

Objective

1. Some spirochetes occasionally reach in length:
 (A) 400 μm (B) 500 μm (C) 300 μm (D) 200 μm
2. The diameter of staphylococcus and streptococcus is about:
 (A) 2 - 6 μ (B) 0.75 - 1.25 μ (C) 1.5 - 2 μ (D) 100 - 200 nm
3. A Square of 4 cocci is termed as:
 (A) Sarcina (B) Diplococcus (C) Streptococcus (D) Tetrad
4. Curved or comma shaped bacteria are called:
 (A) Bacilli (B) Spirochetes (C) Spirillum (D) Vibrio
5. Rod shaped Bacteria are called:
 (A) Spirilla (B) Vibrio (C) Cocci (D) Bacilli
6. Oval shaped bacteria are:
 (A) Spriclla (B) Cocci (C) Vibris (D) Bacilli
7. The smallest bacteria are approximately the size of the largest viruses i.e:
 (A) Poxviruses (B) Parvoviruses (C) Adenoviruses (D) Paramyxoviruses
8. Example of rod shaped bacteria is:
 (A) H.microbium (B) S.Aureus (C) Spirocheta (D) Escherichia coli
9. When cocci form long chain of cells then arrangement is called as:
 (A) Sarcina (B) Streptococci (C) Diplococcus (D) Tetrad
10. When the division of cell is in two planes it will produce a:
 (A) Bivalent arrangement (B) Helical arrangement
 (C) Tetrad arrangement (D) Sarcina arrangement
11. A tetrad is a square of:
 (A) 8 Cocci (B) 4 Cocci (C) 6 Cocci (D) 2 Cocci
12. When the division is in three planes , it will produce a:
 (A) Tetrad arrangement (B) Helical arrangement
 (C) Sarcina arrangement (D) Bivalent arrangement
13. When division occurred is random planes it will produce a arrangement.
 (A) Streptococcus (B) Bacillococcus (C) Staphylococcus (D) Diplococcus
14. Vibrio is curved or comma shaped:
 (A) Spiral (B) Bacillus (C) Rod (D) Coccus
15. If tuft of flagella is present only at one pole of bacteria then these are called as:
 (A) Amphitrichous (B) Lophotrichous (C) Peritrichous (D) Monotrichous
16. Primarily involved in conjugation between bacterial cell:
 (A) Slime (B) Capsule (C) Pili (D) Flagella

17. Bacterial pathogenicity is due to:
 (A) Cell wall (B) Slime (C) Envelope of all cell (D) Capsule
18. Peptidoglycans absent in:
 (A) Cyanobacteria (B) Gram negative bacteria
 (C) Archaeobacteria (D) Eubacteria
19. Cell wall of Archaeobacteria do not contain:
 (A) Chitin (B) Peptidoglycan (C) Cutin (D) Cellulose
20. Important vector in modern genetic:
 (A) Ribosome (B) Mesosome (C) Plasmid (D) Nucleoid
21. Cysts are dormant, thick-walled, desiccation resistant forms and develop during:
 (A) Differentiation of reproductive cells (B) During conjugation
 (C) Differentiation of vegetative cells (D) Late stage of cell growth
22. When tuft of flagella is present at each of two poles in bacteria is known as:
 (A) Peritrichous (B) Amphitrichous (C) Lophotrichous (D) Atrichous
23. Mesosomes are internal extensions of:
 (A) Cell membrane (B) Endoplasmic (C) Golgi complex (D) Cell wall
24. Cell wall is absent in:
 (A) Spirochete (B) Vibrio (C) Mycoplasma (D) E. coli
25. Pili are made up of special protein called:
 (A) Myosin (B) Tubulin (C) Pillin (D) Flagellin
26. Bacteria without any flagella are called:
 (A) Monotrichous (B) Lophotrichous (C) Atrichous (D) Amphitrichous
27. Cell wall of gram positive bacteria are stained:
 (A) Red (B) Green (C) Pink (D) Purple
28. Pili are primarily involved in:
 (A) Nutrition (B) Conjugation (C) Excretion (D) Movement
29. Which one is present in all bacteria?
 (A) Ribosomes (B) Plasmid (C) Cell membrane (D) Mesosome
30. Bacteria produce capsule, which is made up of repeating units, and of protein, or of Both:
 (A) Oligosaccharide (B) Disaccharide (C) Polysaccharide (D) Monosaccharide
31. Primary function of flagella is to help in:
 (A) Conjugation (B) Motility (C) Adhesion (D) Induction
32. With the help of flagella, flagellate bacteria can detect and move in response to chemical signals which is a type of behaviour called:
 (A) Phototaxis (B) Chemotaxis (C) Chemosynthetic (D) Chemotherapeutic
33. Hollow, nonhelical, filamentous appendages present in bacteria are:
 (A) Flagella (B) Fimbriae (C) Cilia (D) Pili

34. Slime provides greater pathogenicity to bacteria and protects them against:
 (A) Invasion (B) Phagocytosis (C) Exocytosis (D) Pinocytosis
35. The cell walls of most bacteria have a unique macromolecule called:
 (A) Lipoprotein (B) Polysaccharide (C) Peptidoglycan (D) Teichoic acid
36. The cytoplasm of prokaryotic cell lacks membrane bound organelles and:
 (A) Enzymes (B) Lipid granules (C) Cytoskeleton (D) Ribosomes
37. DNA aggregates as an irregular shaped dense area called:
 (A) Chromatid (B) Nucleoid (C) Plasmid (D) DNA body
38. Spores are resistant to adverse physical environment condition such as:
 (A) Chemical agents (B) Desiccation (C) High temperature (D) All of these
39. Dormant, thick-walled, desiccation resistant forms present inside bacteria are:
 (A) Exospores (B) Cysts (C) Mesosome (D) Endospores
40. Photosynthetic prokaryotes lack:
 (A) Cytoplasm (B) Cell membrane (C) Chloroplasts (D) Ribosomes
41. Bacteria that cannot synthesize their organic compounds from simple inorganic substances are:
 (A) Symbionts (B) Lichen (C) Heterotrophs (D) Autotrophs
42. Bacteria that can synthesize organic compounds from simple inorganic substances are known as:
 (A) Lichen (B) Symbionts (C) Heterotrophs (D) Autotrophs
43. Chemosynthetic bacteria oxidize inorganic compounds like:
 (A) Nitrogen (B) Sulphur (C) All of these (D) Ammonia
44. Bacteria which get their food from dead organic matter are:
 (A) Chemosynthetic (B) Symbiotic (C) Parasitic (D) Saprophytic
45. Which one is a microaerophilic bacterium?
 (A) Pseudomonas (B) Campylobacter (C) Spirochete (D) E.coli
46. During photosynthesis photosynthetic bacteria use hydrogen sulphide instead of water as:
 (A) Nitrogen source (B) Sulphur source (C) Hydrogen source (D) Carbon source
47. Which of the following are anaerobic bacteria?
 (A) Escherichia coli (B) Campylobacter (C) Pseudomonas (D) Spirochete
48. Asexual reproduction in bacteria occurs by:
 (A) Transformation (B) Binary Fission (C) Transduction (D) Conjugation
49. Bacteria divided at exponential rate during:
 (A) Log phase (B) Stationary phase (C) Stationary phase (D) Decline phase
50. Which is an aerobic bacterium?
 (A) Campylobacter (B) Spirochete (C) E.coli (D) Pseudomonas

51. Rapid phase of growth of bacteria is:
 (A) Death / phase (B) Stationary phas (C) Log phase (D) Lag phase
52. The interval of time until the completion of next division is known as:
 (A) Multiplication time (B) Cell cycle (C) Generation time (D) Incubation time
53. Membrane filters are used to sterilize heat sensitive compounds like:
 (A) Hormones (B) Seras (C) All of these (D) Antibiotics
54. Chemical substances used on living tissues that inhibit the growth of microorganisms are called as:
 (A) Sterilizers (B) Counteracting sepsis (C) Antiseptics (D) Disinfectants
55. Disinfectants inhibit the growth of vegetative cell and are used on:
 (A) Living and non-living materials (B) Living tissues
 (C) Non-living materials (D) Living materials
56. Methods of prevention and treatment that have been introduced to control microbial diseases included:
 (A) Antisepsis (B) Chemotherapy (C) Immunization (D) All of these
57. The rays generally used for sterilization process are:
 (A) Beta (B) X-rays (C) Gamma (D) Alpha
58. The procedures to eliminate or reduce the possibility of infection is called:
 (A) Antibiotics (B) Antidote (C) Antiseptics (D) Antisepsis
59. Antibiotics are synthesized and secreted by certain bacteria , actinomycetes and:
 (A) Lichen (B) Virus (C) Fungi (D) Algae
60. Misuse of antibiotic such as penicillin can cause:
 (A) Deafness (B) Mental retardness (C) Allergic reactions (D) Headache
61. Chemotherapeutic chemical substances which are used in treatment of Infectious disease are:
 (A) Antigens (B) Disinfectants (C) Antibiotics (D) Antibodies
62. Tetracycline and its related compounds cause:
 (A) Skin disorder (B) Deafness (C) Allergy (D) Discoloration of teeth
63. Pyruvic acid is produced as a result of:
 (A) Branched filaments (B) Heterocyst (C) Slimy covering (D) Trichome
64. Which of the following is not found in all bacterial cells?
 (A) Capsule (B) Cell membrane (C) Ribosomes (D) A nucleoid
65. The major locomotory structures in bacteria are:
 (A) Cilia (B) Pili (C) Flagella (D) Fimbriae

Fill in the blanks

Q1: A bacterial arrangement in packets of eight cells is described as a

- Q2: The shape and arrangement of is diplococcic.
- Q3: Pili are tubular shafts in bacteria that serve as a means of
- Q4: are unusual type of bacteria that live in extreme habitats.
- Q5: is a cyanobacterium.
- Q6: Use of antibiotics is one of the means of controlling diseases.
- Q7: is a bacterium that is photosynthetic.

Answers

- | | | |
|----------------------------|-------------------|---------------------------|
| 1. Sarcina | 2. Cocci in pairs | 3. Attachment of bacteria |
| 4. Archaeo bacteria | 5. Nostoc | 6. Antibiotics |
| 7. Green sulphur bacterium | | |

Chapter : 06

Kingdom Prokaryotae (Monera)

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Subjective

Q1: **Differentiate between eubacteria and archacobacteria.**

Ans: Differentiate between eubacteria and archacobacteria:

Eubacteria:	Archacobacteria:
Eubacteria (Greek of "true bacteria") and a much smaller division. Cell wall is of peptidoglycan or murein. for e.g E.Coli.	The archacobacteria (Greek for "ancient bacteria"). Cell wall is of protein, Glycoprotein. polysaccharide. for e.g Methanogenic bacteria.

Q2: **Who was the first scientist who discovered bacteria?**

Ans: A dutch scientist "Antone Van Leeuwenhoek" (1673) was the first to report th microbes such as bacteria and protozoa.

Q3: **Leeuwenhoek observed bacteria in which substances?**

Ans: He firstly observed small creatures in rainwater, then confirmed these in saliva, vinegar, infusions and other substances.

Q4: **Who formulated the germ theory of disease?**

Ans: Robert Koch formulated the "germ theory of disease".

Q5: **Give the postulates of germ theory of disease.**

Ans: The postulates of germ theory of disease are:

- A specific organism can always be found in association with a given disease.
- The organism can be isolated and grown in pure culture in laboratory.
- The pure culture will produce the disease when inoculated into susceptible animal.
- It is possible to recover the organism in pure culture from experimentally infected animals.

Q6: **What is flagella? What are the important functions performed by flagella?**

Ans: **Flagella:**

- These are extremely thin, hair like appendages. They come out through cell wall and originate from basal body, structure just beneath the cell membrane in the cytoplasm. They are made up of protein flagellin.

Functions:

- Primary function of flagella is to help in motility. With the help of flagella, flagellate bacteria can also detect and move in response to chemical signals which is a type of behavior called as chemotaxis.

Q7: **Give classification on the basis of presence of flagella.**

Ans: On basis of presence of flagella, pattern of attachment of flagella and the number of flagella present bacteria are classified into different taxonomic groups:

Atrichous:

- Atrichous means bacteria are without any flagella.

Monotrichous:

- When single polar flagellum is present then condition is known as monotrichous.

Lophotrichous:

- If tuft of flagella is present only at one pole of bacteria then these are lophotrichous flagella.

Amphitrichous:

- Amphitrichous is a condition when tuft of flagella at each of two poles is present.

Peritrichous:

- In peritrichous form, flagella surround the whole cell.

Q8: **What is pilli? Describe its functions.**

Ans: **Pilli:**

These are hollow, non-helical, filamentous appendages. Pilli are smaller than flagella and are not involved in motility. True pili are only present in gram-negative bacteria. They are made up of special protein called pilin.

Function:

- They are primarily involved in a mating process between cells called conjugation process.
- Some pili function as a means of attachment of bacteria to various surfaces.

Q9: **Who developed the technique of gram stain?**

Ans: Christian Gram developed the technique of gram stain.

Q10: **Define cell envelope.**

Ans: Collectively complexes of layer external to the cell protoplasm are called a cell envelope.

Q11: **Name the substances that bacteria store.**

Ans: Bacteria store glycogen, sulphur, fat and phosphate.

Q12: **What are plasmids? What is the role played by the plasmids?**

Ans: Many bacteria contains plasmid in addition to chromosomes. These are the circular, double stranded DNA molecules. They are self-replicating and are not essential for

bacterial growth and metabolism. They often contain drug resistant, heavy metals, disease and insect resistant genes on them, Plasmids are important vectors, in modern engineering techniques.

Q13: **What is unique about the structure of bacterial ribosomes?**

Ans: Ribosomes are composed of RNA and proteins. Some may also be loosely attached to plasma membranes. They are protein factories. There are thousands of ribosomes in each healthy growing cell. They are smaller than eukaryotic ribosomes. They are 70S, small unit of 30S and large of 50S.

Q14: **Name a bacterium that has no cell wall?**

Ans: Cell wall is only absent in mycoplasma.

Q15: **What are mesosomes? And what are some of their possible functions?**

Ans: **Mesosomes:**

The cell membrane, invaginates into the cytoplasm forming structure called as mesosomes. Mesosomes are in the form of vesicles, tubules or lamellae.

Functions:

Mesosomes are involved in DNA replication and cell division where as some mesosomes are also involved in export of exocellular enzyme. Respiratory enzyme are also present on the mesosomes.

Q16: **List function that the cell membrane performs in bacteria.**

Ans: The functions performed by cell membrane in bacteria are:

- Cell membrane performed regulates the transport of proteins, nutrients, sugar and electrons or other metabolites.
- The plasma membranes of bacteria also contain enzymes for respiratory metabolism.

Q17: **What is the sterilization process?**

Ans: The process in which we use physical agents to control bacteria/microorganisms is known as sterilization process. Sterilization is deduction of all life forms.

Q18: **What is protoplast?**

Ans: The plasma membrane and every thing present within it is known as protoplast.

Q19: **Describe the function of cell wall.**

Ans: It is a rigid structure. It determines the shape of bacterium. Cell wall also protects the cells from osmotic lysis.

Q20: **Differentiate between capsule and slime.**

Ans: Differentiate between capsule and slime:



Capsule:	Slime:
Bacteria produce capsule, which is made up of repeating polysaccharides units, and of protein, or both, capsule is tightly bound to the cell. It has a thicker, gummy nature that gives sticky characters to colonies of encapsulated bacteria.	Some bacteria are covered with loose, soluble shield of macromolecules which is called as slime capsule and slime provides greater pathogenicity to bacteria and protects them against phagocytosis.

Q21: **How many species of bacteria cause disease in human?**

Ans: Approximately 200 species are known to cause disease in humans.

Q22: **What is the ecological importance of bacteria?**

Ans: Bacteria are ecologically very important. They are highly adaptable as a group and are found nearly everywhere. They are able to decompose organic matter and play a significant role in the completion of cycles of nitrogen, phosphorous, sulphur and carbon.

Q23: **Describe the four distinct phases recognized in bacterial growth curve.**

Ans: Four distinct phases are recognized in bacterial growth curve:

Death/Decline Phase:

- Bacteria start dying. Here the death rate is more than reproduction rate.

Lag Phase:

- It is the phase of no growth. Bacteria prepare themselves for division.

Log Phase:

- It is the phase of rapid growth. Bacteria divide at exponential rate.

Stationary Phase:

- Bacterial death rate is equal to bacterial rate of reproduction and multiplication.

Q24: **Define generation time.**

Ans: The interval of time until the completion of next division is known as generation time.

Q25: **What is the type of asexual reproduction in bacteria?**

Ans: Bacteria increase in number by an asexual means of reproduction, called binary fission. In binary fission parent cell enlarges, its chromosomes duplicates, and plasma membrane pinches inward at the center of the cell.

When nuclear material has been evenly distributed, the cell wall grows inward to separate cell into two.

Q26: **Differentiate between aerobic, anaerobic, facultative and microaerophilic bacteria.**

Ans: **Aerobic Bacteria:**

Bacteria, which are able to grow in the presence of oxygen, are called aerobic bacteria.

Example:

Pseudomonas is an aerobic bacterium.

Anaerobic Bacteria:

Bacteria, which can grow in the absence of oxygen are known as anaerobic bacteria.

Example:

Spirochete is an anaerobic bacterium.

Facultative Bacteria:

Facultative bacteria grow either in the presence or absence of oxygen.

Example:

E.Coli is a facultative anaerobic bacterium.

Microaerophilic Bacteria:

Some bacteria require a low concentration of oxygen for growth and are known as microaerophilic.

Example:

Campylobacter is a microaerophilic bacteria.

Q27: **Differentiate between photosynthetic and chemo-synthetic bacteria.**

Ans:

Photosynthetic Bacteria:	Chemo-synthetic bacteria:
Photosynthetic bacteria possess chlorophyll which differs from the chlorophyll of green plants.	Nitrifying bacteria are chemo-synthetic. Chemosynthetic bacteria oxidize inorganic compounds like ammonia, nitrate, nitrite, sulphur on ferrous iron and trap energy thus released for their synthetic reaction.

Q28: **Differentiate between saprophytic and parasitic bacteria.**

Ans:

Saprophytic Bacteria:	Parasitic Bacteria:
Saprophytic bacteria get their food from dead organic matter.	Parasitic bacteria for their nutrition are fully dependent on their host.

Q29: **Differentiate between autotrophic and heterotrophic bacteria.**

Ans:

Autotrophic Bacteria:	Heterotrophic Bacteria:
Some kinds of bacteria are autotrophic i.e., they can synthesize compounds which are necessary for their survival from inorganic substances.	Most bacteria are heterotrophic i.e., they cannot synthesize their organic compounds from simple inorganic compounds.

Q30: **Name the common waste materials of bacteria.**

Ans: Common waste materials are alcohol lactic acid and acetic acid.

Q31: **How dry and moist heat are effective in killing bacteria?**

Ans: Both dry and moist heat are effective. Moist heat cause coagulation of proteins and kills the microbes. Dry heat cause of oxidation of chemical constituents of microbes and kills them.

Q32: **How electromagnetic radiations are effective in killing bacteria?**

Ans: Certain electromagnetic radiations below 300 nm are effective in killing of micro-organisms. Gamma rays are in general used for sterilization process.

Q33: **How heat sensitive compounds are sterilized?**

Ans: Heat sensitive compounds like antibiotics, sears, hormones etc., can be sterilized by means of membrane filters.

Q34: **Differentiate between antiseptic, disinfectants and chemotherapeutic agents?**

Ans:

Antiseptics:	Disinfectants:	Chemotherapeutic Agents:
Chemical substances used on living tissues that inhibits the growth of microorganism- ms are called antiseptics.	The important chemical agents used for disinfection are oxidizing and reducing agents. For example halogen and phenols, hydrogen peroxide, Potassium permanganate, alcohol and formaldehyde etc. inhibit the growth of vegetative cells and are used on non-	Chemotherapeutic agents and antibodies work with natural defense and stop the growth of bacteria and other microbes. These are sulfonamides, tetracycline, penicillin, etc. They destroy or inhibit the growth of

	living materials.	microorganisms in living tissues.
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Q35: **Differentiate between microbicidal and microbistatic effect.**

Ans: Difference between Microbicidal and Microbistatic effect:

Microbicidal Effect:	Microbistatic Effect:
Microbicidal effect is one that kills the microbes immediately.	Microbistatic effect inhibits the reproductive capacities of the cells and maintains the microbial population at constant.

Q36: **Define antibodies.**

Ans: Antibodies, substances that protect the host against infection due to subsequent exposure to the virulent organism.

Q37: **What is hydrophobia?**

Ans: Hydrophobia, or rabies, a disease transmitted to people by bites from rabid dogs, cats and other animals.

Q38: **What are antibodies?**

Ans: Antibodies is a Greek word ANTI, against and BIOS, life. Antibodies are the chemotherapeutic chemical substances which are used in treatment of infectious diseases. Antibodies are synthesized and secreted by certain bacteria, antinomycetes and fungi.

Q39: **How misuse of antibodies effect human health?**

Ans: Misuse of antibodies such as penicillin can cause allergic reactions. Streptomycin can affect auditory nerve thus causing deafness. Tetracycline and its related compounds cause permanent discoloration of teeth in young children.

Q40: **What are cyanobacteria?**

Ans: The cyanobacteria are the largest and most diverse group of photosynthetic bacteria which was previously known as "blue green algae". Cyanobacteria are true prokaryotes.

Q41: **What is the size of cyanobacteria?**

Ans: They range in diameter from about 1 - 10 micro meter.

Q42: **How cyanobacteria exist in nature?**

Ans: They may be unicellular, exist as colonies of many shapes, or form filaments consisting of trichomes surrounded by mucilaginous sheath.

Q43: **Describe locomotion in cyanobacteria?**

Ans: They lack flagella and often use gas vesicles to move in the water, and many filamentous species have gliding motility.

Q44: **How the photosynthetic system of cyanobacteria resembles that of eukaryote?**

Ans: Their photosynthetic system closely resembles that of eukaryotes because they have chlorophyll and photo-system II. They carry out oxygenic photosynthesis i.e. they use water as an electron donor and generate oxygen during photosynthesis.

Q45: **Differentiate between phycobilins and phycobilisomes.**

Ans:

Phycobilins:	Phycobilisomes:
Cyanobacteria use phycobilins as necessary pigment.	Photosynthetic pigments and electron transport chain components are located in

	thylakoid membranes linked with particles called phycobilisomes.
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Q46: **What is phycocyanin?**

Ans: Phycocyanin is a pigment-protein complex from the light-harvesting phycobiliprotein family. It is an accessory pigment to chlorophyll.

Q47: **How cyanobacteria reproduce?**

Ans: Cyanobacteria reproduce by binary fission, fragmentation.

Q48: **What is the reserve food material in cyanobacteria?**

Ans: The reserve food material in cyanobacteria is glycogen.

Q49: **What is the hormogonia?**

Ans: Hormogonia are motile filaments of cells formed by some cyanobacteria in the order Nostocales and Stigonematales.

Q50: **Differentiate between heterocyst and akinetes.**

Ans:

Heterocyst:	Akinetes:
All cells in trichome are mostly similar in structure but at slightly large, round, light yellowish thick walled cells called as heterocyst.	Akinetes are thick walled, enlarged vegetative cells which accumulate food and become resting cells. On arrival of favorable conditions they form normal vegetative cells.

Q51: **What is super blue green algae?**

Ans: Super blue green algae are basically expensive pond scum, in which cyanobacterium a single is called organism that produces its own food through photosynthesis. It serves as a "complete whole food" which contains 60% protein with all essential amino acids in perfect balance.

Q52: **What is nucleoid?**

Ans: The nuclear material or DNA in bacterial cells occupies position near to the center of the cell. This material is a single circular and double stranded DNA molecule. It aggregates as an irregular shaped dense area called nucleoid. This chromatin body is actually an extremely long molecule of DNA that is tightly folded so as to fit inside the cell component.

Q53: **How nucleoid is visible in light microscope?**

Ans: It is visible in the light microscope after staining with Feulagen stain.

Q54: **What is the size of E.Coli chromosome?**

Ans: Escherichia coil closed circle chromosome measures approximately 14,000 micro meter.

Q55: **Give the economic importance of cyanobacteria.**

Ans: **Advantages of Cyanobacteria:**

Reclamation of Alkaline Soils:

They help in the reclamation of alkaline soils.

Pollution Indicator:

Oscillation and few other cyanobacteria can be used as pollution indicator.

Fixation of Nitrogen:

They have heterocysts which are helpful in the fixation of atmospheric nitrogen.

Photosynthetic Activity:

They release oxygen gas in environment due to their photosynthetic activity.

Symbiotic Associations:

They have symbiotic relationships with protozoa, fungi and nitrogen fixing species from associations with angiosperms. They are photosynthetic partner in most of lichen association.

Disadvantage of Cyanobacteria:

Water Blooms:

Many species form water blooms where they often impart unpleasant smell and due to large amount of suspended organic matter water becomes unfit for consumption.

Q56: **Differentiate between spores and cyst.**

Ans:

Spores:	Cyst:
Spores are metabolically dormant bodies, produced at a large stage of cell growth. They are resistant to change in light, pH, high temperature, desiccation. They form vegetative cells.	Cyst are thick walled, dormant desiccation resistant forms and develop during differentiation of vegetative cells which can germinate. They are not heat resistant.

Q57: **How cell wall of archeobacteria differ from other bacteria or eubacteria?**

Ans: The cell walls of most bacteria have a unique macromolecules called peptidoglycan. It also contains sugar molecules, teichoic acid, lipoproteins and lipopolysaccharides which are linked to peptidoglycan.

Whereas cell wall of archeobacteria do not contain peptidoglycan. Their cell walls are composed of proteins, glycoproteins and polysaccharides.

Q58: **Name a bacterium that has no cell wall.**

Ans: Mycoplasmas

Q59: **A gram stain of discharge from an abscess shows cocci in irregular, grape like clusters. What is the most likely genus of this bacterium?**

Ans: Streptococci.

Q60: **State the diameter of an average sized coccus shaped bacterium.**

Ans: An average sized coccus bacterium has a diameter from 0.5 - 1.0 micro meter.

Q61: **Name several general characteristics that could be used to define the prokaryotes.**

Ans: Characteristics of Prokaryotes:

- Organisms possessing prokaryotic cells are called prokaryotes e.g., bacteria and cyanobacteria.
- They lack many of the membranes bound structures e.g., mitochondria, endoplasmic reticulum, Golgi bodies and chloroplasts etc.
- Nuclear membrane is absent, therefore prokaryotic cell has no distinct nucleus.

- Prokaryotes have small sized ribosomes i.e., 70S.
- Mitosis is missing and cell divides by fission.

- The cell wall of prokaryotic cell is composed of polysaccharide chains bounded covalently to shorter chains of amino acids forming peptidoglycan or murein. The entire cell wall is often regarded as a single huge molecule or molecule complex called murein.

Q62: **What is unique about the structure of bacterial ribosomes?**

Ans: They are 70S smaller than eukaryotic ribosomes.

Q63: **What are mesosomes and some of their possible functions?**

Ans: **Mesosomes:**

The cell membrane invaginates into the cytoplasm forming a structure called mesosomes. Mesosomes are in the form of vesicles, tubules or lamellae, which may be central or peripheral in position. Central mesosomes are involved in DNA replication and cell division where as peripheral mesosomes are involved in export of exocellular enzyme.

Q64: **List five functions that the cell membrane performs in bacteria.**

Ans: **Functions that cell membrane perform in bacteria:**

- Give shape to bacteria.
- It protects bacteria.
- Homeostasis.
- Exocytosis.
- Endocytosis.

Q65: **Do any other microbial groups besides bacteria have prokaryotic cell?**

Ans: Yes, Cyanobacteria.

Chapter : 06

Kingdom Prokaryotae (Monera)

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Imp. Long Questions

- Q1: Describe Nutrition of Bacteria. (v.imp)
- Q2: Describe structure and reproduction in Nostoc. (v.imp)
- Q3: Describe characteristics of cyanobacteria.
- Q4: Compare Gram positive and Gram negative bacteria on the basis of cell wall.
- Q5: comprehensive note on nutrition in bacteria. (v.imp)
- Q6: Explain growth and reproduction in bacteria. (v.imp)
- Q7: Give an account of growth and reproduction in bacteria.
- Q8: Write physical and chemical methods to bacteria.
- Q9: Explain about "use and misuse of Antibiotics".
- Q10: Write down characteristics and economic importance of cyanobacteria.