

CHAPTER 1-2: BIOLOGICAL ORGANIZATION

1. About _____ % of the atoms in living things are carbon, hydrogen, oxygen, nitrogen, sulfur, and phosphorus.
 A 51 B 75 C 85 D 99
2. The human body consists of approximately _____ trillion cells.
 A 100 B 80 C 20 D 50

CHAPTER 1-5: LIPIDS

3. Phospholipids are basically made up of a _____ molecule with a phosphate group attached to the first carbon at the extreme right.
 A glycerol B dihydroxyacetone phosphate C triosephosphate isomerase D glyceraldehyde 3-phosphate

CHAPTER 1-6: PROTEINS

4. A protein may contain as few as _____ amino acids, or it may contain thousands.
 A 25 B 35 C 10 D 50
5. In the _____ structure, multiple polypeptides are organized together.
 A quaternary B quadrangle C quadplex D quadrille

CHAPTER 2-1: THE ANIMAL CELL

6. The _____ reticulum (ER) is a system of interconnected membrane channels in the cytosol.
 A enteron B enterocoel C endoplasmic D enterotome

CHAPTER 2-3: THE PLANT CELL

7. The centers of energy metabolism in the plant cell are the:
 A ribosomes B mitochondria C plastids D lysosomes
8. The _____ body is made up of a series of about ten to twenty flattened membranes.
 A Gilbert B Golgi C Golgarian D Goletti

CHAPTER 2-6: ACTIVE TRANSPORT AND ENDOCYTOSIS

9. Active transport involves special proteins called _____ proteins.
 A transference B kinetic C transport D locomotion
10. One type of endocytosis is called _____, in which nutrients are taken into the cell.
 A pinocytosis B pericytosis C nutricytosis D vitacytosis

CHAPTER 2-8: ENERGY FLOW IN LIVING THINGS

11. Solar energy is trapped in a photosynthesizing organelle of the plant called the:
 A mitochondrion B adenosine diphosphate C ribosome D chloroplast
12. Carbohydrates are transported to an organelle called the _____, where they are combined with oxygen molecules during respiration.
 A mitochondrion B ribosome C adenosine diphosphate D chloroplast

CHAPTER 2-10: PHOTOSYNTHESIS – THE LIGHT REACTIONS

13. The two main processes of photosynthesis involve a series of energy-fixing (light) reactions and _____ - fixing (dark) reactions.
 A oxygen B carbon C zinc D heat

CHAPTER 2-13: THE KREBS CYCLE

14. An important part of cellular respiration is the Krebs cycle (also called the _____ Cycle).
 A Citric Acid B Oxalic Acid C Acetic Acid D Uric Acid
15. For every molecule of acetyl CoA that enters the Krebs cycle, _____ NADH molecules (among other molecule types) are produced.
 A four B three C two D five

CHAPTER 2-15: THE CELL CYCLE

16. The two major periods of the cell cycle are interphase and the M phase (also known as the phase of _____).
 A nuclear fusion B mitosis C meiosis D cell division
17. During the M phase, the second main process is called _____ - in which the cell actually splits.
 A metaphase B anaphase C cytokinesis D prophase

CHAPTER 2-17: MEIOSIS

18. In metaphase, the homologous chromosomes line up along the _____ of the cell.
 A vacuoles B Golgi body C equator D nuclear membrane
19. Meiosis is linked to sexual reproduction in plants and animals because _____ cells join to form a fertilized diploid cell.
 A haploid B chromatid C centriole D monoploid

CHAPTER 3-1: MENDELIAN GENETICS

20. The principles of genetics were established in the _____ by Gregor Mendel.
A 1880s B 1860s C 1920s D 1930s
21. Gregor Mendel performed a series of experiments using the common _____ plant.
A garden tomato B garden pea C garden squash D garden zucchini

CHAPTER 3-4: THE TESTCROSS

22. The testcross is performed by taking the individuals of unknown genotype and crossing them with homozygous recessive individuals.
A True B False

CHAPTER 3-6: MULTIPLE ALLELES

23. The blood types A, B, AB, and O result from the pairings of _____ different alleles of a single gene.
A six B five C four D three
24. Only _____ alleles can exist in a particular individual.
A eight B seven C two D five

CHAPTER 3-8: SEX DETERMINATION

25. Human cells have _____ chromosomes in total, but these chromosomes can be matched in pairs: there are two of each type.
A thirty-six B twenty-two C forty-six D forty-two
26. In the human male, the Y chromosome is _____ any of the other chromosomes.
A equal size to B significantly longer than C significantly smaller than D much wider than

CHAPTER 3-10: CHROMOSOMAL ALTERATIONS

27. When the chromosomal alteration called inversion takes place, a segment of chromosome turns around:
A 135 degrees B 180 degrees C 45 degrees D 90 degrees

CHAPTER 3-12: NONDISJUNCTION

28. Abnormal chromosome numbers are called:
A aneuploidies B chromatoidals C chromadysnumerals D achromataxis
29. In people with Down's Syndrome, there is an extra chromosome #:
A 15 B 4 C 24 D 21

CHAPTER 4-1: STRUCTURE OF DNA

30. DNA the is genetic material of organisms, while _____ is used during the construction of proteins.
A a phosphate group B RNA C CNA D thymine

CHAPTER 4-3: PROKARYOTIC DNA REPLICATION

31. Unlike the DNA of eukaryotic cells, the genetic material of bacteria exists as a _____ molecule of DNA.
A circular B octahedral C linear D tetrahedral
32. The replication of DNA in the prokaryotic chromosome begins at a point called the _____ of replication.
A center B origin C base D root

CHAPTER 4-5: DNA AND CHROMOSOMES

33. More than two meters of DNA fits into forty-six chromosomes in a nucleus that's less than _____ micrometers in diameter.
A two B twenty C five D three

CHAPTER 4-7: DNA AND PHENOTYPE

34. After the announcement of the structure of DNA by _____, scientists set out to confirm that DNA is the basis for heredity.
A Watson and Crick B Huber C Hashimoto D Mori and Ueno
35. The fact that genes direct the synthesis of proteins, and specifically enzymes, was first realized in the:
A 1930s B 1950s C 1910s D 1940s

CHAPTER 4-9: PROTEIN SYTHESIS (TRANSCRIPTION)

36. The synthesis of RNA is mediated by an enzyme called:
A RNase inhibitor B alkaline phosphatase C β -Agarase D RNA polymerase
37. In eukaryotic cells, the processed mRNA leaves the nucleus and enters the cytoplasm – then takes part in a process called protein:
A integration B synthesis C interfusion D amalgamation

CHAPTER 4-11: GENE REGULATION (LACTOSE)

38. A human cell contains about _____ genes.
A ten thousand B five hundred C one hundred thousand D one million
39. In the _____, the French investigators Francois Jacob and Jacques Monod researched gene regulation in bacteria.
A 1940s B 1950s C 1910s D 1920s

CHAPTER 4-13: MUTATION AND GENE EXPRESSION

40. Mutations are unregulated alterations in DNA that always affect the phenotype of individuals.
A True B False

41. When a strand of DNA is transcribed, a molecule of _____ (mRNA) is formed.
A metalloidal B messenger C metagenetic D metathetic

CHAPTER 4-17: DNA FINGERPRINTING

42. DNA fingerprinting is an identification procedure that requires _____ of blood.
A only a single drop B 5 ml C 20 ml D at least 40 ml

43. The DNA fragments that result from restriction enzyme activity are known as restriction fragment _____ polymorphisms, or RFLPs.
A latent B loop C lipase D length

CHAPTER 4-19: ANTISENSE TECHNOLOGY

44. A(n) _____ molecule is a synthetic RNA molecule that combines with the mRNA molecule found in a cell and renders it inactive.
A antimorphic B absoluten C obsomorphic D antisense

CHAPTER 5-1: INTRODUCTION TO EVOLUTION

45. The work of Alfred Russell _____ and Charles Darwin resulted in the concept of evolution.
A Smith B Smyth C Wallace D Pepping

46. Darwin's _____ work, *The Origin of Species*, remains the definitive book describing evolution.
A 1802 B 1843 C 1859 D 1872

CHAPTER 5-3: EVIDENCE FOR EVOLUTION

47. Comparative anatomy is basically the science of comparing the _____ of present day organisms.
A physical features B genetic sequence C physical abilities D gene types

CHAPTER 5-5: THE GENE POOL

48. Genetic variation is brought about by the processes of gene flow and:
A genetic morphing B climate changes C population behavior D genetic drift

49. Adaptations may be useful, detrimental, or they may have no effect on a population at all.
A True B False

CHAPTER 5-7: GENETIC DRIFT

50. The gene _____ is the total number of genes in a population.
A tub B pool C variance D diversification

51. When the gene frequencies of a population _____, genetic drift has taken place.
A decrease B increase C change D do not change

CHAPTER 5-9: NATURAL SELECTION

52. Both Darwin and Wallace believed that _____ is the primary mechanism in the evolution of a new species.
A genetic mutation B genetic anomalies C population adaptation D natural selection

CHAPTER 5-11: SYMPATRIC SPECIATION

53. A species is generally defined as a group of interbreeding individuals in a population, and the process of species formation is called:
A specification B speciation C specifomia D specionia

54. _____ occurs when reproduction is prevented between the 3 original members of the population because of a chromosomal mutation.
A Sympatric speciation B Sympatric specification C Sympatric specionia D Sympatric specifomia

CHAPTER 5-14: EVOLUTION AND THE SHIFTING EARTH

55. The continents of the world ride on huge land masses, called _____, so that as they move – the continents are carried along with them.
A cores B mantles C plates D lithospheres

56. The landmass of Pangea remained whole until the _____ period, about 135 million years ago.
A Paleogene B Jurassic C Cretaceous D Triassic

CHAPTER 5-16: HUMAN EVOLUTION

57. Eukaryotic cells date back about _____ billion years and multicellular organisms first appeared about a billion years ago.
A 2.5 B 3.5 C 5 D 1.5

CHAPTER 6-1: THE ORIGIN OF ORGANIC MOLECULES

58. Billions of years ago, as primordial Earth traveled through space, its gases contracted to form a hot, dense core – its temperature was:
A 100 – 300 degrees B 900 – 1200 degrees C 500 – 700 degrees D several thousand degrees

CHAPTER 6-3: THE FIRST EUKARYOTIC CELLS

59. The first cells to exist on earth were very simple prokaryotic cells that were similar to today's:
A bacteria B virus C nerve cells D oocytes
60. The _____ theory is one of a few theories that describe how eukaryotic cells may have arisen from prokaryotic cells.
A homeostasis B endosymbiont C bioenergetic D inheritance

CHAPTER 6-5: THE CLASSIFICATION SCHEME

61. Beginning in the 1950s, biologists recognized that all living things fall into five broad categories called:
A phyla B kingdoms C classes D species

CHAPTER 6-7: VIRUSES

62. Viruses are very simple organisms. They consist of little more than nucleic acid enclosed in a coating of:
A carboxyl B hydroxyl C protein D amino acids
63. The viruses that cause herpes simplex, infectious mononucleosis, chicken pox, and AIDS are all _____ viruses.
A helical B cylinder C spherical D icosahedral

CHAPTER 6-9: PROTOZOA

64. The Kingdom _____ includes three major groups: protozoa, slime molds, and single-celled (unicellular) algae.
A Protista B Fungi C Plantae D Monera
65. The flagellate, Giardia, is distinct because of its _____ nuclei.
A two B three C four D seven

CHAPTER 6-11: SIMPLE ALGAE

66. The alga Chondras is a type of _____ alga, also called rhodophytes.
A orange B blue C green D red

CHAPTER 6-12: KINGDOM FUNGI

67. Scientists recognize _____ divisions of fungi.
A five B seven C twelve D three

CHAPTER 7-1: STRUCTURE OF A FLOWERING PLANT

68. Stems that grow _____ and underground are called rhizomes – as found in plants such as ferns and potatoes.
A in a helical fashion B in the air C horizontally D vertically

CHAPTER 7-3: LIFE CYCLE OF A FLOWERING PLANT

69. The first floral organs to develop are leaf-like _____, which envelop the flower bud.
A peduncles B receptacles C sepals D ovaries
70. The female reproductive organs in the plant consist of the:
A filament B pistil C stamen D petal

CHAPTER 7-5: LIFE CYCLE OF A FERN

71. The fern is a primitive, vascular plant.
A True B False

72. Ferns are found primarily in:
A dry climate B temperate climate C cold climate D the tropics

CHAPTER 7-7: THE ROOT

73. The central core of the root is occupied by a complex group of tissues known collectively the vascular:
A box B sphere C wedge D cylinder

CHAPTER 7-9: THE LEAF

74. In the leaf, the _____ layers protect the inner tissues of the leaves and secrete the waxy cuticle.
A palisade B mesophyll C epidermal D spongy

CHAPTER 7-11: TRANSPORT IN PLANTS

75. Xylem and phloem are the two components of the plant's _____ system.
A ground B vascular C dermal D structure
76. Within the plant leaves, water enters and then exits cells known as _____ cells.
A source B base C core D periphery

CHAPTER 7-12: PLANT HORMONES

77. _____ acid is responsible for the closing of stomata on the undersides of leaves.
A Abscisic B Chorismic C Isochorismic D Salicylic

CHAPTER 8-1: PHYLUM PORIFERA

78. Sponges are able to maintain their shape because they possess fibers called:
A striated pores B spicules C cilia D amoebocytes

CHAPTER 8-3: PHYLUM PLATYHELMINTHES

79. There are approximately _____ species in the phylum Platyhelminthes.
A 200 B 20 C 20,000 D 2,000
80. The _____ is a free-living flatworm that moves along rock surfaces by gliding or rhythmic muscle waves.
A scolex B proglottid C planarian D fluke

CHAPTER 8-6: PHYLUM MOLLUSCA

81. In mollusks, _____ powerful muscles hold the hinged shells together and open and close them.
A five B four C sixteen D two

82. In the octopus and _____, the mantle is modified into a propulsive device.
A squid B angler fish C jelly fish D jaw fish

CHAPTER 8-9: PHYLUM CHORDATA

83. Members of the phylum Chordata include approximately _____ different species of fish, birds, reptiles, amphibians, and mammals.
A 450 B 450,000 C 45,000 D 4,500

84. The _____ is a flexible rod of tissue found in the embryo, beneath the nerve cord.
A root sheath B stratum basale C dorsal nerve cord D notochord

CHAPTER 9-1: THE INTEGUMENT (SKIN) AND DERIVATIVES

85. The _____ is a layer of flat, dead cells that are filled with the protein keratin.
A stratum corneum B shaft C arrector pili D sebaceous gland

86. The part of the hair that projects above the body surface is called the:
A arrector pili B stratum corneum C shaft D root

CHAPTER 9-3: THE NERVOUS SYSTEM

87. The sympathetic nervous system transmits impulses that stimulate organs.
A True B False

CHAPTER 9-5: THE BRAIN

88. All conscious processes occur in the:
A hypothalamus B medulla oblongata C pons D cerebrum

89. The _____ is a mass of fibers that carry signals between the two cerebral hemispheres.
A thalamus B corpus callosum C pituitary gland D pons

CHAPTER 9-7: THE EAR

90. In the ear, the _____ is the central chamber that contains fluid-filled sacs that are associated with the sense of equilibrium.
A coiled cochlea B tympanic cavity C vestibule D semicircular canal

CHAPTER 9-8: MUSCLE TYPES IN THE BODY

91. _____ muscle makes the voluntary movement of body parts possible.
A Skeletal B Smooth C Visceral D Sarcomere

CHAPTER 9-10: THE ENDOCRINE SYSTEM

92. The endocrine glands secrete substances called hormones directly into the fluids of the body.
A True B False

93. Lying on top of the kidneys are the adrenal glands – also known as _____ glands.
A supraurea B suprarenal C suprakidney D suprasac

CHAPTER 9-12: BLOOD CELLS

94. There are approximately _____ million red blood cells per cubic millimeter in an adult male.
A 3.2 B 1.2 C 5.4 D 12.5

95. Basophils constitute about _____ % of the total WBCs and are believed to function in allergic reactions, clotting, and inflammation.
A 8 B 12 C 1 D 22

CHAPTER 9-15: THE LYMPHATIC SYSTEM

96. A collection of lymph nodes called _____ patch is located at the surface of the small intestine.
A Peyer's B Perry's C Plank's D Peyer's

CHAPTER 9-17: THE DIGESTIVE SYSTEM

97. Exocrine glands of the _____ deliver their enzyme secretions into the first part of the small intestine.
A stomach B liver C pancreas D gallbladder

CHAPTER 9-19: THE RESPIRATORY SYSTEM

98. Within the nasal passage, outcroppings of bone (called _____) from the lateral wall divide the main passageway into smaller ones.
A nasal labyrinth B ethmoid sinuses C sphenoid sinuses D nasal conchae
99. Below the pharynx is the _____, which is the first portion of the passageway that leads to the lungs.
A larynx B trachea C left and right bronchus D epiglottis

CHAPTER 9-21: THE URINARY SYSTEM

100. The main circulatory vessel that transports blood to the kidney is the _____ artery.
A Glomerular B renal C abdominal D suprarenal
101. Immediately adhering to the kidney surface is the _____, which provides an impenetrable barrier to infection of the kidney surface.
A renal fascia B adipose cavity C renal capsule D adrenal gland

CHAPTER 10-1: THE MALE REPRODUCTIVE SYSTEM

102. Covering the glans in the uncircumcised penis is a portion of skin tissue called the:
A epididymis B corona C prepuce D vas deferens
103. The _____ gland adds alkaline secretions to the sperm – and is also known as Cowper's glands.
A bulbourethral B prostate C seminal D corona

CHAPTER 10-3: GAMETOGENESIS

104. The twenty-three chromosomes from the sperm cell unite with the twenty-three chromosomes of the egg cell to form a:
A spermatid B oocyte C polar body D zygote

CHAPTER 10-5: HUMAN EMBRYONIC DEVELOPMENT

105. The _____ week embryo is about 17 mm in length. Its back has straightened and its muscles have differentiated.
A seven B seventeen C twelve D five

CHAPTER 10-7: EMBRYONIC MEMBRANES

106. The _____ provides a surface for the exchange of gases, nutrients, and wastes between the mother and the embryo.
A uterus B chorion C allantois D amnion
107. The _____ is a sac that surrounds the embryo. It cushions the embryo and enables it to maintain a constant temperature.
A uterus B chorion C allantois D amnion

CHAPTER 11-1: ECOLOGICAL COMMUNITIES

108. The term ecology is partly derived from the Greek word _____, meaning "a house or place where one lives."
A omni B oikis C kine D log
109. _____ such as bacteria and fungi process / consume the remains of animals and plants and are critical to elemental cycles in the soil.
A Decomposers B Producers C Secondary consumers D Tertiary consumers

CHAPTER 11-3: ECOLOGICAL NICHES

110. Ecologist Robert H. _____ described habitats as subdivided so that each species comes to live where it will survive and propagate.
A MacArthur B Ayton C Brent D Chadwick

CHAPTER 11-5: AQUATIC BIOMES

111. The _____ zone extends from near the shoreline to where the continental slope ends – beyond the continental shelf.
A euphotic B limnetic C aphotic D neritic

CHAPTER 11-6: THE ENERGY PYRAMID

112. In the oceanic community, the entire collection of phytoplankton is known as:
A bioplanktopia B planktomass C biomass D planktolot

CHAPTER 11-8: A FOOD WEB

113. The sequence of relationships between predators and prey in a community manifests itself in a system known as the:
A consumer pyramid B producer sequence C survival chain D food chain
114. Food chains are deceptively simple, and they do not necessarily reflect all of the interrelationships in nature.
A True B False

CHAPTER 11-10: THE CARBON CYCLE

115. Essentially, the same pool of nutrients has circulated for the billions of years that the Earth has been in existence.
A True B False
116. Carbon enters the biotic (living) part of the ecosystem through:
A respiration B photosynthesis C decay D combustion

CHAPTER 11-12: THE PHOSPHORUS CYCLE

117. Phosphorus is one of the critical elements in biological molecules. For example, it is a component of _____ triphosphate (ATP).
A americium B astatine C adenosine D actinium
118. The _____ is the primary producer in the phosphorus cycle.
A soil B insect C plant D land animal

CHAPTER 11-13: THE GREENHOUSE EFFECT

119. Approximately _____ million years ago, huge quantities of carbon, in the form of dead plants and animals were buried in the Earth.
A 50 B 300 C 700 D 100
120. During the industrial revolution, clouds of carbon dioxide began to accumulate, causing the atmospheric content of carbon dioxide to:
A increase by about 25% B increase by about 10% C increase by about 5% D increase by about 2%

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