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Set 2

1. Who discovered the nucleus?
   a) Robert Hooke
   b) Antonie van Leeuwenhoek
   c) Robert Brown
   d) Rudolf Virchow
2. The hypothesis that "the bodies of animals and plants are composed of cells and products of cells" was proposed by:
   a) Schleiden
   b) Schwann
   c) Virchow
   d) Leeuwenhoek
3. The cell theory states that all cells arise from:
   a) Spontaneous generation
   b) Pre-existing cells
   c) Abiotic materials
   d) Bacterial fermentation
4. In prokaryotes, the genetic material is:
   a) Linear DNA
   b) Circular DNA
   c) Associated with histones
   d) Enclosed by a nuclear membrane
5. The structure formed by the infolding of the plasma membrane in prokaryotes is the:
   a) Chromatin
   b) Mesosome
   c) Plasmid
   d) Nucleoid
6. The model that describes the dynamic nature of the plasma membrane is the:
   a) Unit membrane model
   b) Fluid mosaic model
   c) Lamellar model
   d) Sandwich model
7. Which of the following is a double membrane-bound organelle?
   a) Lysosome
   b) Peroxisome
   c) Mitochondrion
   d) Ribosome

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8. The semi-fluid matrix of the cell is the:
   a) Nucleoplasm
   b) Cytoplasm
   c) Stroma
   d) Karyolymph
9. The organelle involved in the formation of acrosome is the:
   a) Endoplasmic Reticulum
   b) Golgi apparatus
   c) Mitochondria
   d) Lysosome
10. The organelle that is involved in the synthesis of ATP is the:
    a) Chloroplast
    b) Mitochondrion
    c) Ribosome
    d) Nucleus
11. Which of the following is a part of the endomembrane system?
    a) Mitochondria
    b) Chloroplast
    c) Vacuole
    d) Peroxisome
12. Smooth Endoplasmic Reticulum (SER) is involved in:
    a) Protein synthesis
    b) Lipid synthesis
    c) Carbohydrate metabolism
    d) Detoxification
13. The organelle that contains hydrolytic enzymes is the:
    a) Ribosome
    b) Lysosome
    c) Peroxisome
    d) Glyoxysome
14. In plant cells, the vacuole is bound by a single membrane called:
    a) Tonoplast
    b) Plasmalemma
    c) Cristae
    d) Lamella
15. The structure formed by the stacking of thylakoids in chloroplasts is called:
    a) Stroma
    b) Granum
    c) Cristae
    d) Lumen
16. The 80S ribosomes are found in:
    a) Prokaryotic cells

b) Eukaryotic cells
c) Both prokaryotic and eukaryotic cells
d) Mitochondria and chloroplasts of eukaryotes

17. The cytoskeleton does NOT include:
a) Microtubules
b) Microfilaments
c) Mesosomes
d) Intermediate filaments
18. The core of cilia and flagella, which has a 9+2 array of microtubules, is called the:
a) Basal body
b) Axoneme
c) Centriole
d) Kinetochore
19. Centrioles are found in:
a) Animal cells
b) Plant cells
c) All eukaryotic cells
d) Prokaryotic cells
20. The primary constriction of a chromosome is called the:
a) Kinetochore
b) Centromere
c) Satellite
d) Telomere
21. Chromosomes with a middle centromere are called:
a) Metacentric
b) Sub-metacentric
c) Acrocentric
d) Telocentric
22. The site for ribosomal RNA synthesis is the:
a) Nucleolus
b) Nucleoplasm
c) Chromatin
d) Nuclear pore
23. Which of the following is NOT a function of the plasma membrane?
a) Transport of molecules
b) Cell recognition
c) Protein synthesis
d) Signal transduction
24. The movement of water across a semi-permeable membrane is called:
a) Diffusion
b) Osmosis

c) Active transport
d) Facilitated diffusion

25. The structure that holds two chromatids together is the:
a) Kinetochore
b) Centrosome
c) Centromere
d) Centriole

26. Which of the following is a non-membrane bound organelle?
a) Lysosome
b) Ribosome
c) Mitochondrion
d) Vacuole

27. The cell wall of plants is made of:
a) Chitin
b) Cellulose
c) Peptidoglycan
d) Lipopolysaccharide

28. The middle lamella is composed mainly of:
a) Cellulose
b) Hemicellulose
c) Calcium pectate
d) Lignin

29. Which of the following plastids stores oils and fats?
a) Chloroplast
b) Chromoplast
c) Amyloplast
d) Elaioplast

30. The model that describes the quasi-fluid nature of the lipid bilayer is the:
a) Sandwich model
b) Unit membrane model
c) Fluid mosaic model
d) Lamellar model

31. The organelle that helps in cell division in animal cells is the:
a) Nucleus
b) Centrosome
c) Golgi apparatus
d) ER

32. The smallest cells are:
a) Bacteria
b) Mycoplasmas
c) PPLO
d) Viruses

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33. Which of the following is a Gram-positive bacteria?
    a) Bacillus
    b) E. coli
    c) Salmonella
    d) Vibrio
34. The plasmid DNA confers resistance to:
    a) Viruses
    b) Antibiotics
    c) Heat
    d) Pressure
35. The structure that helps bacteria attach to host tissues is:
    a) Flagella
    b) Pili
    c) Fimbriae
    d) Mesosome
36. The site of aerobic respiration is the:
    a) Chloroplast
    b) Mitochondrion
    c) Lysosome
    d) Ribosome
37. The organelle that contains its own DNA is the:
    a) Nucleus and Mitochondrion
    b) Mitochondrion and Chloroplast
    c) Chloroplast and Lysosome
    d) Lysosome and Vacuole
38. The organelle involved in the synthesis of steroidal hormones is the:
    a) Rough ER
    b) Smooth ER
    c) Golgi apparatus
    d) Lysosome
39. The organelle that packages materials for secretion is the:
    a) Endoplasmic Reticulum
    b) Golgi apparatus
    c) Lysosome
    d) Vacuole
40. The organelle that contains cristae is the:
    a) Chloroplast
    b) Mitochondrion
    c) Nucleus
    d) Lysosome
41. The structure that connects the cytoplasm of adjacent plant cells is:
    a) Tight junction

b) Plasmodesmata
c) Desmosome
d) Gap junction

42. The organelle that is not found in animal cells is the:
 a) Centriole
 b) Chloroplast
 c) Mitochondrion
 d) Lysosome
43. The organelle that is not found in plant cells is the:
 a) Cell wall
 b) Chloroplast
 c) Centriole
 d) Large vacuole
44. The organelle that is involved in the formation of the acrosome of sperm is the:
 a) Mitochondrion
 b) Golgi apparatus
 c) Lysosome
 d) Nucleus
45. The organelle that is involved in the degradation of macromolecules is the:
 a) Ribosome
 b) Lysosome
 c) Peroxisome
 d) Glyoxysome
46. The organelle that is involved in the synthesis of phospholipids is the:
 a) Rough ER
 b) Smooth ER
 c) Golgi apparatus
 d) Lysosome
47. The organelle that is involved in the synthesis of ATP is the:
 a) Chloroplast
 b) Mitochondrion
 c) Ribosome
 d) Nucleus
48. The organelle that is involved in the synthesis of RNA is the:
 a) Nucleolus
 b) Nucleus
 c) Ribosome
 d) Both a and b
49. The organelle that is involved in the synthesis of proteins is the:
 a) Ribosome
 b) Nucleus

c) Mitochondrion
d) All of the above

50. The organelle that is involved in the storage of water and minerals is the:
a) Vacuole
b) Lysosome
c) Golgi apparatus
d) Endoplasmic Reticulum

Answer Key: Set 2

1. c) Robert Brown
2. b) Schwann
3. b) Pre-existing cells
4. b) Circular DNA
5. b) Mesosome
6. b) Fluid mosaic model
7. c) Mitochondrion
8. b) Cytoplasm
9. b) Golgi apparatus
10. b) Mitochondrion
11. c) Vacuole
12. b) Lipid synthesis
13. b) Lysosome
14. a) Tonoplast
15. b) Granum
16. b) Eukaryotic cells
17. c) Mesosomes
18. b) Axoneme
19. a) Animal cells
20. b) Centromere
21. a) Metacentric
22. a) Nucleolus
23. c) Protein synthesis
24. b) Osmosis
25. c) Centromere
26. b) Ribosome
27. b) Cellulose
28. c) Calcium pectate
29. d) Elaioplast
30. c) Fluid mosaic model
31. b) Centrosome

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32. b) Mycoplasmas
33. a) Bacillus
34. b) Antibiotics
35. c) Fimbriae
36. b) Mitochondrion
37. b) Mitochondrion and Chloroplast
38. b) Smooth ER
39. b) Golgi apparatus
40. b) Mitochondrion
41. b) Plasmodesmata
42. b) Chloroplast
43. c) Centriole
44. b) Golgi apparatus
45. b) Lysosome
46. b) Smooth ER
47. b) Mitochondrion
48. d) Both a and b
49. a) Ribosome
50. a) Vacuole