TOSS-UP

1. BIOLOGY; Multiple Choice: Certain molecules of the human immune system are

designated by the abbreviation MHC. What does MHC stand for?

(W) Molecular Histone Complex

(X) Major Histocompatibility Complex

(Y) Methionine Hormone Catalyst

(Z) Methionine Hydrogenase Complex

ANSWER: X—MAJOR HISTOCOMPATIBILITY COMPLEX

BONUS

1. BIOLOGY; Multiple Choice: What is the name of the portion of an antigen that an antibody

recognizes?

(W) Epitope

(X) Pathogenic determinant

(Y) Heavy chain

(Z) Light chain

ANSWER: W—EPITOPE

TOSS-UP

2. BIOLOGY; Short Answer: What is the 5-carbon intermediate of the citric acid cycle?

ANSWER: α-KETOGLUTARATE

BONUS

1. BIOLOGY; Multiple Choice: Oxidative phosphorylation makes use of an electrochemical gradient built over a certain part of the mitochondria. What is this part?

(W) Cellular membrane

(X) Mitochondrial matrix

(Y) Cristae

(Z) Stroma

ANSWER: Y—CRISTAE

TOSS-UP

1. BIOLOGY; Short Answer: Name of the massive flowering of life that followed the Precambrian Era.

ANSWER: CAMBRIAN EXPLOSION

BONUS

3. BIOLOGY; Short Answer: Arrange the following in order of their appearance in the history of life: angiosperms, nonvascular plants, gymnosperms.

ANSWER: NONVASCULAR PLANTS, GYMNOSPERMS, ANGIOSPERMS

TOSS-UP

4. BIOLOGY; Short Answer: What is the common name of the human olecranon process?

ANSWER: ELBOW

BONUS

4. BIOLOGY; Multiple Choice: What is the scientific name of the muscle commonly known as the calf of human leg?

(W) Trapezius

(X) Gastrocnemius

(Y) Quadriceps brachii

(Z) Quadriceps femorii

ANSWER: X--GASTROCNEMIUS

TOSS-UP

5. BIOLOGY; Multiple Choice: Cells that are capable of developing into all the different cell types in an organism are known as

(W) Omnipotent

(X) Totipotent

(Y) Pluripotent

(Z) Deuteropotent

ANSWER: X—TOTIPOTENT

BONUS

5. BIOLOGY; Multiple Choice: Which of the following animals is not a protostome?

(W) Hydra

(X) Rotifer

(Y) Giant squid

(Z) Coelocanth

ANSWER: Z—COELOCANTH

TOSS-UP

1. BIOLOGY; Short Answer: What French scientist proposed the principle species evolve through the use and disuse of body parts?

ANSWER: JEAN-BAPTISTE DE LAMARCK (ACCEPT: LAMARCK)

BONUS

6. BIOLOGY; Short Answer: What the name for the study of the geographic distribution of a species?

ANSWER: BIOGEOGRAPHY

TOSS-UP

7. BIOLOGY; Multiple Choice: The natural selection of traits that are population density-dependent over traits that are not population density-independent is known as

(W) Q-selection

(X) K-selection

(Y) r-selection

(Z) b-selection

ANSWER: Y—K-SELECTION

BONUS

7. BIOLOGY; Multiple Choice: Certain populations will grow logarithmically. As time progress, they will approach a limit where they will display no growth. What is the name of this limit?

(W) Zero population growth equilibrium

(X) Carrying capacity

(Y) J line

(Z) Growth cap

ANSWER: X—CARRYING CAPACITY

TOSS-UP

8. BIOLOGY; Short Answer: What is the most abundant organic compound on Earth?

ANSWER: CELLULOSE

BONUS

8. BIOLOGY; Multiple Choice: Which of the following is the most abundant protein on Earth?

(W) Insulin

(X) Collagen

(Y) Sucrase

(Z) Rubisco

ANSWER: Z—RUBISCO

TOSS-UP

9. BIOLOGY; Multiple Choice: Which of the following is not an example of a hormone?

(W) Sriram’s liver releases ethylene glycol to warm his body

(X) Mike’s sweat glands release a fragrance that attracts Susan

(Y) Tom’s parathyroid gland releases a substance that regulates his blood-calcium levels

(Z) Tina’s adrenal cortex releases a substance that stimulates her digestive system

ANSWER: X—MIKE’S SWEAT GLANDS RELEASE A FRAGRANCE THAT ATTRACTS SUSAN

BONUS

1. BIOLOGY; Short Answer: Name the two major types of animal conditioning.

ANSWER: CLASSICAL AND OPERANT (ACCEPT: CLASSICAL CONDITIONING AND OPERANT CONDITIONING)

TOSS-UP

10. BIOLOGY; Short Answer: What part of the peripheral nervous system causes “rest and digest” responses?

ANSWER: PARASYMPATHETIC NERVOUS SYSTEM (ACCEPT: PARASYMPATHETIC)

BONUS

10. BIOLOGY; Multiple Choice: Which of the following is not a common neurotransmitter?

(W) Gamma-aminobutyric acid

(X) Glycine

(Y) Serotonin

(Z) Indole acetic acid

ANSWER: Z—INDOLE ACETIC ACID

TOSS-UP

11. BIOLOGY; Short Answer: Oogenesis is the process by which one primary oocyte divides into four cells. How many of these cells are viable eggs?

ANSWER: ONE

BONUS

11. BIOLOGY; Multiple Choice: What is the name of the open end of a gastrula?

(W) Blastopore

(X) Archenteron

(Y) Protostome

(Z) Dorsal lip

ANSWER: W—BLASTOPORE

TOSS-UP

12. BIOLOGY; Short Answer: Name the two types of transport vessels in plants.

ANSWER: XYLEM AND PHLOEM

BONUS

12. BIOLOGY; Multiple Choice: Which of the following is a dicot?

(W) Corn

(X) Grass

(Y) Tulips

(Z) Roses

ANSWER: Z—ROSES

TOSS-UP

13. BIOLOGY; Multiple Choice: Which of the following organelles produces lipids?

(W) Smooth endoplasmic reticulum

(X) Nucleus

(Y) Mitochondria

(Z) Plastid

ANSWER: W—SMOOTH ENDOPLASMIC RETICULUM

BONUS

13. BIOLOGY; Short Answer: What are the three components of the central dogma of biology?

ANSWER: DNA, RNA, PROTEIN

TOSS-UP

14. BIOLOGY; Short Answer: Name the second stage of mitosis.

ANSWER: METAPHASE

BONUS

14. BIOLOGY; Multiple Choice: Which of the following most accurately describes meiosis?

(W) The division of one cell into two cells in one step

(X) The division of one cell into four cells in one step

(Y) The division of one cell into two cells in two steps

(Z) The division of one cell into four cells in two steps

ANSWER: Z—THE DIVISION OF ONE CELL INTO FOUR CELLS IN TWO STEPS

TOSS-UP

15. BIOLOGY; Short Answer: What biome covers the greatest amount of the earth’s surface area?

ANSWER: TAIGA

BONUS

15. BIOLOGY; Multiple Choice: Which of the following has the greatest net primary productivity?

(W) The Pacific Ocean

(X) The Great Plains

(Y) The Great Barrier Reef

(Z) The Andes

ANSWER: W—THE PACIFIC OCEAN

TOSS-UP

16. BIOLOGY; Short Answer: What is the scientific name of the infection of the bone by bacteria?

ANSWER: OSTEOMYELITIS

BONUS

16. BIOLOGY; Multiple Choice: In humans, the atlas is what number cervical vertebra?

(W) First

(X) Second

(Y) Third

(Z) Fourth

ANSWER: W—FIRST

TOSS-UP

17. BIOLOGY; Multiple Choice: Which of the following is not a genetically inherited disease?

(W) Phenylketonuria

(X) Sickle Cell Anemia

(Y) Polio

(Z) Juvenile Diabetes

ANSWER: Y—POLIO

BONUS

17. BIOLOGY; Short Answer: Name the disease in which immune cells destroy the myelin sheaths of axons.

ANSWER: MULTIPLE SCLEROSIS (ACCEPT: MS)

TOSS-UP

18. BIOLOGY; Multiple Choice: Strands of DNA wrapped around globules of protein are known as

(W) Osteons

(X) Histones

(Y) Flagellates

(Z) Kinetochores

ANSWER: X—HISTONES

BONUS

18. BIOLOGY; Short Answer: What is the diploid number of humans?

ANSWER: 46 (ACCEPT: 2N EQUALS 46)

TOSS-UP

19. BIOLOGY; Multiple Choice: Which of the following plant hormones causes fruit to ripen?

(W) Auxin

(X) Gibberellin

(Y) Abscisic acid

(Z) Ethylene gas

ANSWER: Z—ETHYLENE GAS

BONUS

19. BIOLOGY; Short Answer: The part of the plant that is located aboveground is known as what?

ANSWER: SHOOT

TOSS-UP

20. BIOLOGY; Multiple Choice: Which of the following is a vertebrate?

(W) Shark

(X) Roundworm

(Y) Platypus

(Z) Rotifer

ANSWER: Y—PLATYPUS

BONUS

20. BIOLOGY; Short Answer: What is the name of the protist that causes malaria?

ANSWER: PLASMODIUM

TOSS-UP

21. BIOLOGY; Short Answer: A virus that infects bacteria is known as what?

ANSWER: BACTERIOPHAGE

BONUS

21. BIOLOGY; Multiple Choice: Koch’s postulates are used to determine which of the following?

(W) The cause of an infectious disease

(X) The mechanism of seed dispersal

(Y) The compatibility of blood types in a transfusion patient

(Z) The likelihood of a graft-versus-host response

ANSWER: W—THE CAUSE OF AN INFECTIOUS DISEASE

TOSS-UP

22. BIOLOGY; Short Answer: In humans, T cells complete their development in what organ?

ANSWER: THYMUS

BONUS

22. BIOLOGY; Multiple Choice: The colostrum confers what type of immunity to a baby?

(W) Passive

(X) Active

(Y) Secondary

(Z) Tertiary

ANSWER: W—PASSIVE

TOSS-UP

23. BIOLOGY; Short Answer: What type of alcohol is the drinking alcohol found in liquor?

ANSWER: ETHANOL

BONUS

23. BIOLOGY; Multiple Choice: What is the waste product produced by human muscle cells when they undergo anaerobic respiration?

(W) Ethanol

(X) Butanol

(Y) Lactic Acid

(Z) Fumarate

ANSWER: Y—LACTIC ACID

TOSS-UP

24. BIOLOGY; Multiple Choice: Which of the following is not a kingdom of life?

(W) Bacteria

(X) Animalia

(Y) Plantae

(Z) Monera

ANSWER: W—BACTERIA

BONUS

24. BIOLOGY; Short Answer: Halophiles are members of what domain?

ANSWER: ARCHAEA

TOSS-UP

25. BIOLOGY; Short Answer: What is the name of the term in which two pollen grains fertilize one ovule?

ANSWER: DOUBLE FERTILIZATION

BONUS

25. BIOLOGY; Multiple Choice: Which of the following best describes perennial plants?

(W) Their life cycles are one year

(X) Their life cycles are seasonal

(Y) Their life cycles are several years

(Z) Their life cycles are biannual

ANSWER: Y—THEIR LIFE CYCLES ARE SEVERAL YEARS