Chapter 02 Test Bank

Student: _____

1.

The biological term, "cell" came about through the study of _____ cells.

A. tomato
B. wood
C. bone
D. cork
E. blood

2. Which of the following is not a statement of the Cell Theory?
A. all cells arise from preexisting cells
B. all cells contain the hereditary material, DNA
C. all organisms are made up of cells
D. the cell is the basic unit of life
E. All of these are statements of the Cell Theory

3. Who among the following was not directly involved in the development of the Cell Theory?
A. Hooke
B. Schleiden
C. Schwann
D. Virchow
E. All of these men were involved in the development of the Cell Theory

4. The Cell Theory is
A. an educated guess.
B. a hypothesis that is in need of testing.
C.

a speculative idea.

D.

untested but quite probable.

E.

an explanation accepted as a major principle of biology.

5. The primary cell wall of a plant
A. consists of cellulose and lignin.
B.

forms inside of the secondary cell wall.

C. consists primarily of cellulose.
D. gives wood its characteristic hardness.
E. is described by more than one of these characteristics.

6. All of the following statements are true about lignin except one. Choose the exception.
A. Lignin is indigestible by all living organisms.
B. Lignin is more abundant in hardwood species of trees than softwood species.
C. Lignin protects the plant from pathogens.
D. Lignin is found in secondary cell walls.
E. Lignin is not found in primary cell walls.

7. Movement of materials from one plant cell to another is accomplished through
A. the cytosol.
B. the middle lamella.
C. microtubules.
D. plasmodesmata.
E. the cytoskeleton.

8. The "cement" that glues plant cells together is
A. cytosol.
B. lignin.
C. cellulose.
D. the cytoskeleton.
E. pectin.

9. If you could travel from the inside of one plant cell into an adjacent plant cell, in what order would you find the following plant cell structures?
A. cytoplasm, plasma membrane, cell wall, middle lamella
B. plasma membrane, cytoplasm, middle lamella, cell wall
C. cytoplasm, plasma membrane, middle lamella, cell wall
D. cytoplasm, middle lamella, plasma membrane, cell wall

10. microtubules and microfilaments compose the structure of the
A. cell wall.
B. plasmodesmata.
C. plasma membrane.
D. middle lamella.
E. cytoskeleton.

11. A plant plasma membrane is made up of _____ and _____.
A. cellulose … lignin
B. phospholipids … carbohydrates
C. phospholipids … proteins
D. cellulose … cholesterol
E. phospholipids … cholesterol

12. Plant cell A is hypertonic to plant cell B. Which way will water flow?
A. From A to B
B. From B to A
C. Equally from B to A and A to B
D. There will be no flow of water whatsoever

13. When a plant cell is placed in a hypotonic solution, the cell becomes
A. hypertonic.
B. plasmolyzed.
C. turgid.
D. osmotic.

14. The free movement of water across a membrane is called
A. active transport.
B. simple diffusion.
C. plasmolysis.
D. osmosis.

15.

Of these three items – concentration gradient, energy, membrane proteins – which two are needed for active transport to take place?

A. only a concentration gradient
B. all three are needed for active transport to take place
C. a concentration gradient and energy
D. a concentration gradient and membrane proteins
E. energy and membrane proteins

16. In drought conditions when soils are dry for long periods of time, plants cells become
A. hypertonic.
B. plasmolyzed.
C. turgid.
D. osmotic

17. _____ is (are) necessary for diffusion to take place.
A. A cell membrane
B. Membrane proteins
C. Energy
D. A concentration gradient
E. More than one of these

18. Which of the following pigments is most abundant in chloroplasts?
A. carotene
B. xanthophyll
C. melanin
D. chlorophyll

19. Plant pigments are specifically located within
A. thylakoid membranes.
B. stroma.
C. plasma membranes.
D. nuclei.

20. Which of the following terms is most closely associated with grana?
A. leucoplasts
B. stroma
C. thylakoids
D. vacuoles
E. plastids

21. Carotenoids are found in
A. leucoplasts.
B. amyloplasts.
C. chloroplasts.
D. chromoplasts.
E. more than one of these.

22. Which of the following animals produces carotenoids?
A. pea aphids
B. flamingos
C. chickens
D.

none of these – carotenoids are only produced by plants

23. The mitochondrial equivalent to grana is (are)
A. the matrix.
B. cristae.
C. stroma.
D. plasma membranes

24. What features in common with bacteria led scientists to conclude that chloroplasts and mitochondria evolved from bacteria?
A. Their DNA is bacteria-like.
B. Their ribosomes are bacteria-like.
C. Cell division in both is like bacteria cell division.
D. Their inner membranes are bacteria-like.
E. Chloroplasts and mitochondria share all of these bacteria-like features.

25. Bacterial endosymbionts of sap-sucking insects provide needed _____ to their hosts.
A. DNA
B. sugars
C. amino acids
D. fats
E. oils

26. Anthocyanin is found in which organelles?
A. central vacuoles
B. chromoplasts
C. chloroplasts
D. leucoplasts
E. endoplasmic reticula

27. Regulating metabolism and controlling cellular reproduction by destruction of proteins is accomplished by
A. peroxisomes
B. proteasomes
C. glyoxysomes
D. chromosomes

28. The storage, modification, and packaging of proteins is accomplished by the
A. endoplasmic reticula.
B. mitochondria.
C. proteasomes.
D. Golgi apparatus.
E. central vacuole.

29. Most specifically, ribosomes are produced in the
A. chloroplasts.
B. nucleus.
C. nucleoli.
D. central vacuole.
E. rough endoplasmic reticula.

30. Ribosomes are the sites of the synthesis of
A. proteins.
B. lipids.
C. carbohydrates.
D. nucleic acids.

31. The plastic ends of shoelaces that help prevent the shoelace from unraveling is called an aglet. What is the equivalent structure to an aglet on a chromosome?
A. centromere
B. chromatid
C. chromatin
D. nucleotide
E. telomere

32. Which phase of cell division is most like the opposite of prophase?
A. anaphase
B. metaphase
C. telophase
D. cytokinesis

33. In which phase of mitosis do chromatids separate?
A. metaphase
B. prophase
C. anaphase
D. telophase

34. Phragmoplasts are most closely associated with
A. prophase
B. metaphase
C. anaphase
D. telophase
E. cytokinesis

35. The phragmoplast eventually becomes the
A. nucleus.
B. cell wall.
C. plasma membrane.
D. middle lamella.
E.

plasmodesmata.

36. If a plant cell is placed in a hypertonic solution, so much water enters the protoplast that it becomes turgid.
True False

37.

Active transport of substances into a cell always requires the expenditure of energy.

True False

38. The quantity of water entering a cell in an isotonic solution is equal to the amount of water exiting.
True False

39. The cells of a wilted plant have lost so much water that they become plasmolyzed.
True False

40. The Endosymbiont Theory postulates that some organelles in cells were once independent organisms.
True False

41. If vincristine, a drug that disrupts microtubules, is applied to dividing cells, chromosomes will not form.
True False

42. According to the Cell Theory, DNA is the genetic material in all cells.
True False

43. The cell is the basic unit of life.
True False

Chapter 02 Test Bank Key

1.

The biological term, "cell" came about through the study of _____ cells.

A. tomato
B. wood
C. bone
D. cork
E. blood

Accessibility: Keyboard Navigation
Gradable: automatic

2. Which of the following is not a statement of the Cell Theory?
A. all cells arise from preexisting cells
B. all cells contain the hereditary material, DNA
C. all organisms are made up of cells
D. the cell is the basic unit of life
E. All of these are statements of the Cell Theory

Accessibility: Keyboard Navigation
Gradable: automatic

3. Who among the following was not directly involved in the development of the Cell Theory?
A. Hooke
B. Schleiden
C. Schwann
D. Virchow
E. All of these men were involved in the development of the Cell Theory

Accessibility: Keyboard Navigation
Gradable: automatic

4. The Cell Theory is
A. an educated guess.
B. a hypothesis that is in need of testing.
C.

a speculative idea.

D.

untested but quite probable.

E.

an explanation accepted as a major principle of biology.

Accessibility: Keyboard Navigation
Gradable: automatic

5. The primary cell wall of a plant
A. consists of cellulose and lignin.
B.

forms inside of the secondary cell wall.

C. consists primarily of cellulose.
D. gives wood its characteristic hardness.
E. is described by more than one of these characteristics.

Accessibility: Keyboard Navigation
Gradable: automatic

6. All of the following statements are true about lignin except one. Choose the exception.
A. Lignin is indigestible by all living organisms.
B. Lignin is more abundant in hardwood species of trees than softwood species.
C. Lignin protects the plant from pathogens.
D. Lignin is found in secondary cell walls.
E. Lignin is not found in primary cell walls.

Accessibility: Keyboard Navigation
Gradable: automatic

7. Movement of materials from one plant cell to another is accomplished through
A. the cytosol.
B. the middle lamella.
C. microtubules.
D. plasmodesmata.
E. the cytoskeleton.

Accessibility: Keyboard Navigation
Gradable: automatic

8. The "cement" that glues plant cells together is
A. cytosol.
B. lignin.
C. cellulose.
D. the cytoskeleton.
E. pectin.

Accessibility: Keyboard Navigation
Gradable: automatic

9. If you could travel from the inside of one plant cell into an adjacent plant cell, in what order would you find the following plant cell structures?
A. cytoplasm, plasma membrane, cell wall, middle lamella
B. plasma membrane, cytoplasm, middle lamella, cell wall
C. cytoplasm, plasma membrane, middle lamella, cell wall
D. cytoplasm, middle lamella, plasma membrane, cell wall

Accessibility: Keyboard Navigation
Gradable: automatic

10. microtubules and microfilaments compose the structure of the
A. cell wall.
B. plasmodesmata.
C. plasma membrane.
D. middle lamella.
E. cytoskeleton.

Accessibility: Keyboard Navigation
Gradable: automatic

11. A plant plasma membrane is made up of _____ and _____.
A. cellulose … lignin
B. phospholipids … carbohydrates
C. phospholipids … proteins
D. cellulose … cholesterol
E. phospholipids … cholesterol

Accessibility: Keyboard Navigation
Gradable: automatic

12. Plant cell A is hypertonic to plant cell B. Which way will water flow?
A. From A to B
B. From B to A
C. Equally from B to A and A to B
D. There will be no flow of water whatsoever

Accessibility: Keyboard Navigation
Gradable: automatic

13. When a plant cell is placed in a hypotonic solution, the cell becomes
A. hypertonic.
B. plasmolyzed.
C. turgid.
D. osmotic.

Accessibility: Keyboard Navigation
Gradable: automatic

14. The free movement of water across a membrane is called
A. active transport.
B. simple diffusion.
C. plasmolysis.
D. osmosis.

Accessibility: Keyboard Navigation
Gradable: automatic

15.

Of these three items – concentration gradient, energy, membrane proteins – which two are needed for active transport to take place?

A. only a concentration gradient
B. all three are needed for active transport to take place
C. a concentration gradient and energy
D. a concentration gradient and membrane proteins
E. energy and membrane proteins

Accessibility: Keyboard Navigation
Gradable: automatic

16. In drought conditions when soils are dry for long periods of time, plants cells become
A. hypertonic.
B. plasmolyzed.
C. turgid.
D. osmotic

Accessibility: Keyboard Navigation
Gradable: automatic

17. _____ is (are) necessary for diffusion to take place.
A. A cell membrane
B. Membrane proteins
C. Energy
D. A concentration gradient
E. More than one of these

Accessibility: Keyboard Navigation
Gradable: automatic

18. Which of the following pigments is most abundant in chloroplasts?
A. carotene
B. xanthophyll
C. melanin
D. chlorophyll

Accessibility: Keyboard Navigation
Gradable: automatic

19. Plant pigments are specifically located within
A. thylakoid membranes.
B. stroma.
C. plasma membranes.
D. nuclei.

Accessibility: Keyboard Navigation
Gradable: automatic

20. Which of the following terms is most closely associated with grana?
A. leucoplasts
B. stroma
C. thylakoids
D. vacuoles
E. plastids

Accessibility: Keyboard Navigation
Gradable: automatic

21. Carotenoids are found in
A. leucoplasts.
B. amyloplasts.
C. chloroplasts.
D. chromoplasts.
E. more than one of these.

Accessibility: Keyboard Navigation
Gradable: automatic

22. Which of the following animals produces carotenoids?
A. pea aphids
B. flamingos
C. chickens
D.

none of these – carotenoids are only produced by plants

Accessibility: Keyboard Navigation
Gradable: automatic

23. The mitochondrial equivalent to grana is (are)
A. the matrix.
B. cristae.
C. stroma.
D. plasma membranes

Accessibility: Keyboard Navigation
Gradable: automatic

24. What features in common with bacteria led scientists to conclude that chloroplasts and mitochondria evolved from bacteria?
A. Their DNA is bacteria-like.
B. Their ribosomes are bacteria-like.
C. Cell division in both is like bacteria cell division.
D. Their inner membranes are bacteria-like.
E. Chloroplasts and mitochondria share all of these bacteria-like features.

Accessibility: Keyboard Navigation
Gradable: automatic

25. Bacterial endosymbionts of sap-sucking insects provide needed _____ to their hosts.
A. DNA
B. sugars
C. amino acids
D. fats
E. oils

Accessibility: Keyboard Navigation
Gradable: automatic

26. Anthocyanin is found in which organelles?
A. central vacuoles
B. chromoplasts
C. chloroplasts
D. leucoplasts
E. endoplasmic reticula

Accessibility: Keyboard Navigation
Gradable: automatic

27. Regulating metabolism and controlling cellular reproduction by destruction of proteins is accomplished by
A. peroxisomes
B. proteasomes
C. glyoxysomes
D. chromosomes

Accessibility: Keyboard Navigation
Gradable: automatic

28. The storage, modification, and packaging of proteins is accomplished by the
A. endoplasmic reticula.
B. mitochondria.
C. proteasomes.
D. Golgi apparatus.
E. central vacuole.

Accessibility: Keyboard Navigation
Gradable: automatic

29. Most specifically, ribosomes are produced in the
A. chloroplasts.
B. nucleus.
C. nucleoli.
D. central vacuole.
E. rough endoplasmic reticula.

Accessibility: Keyboard Navigation
Gradable: automatic

30. Ribosomes are the sites of the synthesis of
A. proteins.
B. lipids.
C. carbohydrates.
D. nucleic acids.

Accessibility: Keyboard Navigation
Gradable: automatic

31. The plastic ends of shoelaces that help prevent the shoelace from unraveling is called an aglet. What is the equivalent structure to an aglet on a chromosome?
A. centromere
B. chromatid
C. chromatin
D. nucleotide
E. telomere

Accessibility: Keyboard Navigation
Gradable: automatic

32. Which phase of cell division is most like the opposite of prophase?
A. anaphase
B. metaphase
C. telophase
D. cytokinesis

Accessibility: Keyboard Navigation
Gradable: automatic

33. In which phase of mitosis do chromatids separate?
A. metaphase
B. prophase
C. anaphase
D. telophase

Accessibility: Keyboard Navigation
Gradable: automatic

34. Phragmoplasts are most closely associated with
A. prophase
B. metaphase
C. anaphase
D. telophase
E. cytokinesis

Accessibility: Keyboard Navigation
Gradable: automatic

35. The phragmoplast eventually becomes the
A. nucleus.
B. cell wall.
C. plasma membrane.
D. middle lamella.
E.

plasmodesmata.

Accessibility: Keyboard Navigation
Gradable: automatic

36. If a plant cell is placed in a hypertonic solution, so much water enters the protoplast that it becomes turgid.
FALSE

Accessibility: Keyboard Navigation
Gradable: automatic

37.

Active transport of substances into a cell always requires the expenditure of energy.

TRUE

Accessibility: Keyboard Navigation
Gradable: automatic

38. The quantity of water entering a cell in an isotonic solution is equal to the amount of water exiting.
TRUE

Accessibility: Keyboard Navigation
Gradable: automatic

39. The cells of a wilted plant have lost so much water that they become plasmolyzed.
TRUE

Accessibility: Keyboard Navigation
Gradable: automatic

40. The Endosymbiont Theory postulates that some organelles in cells were once independent organisms.
TRUE

Accessibility: Keyboard Navigation
Gradable: automatic

41. If vincristine, a drug that disrupts microtubules, is applied to dividing cells, chromosomes will not form.
FALSE

Accessibility: Keyboard Navigation
Gradable: automatic

42. According to the Cell Theory, DNA is the genetic material in all cells.
FALSE

Accessibility: Keyboard Navigation
Gradable: automatic

43. The cell is the basic unit of life.
TRUE

Accessibility: Keyboard Navigation
Gradable: automatic

Chapter 02 Test Bank Summary

Category	*# of Questions*
Accessibility: Keyboard Navigation	43
Gradable: automatic	43