiation

[Answer:](#)

10. What is the primary purpose of Koch's postulates?

- A) To identify viruses
- B) To develop antibiotics
- C) To establish the cause of a disease
- D) To stain bacterial cells

Answer:

11. Which of the following bacteria is known for its role in causing tuberculosis?

- A) Streptococcus pneumoniae
- B) Mycobacterium tuberculosis
- C) Escherichia coli
- D) Clostridium botulinum

Answer:

12. What type of microorganism is yeast?

- A) Bacterium
- B) Virus
- C) Algae
- D) Fungus

Answer:

13. Which type of microorganism is studied in parasitology?

- A) Bacteria
- B) Fungi
- C) Protozoa and helminths
- D) Viruses

Answer: C) Protozoa and helminths

14. What is the primary function of ribosomes in a bacterial cell?

- A) DNA replication
- B) Protein synthesis
- C) Energy production
- D) Motility

Answer: B) Protein synthesis

15. Which chemical is commonly used as a disinfectant in microbiology labs?

- A) Ethanol
- B) Sodium chloride
- C) Glucose
- D) Agar

Answer:

16. Which of the following microorganisms can perform photosynthesis?

- A) Fungi
- B) Viruses
- C) Algae
- D) Protozoa

Answer: C)

17. In which phase of bacterial growth does the population size increase rapidly?

- A) Lag phase

- B) Log (exponential) phase
- C) Stationary phase
- D) Death phase

Answer: B)

18. Which of the following is an example of a facultative anaerobe?

- A) Clostridium botulinum
- B) Escherichia coli
- C) Mycobacterium leprae
- D) Treponema pallidum

Answer: B) Escherichia coli

19. What type of microscopy is typically used to view viruses?

- A) Bright-field microscopy
- B) Dark-field microscopy
- C) Fluorescence microscopy
- D) Electron microscopy

Answer: D) Electron microscopy

20. Which structure in bacteria is responsible for antibiotic resistance?

- A) Cell wall
- B) Flagella
- C) Plasmid
- D) Nucleoid

Answer: C) Plasmid

21. What is the main difference [between Gram-positive and Gram-negative bacteria?](#)

- A) Gram-positive bacteria have a thick peptidoglycan layer.
- B) Gram-negative bacteria are all aerobic.
- C) Gram-positive bacteria have an outer membrane.
- D) Gram-negative bacteria lack a cell wall.

Answer:

22. Which of the following microorganisms can survive in extreme environments, such as hot springs or salt lakes?

- A) Bacteria
- B) Archaea
- C) Protozoa

D) Algae

[Answer](#)

23. **What is the primary purpose of an autoclave in microbiology?**

- A) To measure bacterial growth
- B) To sterilize equipment and media
- C) To incubate cultures
- D) To stain bacterial cells

Answer: B) To sterilize equipment and media

24. **Which microorganism is responsible for causing syphilis?**

- A) Treponema pallidum
- B) Neisseria gonorrhoeae
- C) Bacillus anthracis
- D) Vibrio cholerae

Answer: A) Treponema pallidum

25. **What is the most common method for isolating bacteria from a mixed culture?**

- A) Spread plate method
- B) Pour plate method
- C) Streak plate method
- D) Filtration

Answer: C) Streak plate method

26. **Which component is found in the cell wall of fungi but not in bacteria?**

- A) Peptidoglycan
- B) Cellulose
- C) Chitin
- D) Lipopolysaccharides

Answer: C) Chitin

27. **What is the name of the enzyme that breaks down hydrogen peroxide in bacteria?**

- A) Catalase
- B) Amylase
- C) Lipase
- D) Protease

Answer: A) Catalase

28. **Which of the following organisms is a common cause of food poisoning due to improperly cooked poultry?**

- A) Escherichia coli

- B) Salmonella enterica
- C) Clostridium perfringens
- D) Staphylococcus aureus

Answer: B

29. What is the term for the transfer of DNA between bacteria through direct contact?

- A) Transformation
- B) Conjugation
- C) Transduction
- D) Transcription

30. Which type of virus uses reverse transcriptase to replicate its genome?

- A) Adenovirus
- B) Retrovirus
- C) Papillomavirus
- D) Orthomyxovirus

[Answer:](#)

31. Which staining technique is used to detect Mycobacterium tuberculosis?

- A) Gram stain
- B) Acid-fast stain
- C) Endospore stain
- D) Negative stain:

32. What is the primary mode of reproduction for bacteria?

- A) Binary fission
- B) Mitosis
- C) Meiosis
- D) Budding

33. What is the oxygen requirement for obligate anaerobes?

- A) Require oxygen
- B) Can survive with or without oxygen
- C) Require carbon dioxide
- D) Cannot survive in the presence of oxygen

34. Which of the following microorganisms is classified as a eukaryote?

- A) Bacteria
- B) Virus
- C) Yeast
- D) Archaea

[Answer](#)

35. What is the role of the capsule in some bacteria?

- A) Provides motility
- B) Protects from phagocytosis
- C) Aids in reproduction
- D) Helps in DNA replication

Answer:

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