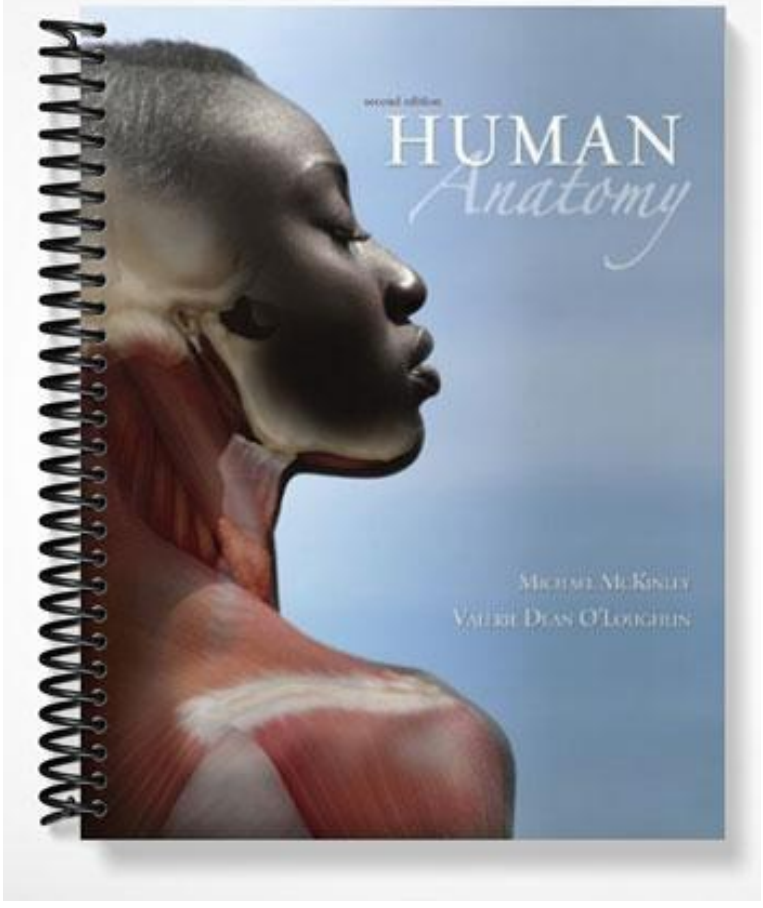
TEST BANK


second edition
HUMAN
Anatomy
Michael McKinley
Valerie Dean O'Loughlin

Chapter 02
The Cell—Basic Unit of Structure and Function

Multiple Choice Questions

1. The unit of measurement often used to measure cell size is the
a. Millimeter
B. Micrometer
c. Hectometer
d. Centimeter
e. Meter

Level: Easy

2. The microscope of choice for a detailed three-dimensional study of the surface of a specimen is the
A. Scanning electron microscope
b. Transmission electron microscope
c. Light microscope
d. Naked eye
e. Telescope

Level: Easy

3. An image produced by passing visible light through a specimen is obtained using the
a. Transmission electron microscope
B. Light microscope
c. Scanning electron microscope
d. Dissecting scope
e. Ocular examination method

Level: Easy

4. Among the functions of human body cells are
a. Covering
b. Storage
c. Movement
d. Communication
E. All of the choices are correct

Level: Easy

5. Among the functions of human body cells are
a. Making connections
b. Providing for defense
c. Lining surfaces
d. Producing new cells
E. All of the choices are correct

Level: Easy

6. The _____ is responsible for forming the outer, limiting barrier of a cell.
a. Peroxisome
b. Ribosome
c. Mitochondrion
D. Plasma membrane
e. Centrosome

Level: Easy

7. The _____ is the cell's control center.
a. Golgi apparatus
B. Nucleus
c. Lysosome
d. Cytosol
e. Smooth ER

Level: Easy

8. The _____ are responsible for synthesizing most of a human body cell's ATP.
a. Lysosomes
b. Microfilaments
c. Nucleoli
d. Ribosomes
E. Mitochondria

Level: Easy

9. Which is a nonmembrane-bound organelle?
A. Microtubule
b. Lysosome
c. Golgi apparatus
d. Rough endoplasmic reticulum
e. Mitochondrion

Level: Easy

10. Which help hold organelles in place, maintain cell shape and rigidity, and direct organelle movement?
a. Centrioles
b. Flagella
c. Golgi apparatus
D. Microtubules
e. Cilia

Level: Easy

11. Which provide enzymes for autolysis?
a. Peroxisomes
b. Mitochondria
c. Smooth ER
d. Golgi apparatus
E. Lysosomes

Level: Easy

12. Which are not considered to be "inclusions" in the cytoplasm?
a. Melanin droplets
b. Protein droplets
C. Ribosomes
d. Glycogen granules
e. Lipid droplets

Level: Medium

13. Which of these is considered a "gate keeper" that regulates the passage of materials in or out of the cell?
a. Cilia
B. Plasma membrane
c. Lysosome
d. Cholesterol molecule
e. Flagellum

Level: Easy

14. Proteins that are embedded within, and extend across, the phospholipid bilayer are called _____ proteins.
a. Catalytic
B. Integral
c. Cytoskeleton
d. Peripheral
e. Transport

Level: Easy

15. Proteins that assist the movement of a substance across the membrane are called _____ proteins.
a. Catalytic
b. Cytoskeleton
C. Transport
d. Cell to cell recognition (identification)
e. Intercellular attachment

Level: Easy

16. Among the factors that influence cell membrane permeability are
a. Phospholipid composition of the membrane
b. Ionic charge along the membrane
c. Presence or absence of transport proteins
d. Molecule size
E. All of the choices are correct

Level: Easy

17. Which is an active transport process?
a. Simple diffusion
b. Bulk filtration
c. Osmosis
d. Facilitated diffusion
E. Ion pump

Level: Easy

18. The movement of glucose across a plasma membrane is achieved by
a. Ion pumps
b. Receptor-mediated exocytosis
c. Osmosis
D. Facilitated diffusion
e. Phagocytosis

Level: Easy

19. Which is a passive transport process?
a. Phagocytosis
b. Pinocytosis
c. Receptor-mediated endocytosis
D. Osmosis
e. Ion pump

Level: Easy

20. Another name for the intracellular fluid is
A. Cytosol
b. Interstitial fluid
c. Intercellular matrix
d. Cytoplasm
e. Cisternae

Level: Medium

21. Bulk filtration occurs as a result of
a. Molecular movement with carrier assistance
B. Hydrostatic pressure
c. The expenditure of energy in the form of ATP
d. Concentration gradients
e. Ion pumps

Level: Easy

22. Exocytosis occurs as a result of
a. Hydrostatic pressure
B. The expenditure of energy in the form of ATP
c. Molecular movement with carrier assistance
d. Concentration gradients
e. Ion pumps

Level: Easy

23. In order to process digested nutrients and detoxify chemical agents such as drugs and alcohol, the _____ contains abundant amounts of smooth ER.
A. Liver
b. Kidney
c. Small intestine
d. Pancreas
e. Stomach

Level: Medium

24. The uptake of cholesterol into cells is an example of
a. Phagocytosis
b. Pinocytosis
C. Receptor-mediated endocytosis
d. Receptor-mediated exocytosis
e. Simple diffusion

Level: Easy

25. Which is *not* a membrane-bound organelle?
a. Endoplasmic reticulum
b. Lysosome
c. Golgi apparatus
d. Peroxisome
E. No exceptions; all of these are membrane-bound organelles

Level: Easy

26. Removal of old organelles is via a process called
a. Pinocytosis
B. Autophagy
c. Autolysis
d. Filtration
e. Vascularization

Level: Easy

27. Catalase-containing peroxisomes are most abundant in _____ cells.
A. Liver
b. Kidney
c. Pancreas
d. Thymus
e. Pituitary

Level: Easy

28. The factor that determines the number of mitochondria in a cell is its _____ need.
a. Water
b. Protein
C. Energy
d. Stimulus
e. Fat

Level: Easy

29. The folds of the internal membrane of a mitochondrion are called
a. Matrix
b. Vesicles
c. Vacuoles
D. Cristae
e. Cisternae

Level: Easy

30. The organelles responsible for organizing microtubules that are a part of the mitotic spindle are called
A. Centrioles
b. Nucleoli
c. Microvilli
d. Cilia
e. Vesicles

Level: Easy

31. Which are often associated with mucin-secreting goblet cells?
A. Cilia
b. Flagellum
c. Microvilli
d. Ribosomes
e. Cisternae

Level: Easy

32. In humans, the only cell that bears a flagellum is the _____ cell.
a. Kidney
b. Oocyte
c. Red blood
d. Brain
E. Sperm

Level: Easy

33. Which serve to increase the surface area of a cell for absorption and/or secretion?
a. Flagella
B. Microvilli
c. Cilia
d. Cilia and flagella
e. Cilia and microvilli

Level: Medium

34. Since they produce ribosome subunits, one would expect to find large numbers of nucleoli in cells that synthesize
a. Energy sources
b. Pigments
c. Solubility enhancing substances
d. Steroid hormones
E. Proteins

Level: Medium

35. All resting nucleated human cells contain
a. Melanin
b. Chromosomes
C. Chromatin
d. Insulin
e. Glycogen

Level: Easy

36. Which are the smallest components of the cytoskeleton?
a. Microtubules
B. Microfilaments
c. Intermediate filaments
d. Centrosomes
e. Centrioles

Level: Easy

37. The building blocks that form the DNA double helix are called
a. Nucleoli
B. Nucleotides
c. Bases
d. Nucleic acids
e. Nuclear pores

Level: Easy

38. Which is not one of the bases found in DNA nucleotides?
a. Adenine
b. Cytosine
c. Guanine
d. Thymine
E. Diamine

Level: Easy

39. During its mitotic phase a cell is
a. Undergoing maintenance
B. Dividing
c. Hibernating
d. Changing into a gamete
e. Going from a gamete to a somatic cell

Level: Easy

40. The function of the nucleolus is to make
a. DNA molecules
B. The subunits of ribosomes
c. The secretions that will be packaged by the Golgi apparatus
d. Histones
e. The deoxyribose sugar

Level: Easy

41. The life cycle of the cell is called the _____ cycle.
a. Mitotic
b. Motor
c. Somatic
D. Cell
e. Armstrong

Level: Easy

42. Which of the following shows the correct sequence of mitosis?
A. Prophase - metaphase - anaphase - telophase
b. Metaphase - prophase - anaphase - telophase
c. Telophase - metaphase - prophase - anaphase
d. Metaphase - telophase - anaphase - prophase
e. Prophase - anaphase - metaphase - telophase

Level: Easy

43. The phase of mitosis that begins as spindle fibers pull sister chromatids apart at the centromere is
a. Metaphase
B. Anaphase
c. Telophase
d. Prophase
e. Interphase

Level: Medium

44. The phase of mitosis that begins with the arrival of a group of single-stranded chromosomes at each pole of the cell is
a. Metaphase
b. Anaphase
C. Telophase
d. Prophase
e. S phase

Level: Medium

45. Which does not occur during the G2 phase?
a. Centriole replication is completed
b. Organelle production continues
c. Enzymes needed for cell division are synthesized
d. Each DNA molecule replicates
E. No exceptions; all of these occur during the G2 phase

Level: Difficult

46. The last part of interphase is called
a. The first "gap" phase
B. The second "gap" phase
c. Telophase
d. The S phase
e. Anaphase

Level: Easy

47. The replication of the DNA molecule during interphase occurs during the
a. First "gap" phase
B. S phase
c. Second "gap" phase
d. Generation "gap" phase
e. Mall "gap" phase

Level: Medium

48. It is during _____ that the chromosomes line up along the equatorial plate of a dividing cell.
a. Anaphase
B. Metaphase
c. Prophase
d. Telophase
e. Interphase

Level: Easy

49. The interphase period of cell division has _____ distinct phases.
a. 2
B. 3
c. 4
d. 5
e. 6

Level: Easy

50. Cytokinesis usually begins before _____ ends.
a. Prophase
b. Interphase
c. Metaphase
d. Anaphase
E. Telophase

Level: Easy

51. Which is not characteristic of a cell undergoing apoptosis?
a. Chromatin degradation
b. Shrinkage in volume
c. Abnormal development in organelle structure
d. Abnormal development in plasma membrane structure
E. No exceptions; all of these are characteristic of a cell undergoing apoptosis

Level: Difficult

52. Hyperplasia is defined as
a. The abnormal development of a tissue
b. The movement or spread of malignant cells
c. An always abnormal growth of cells that invade surrounding tissue
d. A generalized increase in the size of a part of an organ
E. An increase in the normal number of cells within a tissue or organ

Level: Medium

53. Metastasis is
a. The abnormal development of a tissue
B. The movement or spread of malignant cells
c. An obvious loss of cellular or structural differentiation in the orientation of cells to each other
d. A generalized increase in the size of a part of an organ
e. An increase in the normal number of cells within a tissue or organ

Level: Medium

54. The root "chroma" means
a. Body
b. Characteristic
c. Strength
D. Color
e. Condition

Level: Medium

55. The term "flagellum" is appropriate for the structure it represents because it means
a. An eyelid
b. The center
c. A nut or kernel
D. A whip
e. A bench

Level: Easy

True / False Questions

56. Transmission electron microscopy (TEM) uses an electron beam to create an image for viewing.
TRUE

Level: Easy

57. Some muscle and nerve cells in humans may approach a meter in length.
TRUE

Level: Easy

58. Some cells are designed solely to produce new individuals.
TRUE

Level: Easy

59. Often, a cell's functions are reflected in either its size or shape.
TRUE

Level: Easy

60. Among the many functions of the liver's cells is the storage of carbohydrates as glycogen.
TRUE

Level: Easy

61. Fibroblast cells form protein fibers that function to attach structures together.
TRUE

Level: Easy

62. Lysosome functions range from the digestion of materials ingested by the cell to the self-destruction of the cell.
TRUE

Level: Easy

63. Mitochondria are responsible for the synthesis of most of the energy rich ATP molecules used by human cells.
TRUE

Level: Easy

64. Among the functions of the plasma membrane are to form specialized intercellular connections, provide for selective permeability, and facilitate the recognition and response to molecular signals.
TRUE

Level: Easy

65. Materials tend to move less rapidly when their concentrations are significantly different between two compartments.
FALSE

Level: Easy

66. If the inside of a cell has a net negative (ionic) charge, a negative ion outside the membrane is more likely to be attracted to the intracellular environment.
FALSE

Level: Easy

67. The cellular uptake of large particulate substances and macromolecules is called endocytosis.
TRUE

Level: Easy

68. The amount of rough ER is greater in cells producing large amounts of protein for secretion.
TRUE

Level: Easy

69. Everything packaged by the Golgi apparatus for secretion leaves the cell within a vesicle.
TRUE

Level: Medium

70. Lysosomes contain enzymes that prepare the vesicles that will be used by the Golgi apparatus to package its secretory products.
FALSE

Level: Easy

71. Organelles that are always in direct contact with the cytosol are called nonmembrane-bound organelles.
TRUE

Level: Easy

72. Ribosomes that are attached to the RER are called "free ribosomes".
FALSE

Level: Easy

73. Generally, the shape of a nucleus mirrors the shape of the cell within which it is found.
TRUE

Level: Medium

74. The subunits of ribosomes are exported outside the nucleus into the cytoplasm, where they are assembled into their finished product.
TRUE

Level: Easy

75. The condensed, "wound" nature of chromosomes during cell division prevents the DNA from directing the production of additional cellular proteins.
TRUE

Level: Easy

76. Cancers are more prevalent in the elderly because the mechanism of cell division becomes faultier with age.
TRUE

Level: Easy

77. Metaplasia is the abnormal transformation of a fully differentiated adult tissue into a differentiated tissue of another kind.
TRUE

Level: Easy

Fill in the Blank Questions

78. Within the bone marrow are _____ cells that continuously produce new blood cells.
stem

Level: Easy

79. Collagen produced by _____ cells forms ligaments that attach bone to bone.
fibroblast

Level: Medium

80. _____ is the general term for all cellular contents located between the plasma membrane and the nucleus.
Cytoplasm

Level: Easy

81. _____ are short, membrane-attached projections containing microtubules that occur in large numbers on exposed membrane surfaces.
Cilia

Level: Easy

82. The term used to describe the fluid within a cell is _____, or intracellular fluid.
cytosol

Level: Easy

83. The _____ proteins are those that are not embedded in the membrane lipid bilayer but are attached loosely to its external and internal surfaces.
peripheral

Level: Easy

84. The fuzzy coat made of glycoproteins and glycolipids found on the external surface of the plasma membrane is called the _____.
glycocalyx

Level: Medium

85. A membrane that is able to regulate the movement of materials in and out of the cell is described as being _____ _____ (2 words).
selectively permeable

Level: Easy

86. In _____ transport, substances move across a plasma membrane without the expenditure of energy by the cell.
passive

Level: Easy

87. _____ transport is required to move a substance across a membrane against a concentration gradient.
Active

Level: Easy

88. The means by which large molecules are brought into the cell is called _____.
endocytosis

Level: Easy

89. A cell mediated process that transports large molecules across the plasma membrane and out of the cell is called _____.
exocytosis

Level: Easy

90. The technical term for "cellular drinking" is _____.
pinocytosis

Level: Medium

91. The first "R" in RER stands for _____.
rough

Level: Easy

92. The digestion of a cell by its own enzymes is called _____.
autolysis

Level: Medium

93. _____ ribosomes are responsible for the synthesis of proteins that remain within the cell.
Free

Level: Easy

94. The cytoskeleton has three separate components: microfilaments, intermediate filaments, and _____.
microtubules

Level: Medium

95. DNA is organized into discrete units called _____ that provide information for the production of specific proteins.
genes

Level: Easy

96. Nuclear _____ are open passageways that penetrate fused regions of the double membrane of the nuclear envelope.
pores

Level: Easy

97. The production of sperm and oocytes is achieved through a cell division process called _____.
meiosis

Level: Easy

98. The two identical cells that arise from mitosis are called _____ cells.
daughter

Level: Easy

99. _____ is the division of the cytoplasm during cell division.
Cytokinesis

Level: Medium

100. The duplicated chromosome that appears during prophase consists of two genetically identical structures called sister _____.
chromatids

Level: Easy