

Science Bowl Practice Questions – Biology

1. Multiple Choice: Which of the following describes the major difference between bryophytes (pron: bry-oh-fites) and tracheophytes (pron: tray-key-o-fites)?

- a) tracheophytes can survive on land
- b) tracheophytes have seeds inside fruits
- c) tracheophytes can make their own food
- d) tracheophytes have vessels to transport materials

ANSWER: D -- TRACHEOPHYTES HAVE VESSELS TO TRANSPORT MATERIALS

2. Short Answer: Complete the sentence. The alternative forms of gene at the same locus on homologous chromosomes are called what?

ANSWER: ALLELES

3. Short Answer: The human pelvic girdle is composed of 3 fused bones on each side for a total of 6 bones. Name the 3 fused bones.

ANSWER: ILLIUM, ISCHIUM, and PUBIS

4. Short Answer: What are rings of muscle which CLOSE body openings such as the lips called?

ANSWER: SPHINCTERS

5. Multiple Choice: The myofilaments of muscles consist primarily of two proteins. These two proteins are called:

- a) actin and myosin
- b) progesterone and testosterone
- c) progesterone and estrogen

ANSWER: A -- ACTIN AND MYOSIN

6. Short Answer: In studies of the human body, what is used to describe a blood-filled sac formed by an outpouching in an arterial or venous wall?

ANSWER: ANEURYSM

7. Multiple Choice: What French scientist is considered the father of paleontology? Was it:

- a) George Cuvier
- b) Marquis de Condorcet
- c) Jacque Tonnies
- d) Auguste Compte

ANSWER: A -- GEORGE CUVIER

8. Multiple Choice: What Roman physician's studies of human anatomy based on lower animals served as the only text on the subject for nearly 1 centuries? Was it:

- a) Cartrum
- b) Polonius
- c) Galen
- d) Monterius

ANSWER: C -- GALEN

9. Multiple Choice: What percentage of the atmosphere consists of carbon dioxide? Is it approximately:

- a) .03% (read: three-hundredths of a percent)
- b) 1%
- c) 5%
- d) 7%

ANSWER: A -- .03%

10. Short Answer: What process in all living things releases carbon dioxide as a waste product?

ANSWER: RESPIRATION

11. Short Answer: For convenience, living things are placed into variou groups. The taxonomic breakdown of living things consists of the following categories: Family, Class, Genus, Phylum, Order, Kingdom and Species. Give the order of these terms from least specific to most specific.

ANSWER: KINGDOM, PHYLUM, CLASS, ORDER, FAMILY, GENUS, SPECIES

12. Short Answer: In biology, what is the word used to describe the appearance of an individual without regard to its hereditary constitution?

ANSWER: PHENOTYPE (pron: fee-no-type)

13. Multiple Choice: The chromosomes responsible for characteristics other than sex are known by which of the following terms?

- a) ribosomes
- b) lysosomes
- c) autosomes
- d) spermatocytes

ANSWER: C -- AUTOSOMES

14. Short Answer: What genetic term describes the situation when a part of a chromosome is broken off and lost?

ANSWER: CHROMOSOMAL DELETION

15. Multiple Choice: Each of the following is a cell organelle except one. Which one of these is NOT a cell organelle? Is it

- a) mitochondrion
- b) lysosome
- c) cytoplasm
- d) endoplasmic reticulum

ANSWER: C -- CYTOPLASM

16. Multiple Choice: When a color blind man marries a woman pure for normal color vision, it is probable that one of the following situations may result. Is it probable that

- a) all the children will be color blind
- b) all the grandchildren will be color blind
- c) only the sons will be colorblind
- d) half the grandsons will be color blind

ANSWER: D -- HALF THE GRANDSONS WILL BE COLOR BLIND

17. Multiple Choice: Which of the following are skin receptors in humans that are sensitive to heat? Are they:

- a) end organs of Krause
- b) Meissner's corpuscles
- c) end organs of Ruffini
- d) Pacinian corpuscles

ANSWER: C -- END ORGANS OF RUFFINI

18. Multiple Choice: Into which of the following acids is glucose broken down in the first stage of carbohydrate metabolism? Is it:

- a) pyruvic acid (pie-rue-vick acid)
- b) lactic acid
- c) hydrochloric acid
- d) citric acid

ANSWER: A -- PYRUVIC ACID

19. Multiple Choice: Hormones are composed from many classes of molecules. As far as our present knowledge extends, hormones are NOT found in which of the following categories of substances:

- a) proteins
- b) peptides
- c) nucleic acids
- d) steroids

ANSWER: C -- NUCLEIC ACIDS

20. Short Answer: What is the term given to a fatty acid that has more than one set of double bonds between carbons?

ANSWER: POLYUNSATURATED

21. Multiple Choice: The process by which an amino acid loses its amino group is called:

- a) hydration
- b) deamination
- c) oxidoamination
- d) dehydration

ANSWER: B – DEAMINATION

22. Multiple Choice: In a plasma membrane, which of the following provides a general barrier to the movement of molecules?

- a) lipids
- b) proteins
- c) carbohydrates
- d) all of these

ANSWER: A – LIPIDS

23. Multiple Choice: The name of the process by which oil glands in mammalian skins secrete oils is:

- a) active transport
- b) apocrine secretion
- c) holocrine secretion
- d) osmosis

ANSWER: C -- HOLOCRINE SECRETION

24. Multiple Choice: An individual with three X chromosomes is likely to be:

- a) a clinically normal female
- b) an abnormal female
- c) a Turner's individual
- d) a Klinefelter's individual

ANSWER: B -- AN ABNORMAL FEMALE

25. Short Answer: Who is considered the father of Taxonomy?

ANSWER: (CAROLUS) LINNAEUS

26. Multiple Choice: In the first stage of photosynthesis, light energy is used to:

- a) move water molecules
- b) denature chlorophyll
- c) split water
- d) produce carbohydrates

ANSWER: C -- SPLIT WATER

27. Multiple Choice: One-celled algae enclosed in minute two-part silic shells are called:

- a) dinoflagellates (pron: die-no-flaj-el-ates)
- b) coelenterates (pron: sell-en-ter-ates)
- c) annelids
- d) diatoms

ANSWER: D – DIATOMS

28. Multiple Choice: Osmoregulation is concerned with:

- a) excretion
- b) ionic regulation
- c) control of the body's water content
- d) carbon dioxide regulation

ANSWER: C -- CONTROL OF THE BODY'S WATER CONTENT

29. Multiple Choice: Which of the following is not an arachnid?

- a) lobster
- b) scorpion
- c) black widow spider
- d) tick

ANSWER: A -- LOBSTER

30. Multiple Choice: Which of the following is not found in blood?

- a) fibrinogen
- b) glucose
- c) urea
- d) glycogen

ANSWER: D -- GLYCOGEN

31. Multiple Choice: Proof that plants can grow and reproduce using only inorganic nutrients comes from the study of:

- a) phototrophic nutrition
- b) mycorrhiza
- c) hydroponics
- d) humus

ANSWER: C – HYDROPONICS

32. Multiple Choice: Water molecules enter plant epidermal cells by:

- a) osmosis
- b) active transport
- c) translocation
- d) transpiration

ANSWER: A – OSMOSIS

33. Short Answer: What molecule is the energy source for virtually all of the work done by the cell?

ANSWER: ATP (Adenosine Triphosphate)

34. Multiple Choice: Which of the following diseases has been eradicate from the world?

- a) cholera
- b) smallpox
- c) diphtheria
- d) poliomyelitis

ANSWER: B -- SMALLPOX

35. Multiple Choice: We believe the beginnings of life on earth took place in the:

- a) air
- b) land masses
- c) shallow oceans
- d) glaciers

ANSWER: C -- SHALLOW OCEANS

36. Multiple Choice: Each antibody molecule is made up of how many PAIR of polypeptide chains, joined together by disulfide bonds.

- a) 1
- b) 2
- c) 3
- d) 4

ANSWER: B – 2

37. Multiple Choice: The immune system normally discriminates between which types of antigens.

- a) B and T cells
- b) self and non-self
- c) humoral and cell-mediated
- d) primary and secondary

ANSWER: B -- SELF AND NON-SELF

38. Short Answer: Proteins that cause reactions to proceed more rapidly and lower the energy of activation are called.

ANSWER: ENZYMES

39. Multiple Choice: What percent of the total radiant energy received by a plant is converted to chemical energy?

- a) less than 2
- b) 10
- c) 50
- d) 75

ANSWER: A -- LESS THAN 2

40. Multiple Choice: Genes are able to control a cell's fate by determining the synthesis of:

- a) other genes

- b) enzymes
- c) carbohydrates
- d) fat

ANSWER: B -- ENZYMES

41. Multiple Choice: Resolution by any microscope is ULTIMATELY limited by the:

- a) curvature of the lenses
- b) wavelength of the light
- c) light intensity
- d) lens aberrations

ANSWER: B -- WAVELENGTH OF THE LIGHT

42. Multiple Choice: Humans cannot digest cellulose because:

- a) it does not contain sugars
- b) it is made up of disaccharides
- c) it is made up of monosaccharides
- d) humans lack the proper enzymes

ANSWER: D -- HUMANS LACK THE PROPER ENZYMES

43. Multiple Choice: Cholesterol, testosterone, and estrogen are all examples of:

- a) proteins
- b) steroids
- c) nucleic acids
- d) alcohols

ANSWER: B -- STEROIDS

44. Short Answer: What is sometimes called animal starch?

ANSWER: GLYCOGEN

45. Short Answer: How many PAIRS of nerves leave the vertebrate brain?

ANSWER: 12

46. Short Answer: The vertebrate eyeball is bounded anteriorly by what convex, transparent object?

ANSWER: CORNEA

47. Short Answer: What are the names given to the basic subunits of a nucleic acid.

ANSWER: MONONUCLEOTIDES or NUCLEOTIDES

48. Short Answer: What is the term given to enzymes whose action is modulated by binding of a molecule to a site other than the active site?

ANSWER: ALLOSTERIC ENZYMES

49. Multiple Choice: The muscle attachment to the bone of lesser movement is called the muscle's:

- a) insertion
- b) head
- c) origin
- d) tail

ANSWER: C -- ORIGIN

50. Short Answer: DNA present in a structural gene that does not seem to have a specific coding function is known as what?

ANSWER: INTRON

51. Multiple Choice: The organic portion of bone consists of which one of the following proteins.

- a) fibrin
- b) collagen
- c) actin
- d) myosin

ANSWER: B – COLLAGEN

52. Multiple Choice: Octopus and squid belong to the class of molluscs known as:

- a) cephalopoda (pron: sef-eh-lah-pod-ah)
- b) bivalvia
- c) gastropoda (pron: gas-tro-pod-ah)
- d) polyplacophora (pron: poly-pla-so-for-ah)

ANSWER: A -- CEPHALOPODA

53. Short Answer: The name given to a structure present in angiosperms but lacking in gymnosperms is?

ANSWER: OVARY or OVULARY

54. Multiple Choice: In mammals, the primary function of the loop of Henle is:

- a) reabsorption of water
- b) water secretion
- c) ammonia secretion
- d) bicarbonate reabsorption

ANSWER: A -- REABSORPTION OF WATER

55. Short Answer: What is the name of the phenomenon that occurs when tissue culture is infected with one type of virus that causes the culture to resist infection by a second type of virus?

ANSWER: VIRAL INTERFERENCE or INTERFERENCE

56. Short Answer: What are gas bubbles which form within plant cells or in blood known as?

ANSWER: EMBOLISM

57. Short Answer: What are the water conducting cells in non-flowering vascular plants known as?

ANSWER: TRACHEIDS

58. Short Answer: On a dry day, water diffuses out of the intercellular spaces of the leaf through what part of the leaf?

ANSWER: STOMATA

59. Short Answer: A clogging of the bile duct interferes with the digestion of what category of food?

ANSWER: FATS or LIPIDS or FAT SOLUBLE VITAMINS

60. Short Answer: What is the name given to the jellylike substance filling the chamber behind the lens of the human eye?

ANSWER: vitreous body vitreous humor

61. Short Answer: The Erythrocytes of mammals lack what?

ANSWER: nucleus or DNA or chromosomes or mitochondria

62. Multiple Choice: The name of the ductless glands which secrete their product into the circulatory system are:

- a) exocrine (pron: ek-seh-kren)
- b) apocrine (pron: ap-eh-kren)
- c) holocrine (pron: hoe-leh-kren)

d) endocrine (pron: en-deh-kren)

ANSWER: D -- ENDOcrine

63. Multiple Choice: In the first stage of photosynthesis, light energy splits water molecules leaving a by-product which is released. This byproduct is:

- a) hydrogen
- b) carbon dioxide
- c) oxygen
- d) methane

ANSWER: C -- oxygen

64. Multiple Choice: The bacteria which cause dental cavities in humans break down sugars, releasing what chemical, that causes tooth destruction?

- a) acids
- b) bases
- c) enzymes
- d) monosaccharides

ANSWER: A -- acids

65. Multiple Choice: Blood platelets are:

- a) cytoplasmic fragments
- b) free nuclei
- c) a kind of red cell
- d) found only during clot formation

ANSWER: A -- Cytoplasmic fragments

66. Multiple Choice: Oxidation of fats and carbohydrates within a cell would be an example of:

- a) anabolism
- b) catabolism
- c) biosynthesis
- d) none of the above

ANSWER: B -- Catabolism

67. Multiple Choice: The muscle which is under involuntary control is:

- a) striated
- b) smooth
- c) skeletal

ANSWER: B -- SMOOTH

68. Multiple Choice: The secondary pacemaker of the heart is known as the:

- a) AV node
- b) SA node
- c) Purkinje Bundle
- d) None of the above

ANSWER: A -- AV node

69. Multiple Choice: A pyrogen is a substance released during inflammation that aids in causing:

- a) swelling
- b) redness
- c) fever
- d) pain

ANSWER: C -- fever

70. Multiple Choice: Which of the following living creatures is most likely to have evolved from the trilobite?

- a) millipede
- b) sea star
- c) sea anemone
- d) whelk

ANSWER: A – millipede

71. Multiple Choice: A lake which has high nutrient availability is:

- a) oligotrophic (pron: all-i-go-tro-fik)
- b) eutrophic (pron: you-tro-fik)
- c) mesotrophic (pron: mez-eh-tro-fik)

ANSWER: B -- eutropHic

72. Multiple Choice: The hormone causing growth of the endometrium (pron: en-doe-me-tree-um) is:

- a) androgen (pron: ann-drah-jen)
- b) leutenizing hormone (pron: lew-ten-I-zing)
- c) estrogen
- d) prolactin

ANSWER: C -- estrogen

73. Multiple Choice: Nitrogen fixation is accomplished by:

- a) plants
- b) bacteria
- c) animals
- d) viruses

ANSWER: B -- bacteria

74. Multiple Choice: The vesicles formed via the process known as phagocytosis (pron: fag-eh-seh-toe-sis) are called:

- a) lysosomes (pron: lye-sah-somes: some rhymes with homes)
- b) Golgi apparatus
- c) food vacuoles
- d) mitochondria (pron: my-toe-chon-dria)

ANSWER: C -- FOOD VACUOLES

75. Multiple Choice: Of the following three substances, which provides the LEAST source of energy for the body?

- a) protein
- b) fats
- c) carbohydrates

ANSWER: A – proteins

76. Multiple Choice: Type A blood contains isohemagglutinins against which red cells?

- a) type A
- b) type B
- c) type O
- d) type G

ANSWER: A -- type A

77. Multiple Choice: Which cell count tends to be elevated when an individual has an allergy or parasitic worms?

- a) red blood cells
- b) erythrocyte
- c) eosinophil (pron: e-o-sin-o-fill)
- d) platelet

ANSWER: C -- eosinophil

78. Multiple Choice: Veins tend to have the following except:

- a) valves for unidirectional flow
- b) very elastic walls
- c) thin walls
- d) increasing size toward the heart

ANSWER: B -- very elastic walls

79. Multiple Choice: Gallstones are most often the result of:

- a) gallbladder irritation
- b) eating cherries and swallowing the pits
- c) precipitation of cholesterol
- d) accumulated bile pigment

ANSWER: C -- precipitation of cholesterol

80. Multiple Choice: The loss of water by plants in the form of vapor is called:

- a) evaporation
- b) transpiration
- c) evapotranspiration
- d) vaporization

ANSWER: C – evapotranspiration

81. Multiple Choice: Sponges are included in which of the following phyla?

- a) Cnidaria (pron: nid-air-e-ah)
- b) Porifera
- c) Reptilia
- d) Foraminifera (pron: feh-ram-eh-nif-eh-rah)

ANSWER: B -- PORIFERA

82. Short Answer: Name the tendon in humans which attaches the gastrocnemius and soleus muscles to the calcaneum or heel bone.

ANSWER: Achilles Tendon

83. Short Answer: What is the normal pH of human blood?

ANSWER: 7.4

84. Short Answer: Myosin is one of two proteins that make up the myofibrils of striated muscles. Name the other protein.

ANSWER: Actin

85. Short Answer: Part of the endocrine system in humans, these two glands are small bodies located at the upper end of each kidney. While these glands perform a variety of functions, two of the most important are (1) control of the body's adjustment to an upright posture, and (2) accommodation of the body to intermittent rather than constant intake of food. Name these glands.

ANSWER: Adrenal Glands

86. Short Answer: Name the gelatin-like substance which is prepared for various species of red algae growing in Asiatic waters. The prepared product appears in the form of cakes, coarse granules, long shreds or in thin sheets. It is used extensively alone or in combination with various nutritive substances, as a medium for culturing bacteria and various fungi

ANSWER: Agar-agar or just Agar

87. Short Answer: What is a partial or total loss of memory of a temporary or permanent nature known as?

ANSWER: Amnesia

88. Multiple Choice: All of the following are characteristic of amphibians EXCEPT:

- a) moist skin
- b) the absence of scales
- c) metamorphosis
- d) live in salt water

ANSWER: D -- live in salt water

89. Short Answer: What term is used to describe the procedure whereby a catheter is inserted into an individual's heart, a radio-opaque medium is injected, and x-ray images are made. The procedure is used to locate where arteries are blocked and the degree to which the blockage has developed.

ANSWER: Angiography or Angiogram

90. Multiple Choice: Which of the following joints is formed by the articulation of the tibia, the malleolus of the fibula, and the convex surface of the talus. Is it the:

- a) ankle
- b) knee
- c) elbow
- d) wrist

ANSWER: A -- Ankle

91. Multiple Choice: A plant which completes its life cycle, from seed to seed, in a single growing season is known as:

- a) perennial
- b) cyclic
- c) annual
- d) circadian

ANSWER: C – Annual

92. Multiple Choice: In flowers the terminal part of a stamen, containing the pollen sacs is known as the:

- a) anther
- b) style
- c) filament
- d) pistil

ANSWER: A -- Anther

93. Multiple Choice: The process of nuclear reorganization in protozoa in which the nucleus divides, each half undergoes a maturation, and the two persisting functional nuclei reunite is known as:

- a) autogamy
- b) autolysis
- c) autoregression
- d) autotomy

ANSWER: A -- Autogamy

94. Multiple Choice: Of the following, which is NOT a bacterial disease Is it:

- a) strep throat
- b) herpes
- c) Bubonic Plague

d) Diphtheria

ANSWER: B -- herpes

95. Multiple Choice: Of the following, which is NOT a viral disease? Is it:

- a) Hepatitis
- b) Chicken Pox
- c) Tuberculosis
- d) Rabies

ANSWER: C – Tuberculosis

96. Multiple Choice: Most of the fungi commonly observed are members of this group of fungi, which includes toadstools, mushrooms and puffballs. This group of fungi is known as:

- a) Phycomycetes (pron: fl-kO-my-seats)
- b) Ascomycetes (pron: as-kO-my-seats)
- c) Basidiomycetes (pron: beh-sid-E-O-my-seats)
- d) Plyocetes (pron: ply-O-seats)

ANSWER: C -- Basidiomycetes

97. Multiple Choice: Truffles, morels and the many yeasts which are basic to fermentation processes belong to this group of fungi. These fung are known as:

- a) Phycomycetes
- b) Ascomycetes
- c) Basidiomycetes
- d) Plyocetes

ANSWER: B -- Ascomycetes

98. Multiple Choice: Many living organisms exhibit the unique property of producing visible light. What term is used to describe this phenomena?

ANSWER: Bioluminescence or photoluminescence

99. Multiple Choice: Many living organisms exhibit the unique property of producing visible light. The compound that is oxidized with subsequent light emission is usually referred to as luciferin. What is the enzyme which catalyzes the reaction known as?

ANSWER: Luciferase

100. Multiple Choice: The muscle which RAISES a bird's wing is known as the:

- a) Pectoralis major
- b) pectoralis minor
- c) soleus
- d) gluteus maximus

ANSWER: B -- pectoralis minor