

Unit 2: Bacteria and Viruses

Multiple Choice Questions

(EXERCISE)

- Which of the following component is not found in all kinds of bacteria?
 - Ribosomes
 - Cell membrane
 - Nucleoid
 - Capsule
- The bacterial chromosome is typically:
 - Linear, double-stranded DNA
 - Circular, single-stranded RNA
 - Circular, double-stranded DNA
 - Linear, single-stranded DNA
- In bacterial cells, respiration occurs at:
 - Mitochondria
 - Cell membrane
 - Ribosomes
 - Endoplasmic reticulum
- Which group of bacteria is known as a good source of antibiotics?
 - Omnibacteria
 - Spirochaetes
 - Pseudomonas
 - Actinomycetes
- What is the primary function of flagella in bacterial cells?
 - DNA replication
 - Cell division
 - Motility
 - Protein synthesis
- Which type of motility in bacteria is mediated by pili?
 - Brownian movement
 - Gliding motility
 - Twitching motility
 - Swarming motility
- Which of the following bacterial structures is responsible for detecting and responding to chemicals?
 - Capsule
 - Pili
 - Flagella
 - Ribosomes
- Which one of the following is not Nitrifying bacteria?
 - Nitrosomonas*
 - Nitrobacter*
 - Azotobacter*
 - Pseudomonas*
- The enzyme responsible for converting HIV RNA into DNA is:
 - RNA polymerase
 - Reverse transcriptase
 - DNA helicase
 - Integrase
- The HIV capsid contains:
 - Single-stranded DNA and reverse transcriptase
 - Single-stranded RNA and reverse transcriptase
 - Double-stranded DNA and integrase
 - Double-stranded RNA and RNA polymerase

SLO BASED MULTIPLE CHOICE QUESTIONS

Structure of Bacteria

- The major component of bacterial cell wall is:
 - Peptidoglycan
 - Lecithin
 - Disaccharides
 - All of above
- The cell wall of Gram-positive and gram-negative bacteria differs in:
 - Gram positive contain thin layer of peptidoglycan
 - Gram negative contain less-lipid content
 - Gram negative contain lesser periplasmic space
 - Gram positive contain thick layer of peptidoglycan and less lipid content
- Gram-positive bacteria stain purple because they retain:
 - Secondary dye
 - Violet dye
 - Safranin
 - Alcohol
- Which bacteria possess pore made up of porin protein, for specific molecules?
 - Gram positive
 - Gram negative
 - Both (a) and (b)
 - None of them

15. At some points, bacterial cell membrane invaginates to form vesicles, tubules or lamellae in cytoplasm, these structures are known as:

- (a) Ribosomes (b) Endosomes
(c) Mesosomes (d) Peroxisomes

16. Which of the following is not the function of mesosomes?

- (a) Adhesion (b) DNA replication
(c) Cell division (d) Respiration

17. Chromosome of bacteria differs from eukaryotic chromosomes in:

- (a) Have nucleosome
(b) Have histones
(c) Lack histones
(d) Bounded by membrane

18. Circular, double-stranded, extra-chromosomal DNA in bacteria is called:

- (a) Genomic DNA
(b) Chromosomal DNA
(c) Episome
(d) Plasmid

19. Plasmids are used to carry gene of interest for the synthesis of specific:

- (a) Polysaccharides (b) Proteins
(c) Nucleic acids (d) Lipids

20. The structure in bacteria, that enable them to resist against antibiotics:

- (a) Plasmids (b) Ribosomes
(c) Cell wall (d) Cell membrane

21. Smaller subunit of bacterial ribosome sediments at:

- (a) 70S (b) 50S
(c) 80S (d) 30S

22. Many bacteria can survive extended periods of harsh conditions by forming specialized cells called:

- (a) Exospores (b) Endospores
(c) Microspores (d) Megaspores

23. The process by which bacteria make endospores is called:

- (a) Sporulation (b) Fragmentation
(c) Sporogony (d) Lysis

Motility in Bacteria

24. When a bacterial population moves together by means of flagella, it is called:

- (a) Twitching (b) Crawling
(c) Brownian movement (d) Swarming

25. Counter-clockwise rotation of flagellum pushes the cell:

- (a) Forward (b) Backward
(c) Medially (d) Laterally

26. Which of the following is similar to twitching movements?

- (a) Gliding (b) Crawling
(c) Brownian movement (d) Swarming

27. The movement used to move over surfaces mediated by pili is called:

- (a) Crawling
(b) Twitching
(c) Both (a) and (b)
(d) Flagella movement

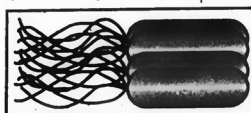
28. The type of movement in bacteria which is due to expansion created by pushing force of dividing cells is:

- (a) Gliding (b) Twitching
(c) Sliding (d) Swarming

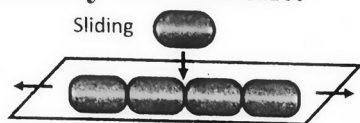
29. Spirochetes move by:

- (a) Flexing
(b) Axial filament
(c) Modified flagellum
(d) All of above

30. Identify movement:



- (a) Flagella movement
(b) Swarming
(c) Sliding
(d) Twitching

31. Identify movement:

- (a) Swimming (b) Swarming
(c) Sliding (d) Gliding

32. Identify bacteria:

- (a) Atrichous (b) Monotrichous
(c) Peritrichous (d) Lophotrichous

33. The bacteria with tuft of flagella at both poles is:

- (a) Atrichous (b) Peritrichous
(c) Amphitrichous (d) Lophotrichous

34. Basal body consisting of (one pair) of rotating rings is found in:

- (a) Gram negative
(b) Gram positive
(c) Both (a) and (b)
(d) None of them

35. The structure which connects basal body with filament, in bacteria is:

- (a) Pilus (b) Rotating ring
(c) Plasmid (d) Hook

Bacteria; Ecology and Diversity**36. The fossil record of prokaryotes shows that archea and bacteria were abundant years ago:**

- (a) 2.5 billion (b) 3.5 billion
(c) 3.5 million (d) 1.5 billion

37. Margulis and Schwartz classified bacteria into phyla:

- (a) 27 (b) 8
(c) 16 (d) 5

38. *Escherichia coli* belongs to:

- (a) Omnibacteria (b) Cyanobacteria
(c) Spirochetes (d) Spiroplasmas

39. The group of bacteria which played most important role in history of the Earth for increasing free oxygen in atmosphere:

- (a) Mycoplasmas (b) Spiroplasmas
(c) Pseudomonas (d) Cyanobacteria

40. The mats on the sediments in the sea are dominated by:

- (a) Pseudomonas
(b) Cyanobacteria
(c) Actinomycetes
(d) Chemosynthetic bacteria

41. Group of bacteria which lack cell wall resistant to penicillin are:

- (a) Mycoplasmas (b) Spiroplasmas
(c) Spirochetes (d) Both (a) and (b)

42. Many cyanobacteria fix atmospheric nitrogen in their special cells called:

- (a) Akinites (b) Hormogonia
(c) Heterocysts (d) Resting spore

43. Which bacterial group possess 2 to more than 100 flagella?

- (a) Spirochetes (b) *E. coli*
(c) Cyanobacteria (d) Pseudomonas

44. *Azotobacter* belongs to:

- (a) Chemosynthetic bacteria
(b) Actinomycetes
(c) N₂-fixing bacteria
(d) Omnibacter

★45. About new antibiotics from actinomycetes are being discovered each year.

- (a) 15 (b) 100
(c) 150 (d) 180

46. *Bacillus thuringiensis* is Gram soil dwelling bacterium, commonly used as

- (a) Negative, recycler
(b) Positive, biopesticide
(c) Negative, biopesticide
(d) Positive, recycler

47. Which of the following is nitrifying bacteria?

- (a) *Azotobacter* (b) *Pseudomonas*
(c) *E.coli* (d) *Treponema*

Normal Flora

48. Which of the following is not included in normal flora of humans?

- (a) Bacteria (b) Fungi
(c) Protists (d) Plants

49. The most likely organ to, get colonized by microbial species is:

- (a) Skin (b) Heart
(c) Brain (d) Blood

50. Enteric bacteria secrete:

- (a) Vitamin K & B₁₂
(b) Vitamin B₆ & C
(c) only Vitamin K
(d) All of above

Virus

51. Size range of viruses is from 20 nm to:

- (a) 250 μ m (b) 350 μ m
(c) 250 nm (d) 600 μ m

52. The largest size viruses are:

- (a) Parvoviruses (b) Pox viruses
(c) Adenoviruses (d) Herpes viruses

53. Viruses can pass through filter paper because they are..... times smaller to bacteria:

- (a) 100 to 10,000 (b) 10 to 100
(c) 10 to 1000 (d) 1 to 10,000

54. Bacterial viruses (bacteriophages) may be icosahedral which means having:

- (a) 10 faces (b) 15 faces
(c) 20 faces (d) 100 faces

55. Number of capsomeres in virus causing common cold are:

- (a) 152 (b) 252
(c) 162 (d) 262

56. The best known phages of *E.coli* are:

- (a) P-phages (b) R-phages
(c) S-phages (d) T-phages

57. How many tail fibres are attached with end plate of a bacteriophage:

- (a) 2 (b) 4
(c) 6 (d) 8

58. The spikes of HIV are made up of:

- (a) Glycolipids (b) Glycoproteins
(c) Nucleoproteins (d) Lipoproteins

59. The average diameter of HIV is about:

- (a) 250 nm (b) 180 nm
(c) 100 nm (d) 10 nm

60. The most distinguishing character of retroviruses is the presence of enzyme:

- (a) DNA polymerase
(b) Restriction endonuclease
(c) DNAase
(d) Reverse transcriptase

61. The AIDS causing virus was given name of Human Immunodeficiency virus (HIV) in:

- (a) 1984 (b) 1896
(c) 1986 (d) 2001

62. Experts have concluded that HIV originated in the jungles of Africa among wild:

- (a) Chimps (b) Cats
(c) Beasts (d) Elephants

63. Bacteria whose genome has DNA of some other organism is called:

- (a) Pathogenic bacteria
(b) Mutagenic bacteria
(c) Methanogenic bacteria
(d) Transgenic bacteria

64. Which is not true about shape of the head of bacteriophages?

- (a) Two triangles having a common base
(b) Prism shaped
(c) Octagonal
(d) Elongated

ANSWER KEY

1.	d	2.	e	3.	b	4.	d	5.	c	6.	c	7.	c	8.	d
9.	b	10.	b	11.	a	12.	d	13.	b	14.	b	15.	c	16.	a
17.	c	18.	d	19.	b	20.	a	21.	d	22.	b	23.	a	24.	d
25.	a	26.	a	27.	c	28.	c	29.	d	30.	b	31.	c	32.	d
33.	c	34.	b	35.	d	36.	b	37.	c	38.	a	39.	d	40.	b
41.	d	42.	c	43.	a	44.	c	45.	c	46.	b	47.	a	48.	d
49.	a	50.	a	51.	c	52.	b	53.	c	54.	c	55.	b	56.	d
57.	c	58.	b	59.	c	60.	d	61.	c	62.	a	63.	d	64.	c



free ilm.