

General Microbiology & Immunology

Questions Book

PART (1): GENERAL MICROBIOLOGY

Lesson (1): Introduction & Bacterial Cell Structure

1- The following statements are true regarding prokaryotic cell EXCEPT:

- a) Have one chromosome
- b) Have nuclear membrane
- c) Have 70s ribosome
- d) Reproduce by simple binary fission

2- The following statements are true regarding eukaryotic cell EXCEPT:

- a) Have nuclear membrane
- b) Have chromosomes
- c) The cytoplasmic membrane contains sterols
- d) Reproduce by simple binary fission

3- Eukaryotes include:

- a) Human cell
- b) Fungi
- c) Algae
- d) All of the above

4- Bacterial cell:

- a) Contains only one type of nucleic acid (either RNA, or DNA)
- b) Contains mitochondria
- c) Has one circular chromosome
- d) Has no cell wall

5- It is true for bacteria that:

- a) Flagella are responsible for adhesion
- b) Capsule is associated with virulence
- c) Have no cell wall
- d) Pili is organ of motility

6- Prokaryotes include:

- a) Fungi
- b) Protozoa
- c) Bacteria
- d) Algae

7- Prokaryotic cell is differentiated from eukaryotic cell by the following EXCEPT:

- a) Rigid cell wall containing peptidoglycan
- b) Definite nucleus
- c) One chromosome.
- d) Containing ribosomes
- e) Has no mitochondria

8- Prokaryotic cell has no:

- a) Ribosomes
- b) True nucleus
- c) Cell wall
- d) Mesosomes

9- In taxonomy of bacteria, nomenclature of the organisms depends on:

- a) Kingdom
- b) Genus, Species
- c) Order, Family
- d) All of the above

10- The bacterial cell multiplies by:

- a) Binary fission
- b) Budding
- c) Sexual multiplication
- d) Mitosis

11- Which of the following components are found in the cell wall of gram -ve bacteria & not in Gram +ve bacteria?

- a) Cytoplasmic membrane
- b) Lipopolysaccharide
- c) Peptidoglycan
- d) Teichoic acid

12- All of the following are true concerning pili EXCEPT:

- a) They mediate bacterial adherence
- b) They may be involved in bacterial conjugation
- c) Their antigen called H antigen
- d) They are important virulence factor

13- The bacteria without cell wall:

- a) Actinomycetes
- b) Mycoplasma
- c) Vibrios
- d) L form
- e) b & d

14- Bacteria whose cell wall retains methyl violet after decolorization with alcohol are classified as:

- a) Acid fast
- b) Gram positive
- c) Gram negative
- d) Chlamydia

15- Bacteria whose cell wall retains carbol fuchsin after decolorization with sulfuric acid are classified as:

- a) Acid fast
- b) Gram positive
- c) Gram negative
- d) Spirochetes

16- Site of protein synthesis in bacteria is:

- a) Ribosomes
- b) Mesosomes
- c) Inclusion granules
- d) Chromosomes
- e) None of the above

17- Resistance of spores to drying, heat is due to the following, EXCEPT:

- a) High content of calcium
- b) High content of water
- c) Low metabolic activity
- d) Presence of cortex and outer coat

18- Flagellum is:

- a) Short, rigid structure
- b) Lipopolysaccharide in nature
- c) Protein in nature
- d) Helps in bacterial adherence to host cells

19- Bacteria with flagella around the cell are:

- a) Monotrichate
- b) Lophotrichate
- c) Peritrichate
- d) Amphitrichate

20- A bacterium with one flagellum at one end is grouped under:

- a) Monotrichate
- b) Lophotrichate
- c) Amphitrichate
- d) Peritrichate

21- Plasmids are:

- a) Storage granules
- b) RNA molecules
- c) Extra-chromosomal DNA
- d) Necessary for the life of bacterial cell
- e) None of the above

22- Protect the bacteria from unfavorable environmental conditions:

- a) Cell wall
- b) Capsule
- c) Spore
- d) Flagella

23- One of the followings is NOT a virulent factor:

- a) Exotoxins
- b) Cytoplasmic membrane
- c) Polysaccharide capsule
- d) Endotoxin

24- Which of the following statement regarding bacterial spore is FALSE?

- a) They are metabolically inactive
- b) They don't stain by ordinary stain
- c) They are formed by Gram negative bacteria
- d) They are resistant to disinfectants & boiling

25- The following statements are true regarding cytoplasmic membrane, EXCEPT:

- a) Present underneath the cell wall
- b) Responsible for selective permeability
- c) Osmotically insensitive
- d) Important for DNA replication

26- Protect the organism from phagocytosis:

- a) Capsule
- b) Spore
- c) Flagella
- d) Cell wall

27- Mesosomes are:

- a) Cytoplasmic membrane invaginations
- b) Cell wall structure
- c) Intra-nuclear structure
- d) Site of action of antibiotics

28- Microbial capsule is:

- a) Produced mainly outside host
- b) Helps in typing certain bacterial species
- c) Protects from unfavorable environmental conditions
- d) Lipid in nature

29- Sex pili are important for:

- a) Nutrients uptake
- b) Locomotion
- c) Conjugation
- d) Bacterial typing

30- The cell wall of all bacteria contains:

- a) Peptidoglycan
- b) Lipopolysaccharide layer
- c) Periplasmic space
- d) All of the above

31- Antigenicity in Gram negative bacteria is associated with:

- a) Peptidoglycan layer
- b) Lipopolysaccharide layer
- c) Flagella
- d) Spore
- e) b & c

32- Endotoxin of bacteria is a component of:

- a) Cell wall of Gram-ve bacteria
- b) Capsule
- c) Cell membrane of bacteria
- d) Cell wall of Gram +ve bacteria

33- The cytoplasmic membrane:

- a) Is the target action of penicillin
- b) Has specific receptors for bacteriophage
- c) Is deficient in mycoplasma
- d) Contains enzymes responsible for active uptake of nutrients

34- Genetic information essential for the life of bacteria is a function of:

- a) Ribosomes
- b) Capsule
- c) Mesosomes
- d) Chromosome

35- The nuclear material of prokaryotic cell (bacteria) has no:

- a) Nucleoli
- b) Nuclear membrane
- c) Both of the above

36- The following is essential structure in bacterial cell:

- a) Nuclear body
- b) Pili
- c) Plasmid

37- Selective permeability is the function of:

- a) Cell wall
- b) Cytoplasmic membrane
- c) Capsule
- d) Spores

38- Sex pili responsible for:

- a) Bacterial adhesion
- b) Bacterial motility
- c) Gene transfer
- d) All of the above

39- Each of the following statements concerning bacterial spores is correct EXCEPT:

- a) Their survival ability is based on their enhanced metabolic activity
- b) They are formed by Gram-positive rods
- c) They can be killed by being heated to 121°C for 20 minutes
- d) They contain much less water than bacterial cells

40- Which one of the following does not contain specific antigens used in identification of bacteria?

- a) Capsule
- b) Flagella
- c) Cell wall
- d) Ribosomes

41- Bacterial structure responsible for difference in staining reaction of Gram's stain is:

- a) Pili
- b) Capsule
- c) Cell membrane
- d) Peptidoglycan

42- The cell wall of Gram negative bacteria formed of the following EXCEPT:

- a) Thick peptidoglycan
- b) Lipopolysaccharide
- c) Periplasmic space
- d) Outer phospholipids membrane

43- Bacterial capsule is formed in:

- a) Ordinary media
- b) Enriched media
- c) Inside the host tissue
- d) Outside host tissue

44- Bacterial cytoplasmic membrane is responsible for:

- a) Respiration and energy production
- b) Passive permeability
- c) Cell adhesion
- d) Maintenance shape of the cell

45- The following statement regarding bacterial spores is CORRECT:

- a) It is a method of reproduction
- b) It can be destroyed at temperature 100°C for 10 min
- c) It can't be stained by Gram's stain
- d) Produced by all bacteria

46- The main structure of the cell wall of Gram +ve bacteria:

- a) Peptidoglycan
- b) Lipopolysaccharides
- c) Fatty acids
- d) All of the above

47- The motility of bacteria can be demonstrated by:

- a) Fresh preparation
- b) Gram stained preparation
- c) Fixed preparation
- d) All of the above

48- Bacterial ribosomes are:

- a) Found in the cell membrane of bacteria.
- b) Important for protein synthesis.
- c) Intranuclear in position.
- d) Similar to eukaryotic ribosomes in size

49- Bacterial structures that may be associated with pathogenicity are the following:

- a) Capsule
- b) Pili
- c) Toxins
- d) All of the above

50- Pili contribute to the pathogenicity of bacteria by helping in:

- a) Locomotion
- b) Adhesion
- c) Release of enzymes
- d) Antiphagocytic activity

51- Cytoplasmic membrane can be seen by:

- a) Electron microscope
- b) Ordinary light microscope
- c) Gram's stained film
- d) All of the above

52- All of the following statements refer to bacterial spores EXCEPT:

- a) Sporulation begins when nutrition is depleted.
- b) They do not take ordinary stain.
- c) They are formed within certain Gram +ve bacteria.
- d) They are less resistant than vegetative cells.

53- All the following descriptions refer to the nuclear body in bacteria EXCEPT:

- a) It does not contain nucleolus
- b) It is essential for the life of the bacteria.
- c) It is composed of one chromosome
- d) It has a nuclear membrane

54- Bacteria shaped like curved rods called:

- a) Cocci
- b) Bacilli
- c) Vibrio
- d) Spirochetes

55- Bacteria whose cell can't retain methyl violet after decolourization with alcohol are:

- a) Acid fast
- b) Gram negative
- c) Gram positive
- d) Anaerobes

56- Peptidoglycan is major constituent of cell wall of:

- a) Gram-positive bacteria
- b) Gram-negative bacteria
- c) Fungi
- d) None of the above

57- Lipopolysaccharide is a major constituent of cell wall in:

- a) Gram-positive bacteria
- b) Gram-negative bacteria
- c) Fungi
- d) None of the above

58- The chemical nature of capsule may be:

- a) Polysaccharide
- b) Polypeptide
- c) a & b
- d) None of the above

59- Match:

- | | |
|--------------------------|-------------------|
| 1- Pneumococcal capsule | a- Polysaccharide |
| 2- B. anthracis capsule | b- Polypeptide |
| 3- Meningococcal capsule | |

60- Match:

- | | |
|---|----------------------------|
| 1- Responsible for selective permeability | a- Inclusion granules |
| 2- Storage of nutrients | b- Cytoplasmic membrane |
| 3- Responsible for antigenicity | c- Somatic O antigen |
| 4- Responsible for gram-stain. | d- Cell wall Peptidoglycan |

61- Match: Choose the appropriate function of each bacterial structure:

- | | |
|--|-------------------|
| 1- Transfer genetic material | a- Spore |
| 2- selective permeability | b- Cell wall |
| 3- Responsible for motility | c- Cell membrane |
| 4- Protect bacteria outside human body | d- Fimbria (Pili) |
| 5- Responsible for the shape of the bacteria | e- Flagella |