NATIONAL ROUND ROBIN - 7

TOSS-UP

1. **ERSC; Multiple Choice: In sedimentary rock formations, what indicates drying after sediment deposition?**

   (W) Mud cracks
   (X) Grooves
   (Y) Flutes
   (Z) Geodes

   ANSWER: W– MUD CRACKS

BONUS

1. **ERSC; Multiple Choice: There are detrital, chemical and organic sedimentary rocks. Of the following, which term is associated with chemical sedimentary rocks?**

   (W) Chald
   (X) Oolite (pron: oh'-eh-lit)
   (Y) Coal
   (Z) Mudstone

   ANSWER: X – OOLITE

TOSS-UP

2. **CHEM; Multiple Choice: Who discovered that frog legs twitch when brought in contact with a pair of different metals?**

   (W) Avogadro
   (X) Ampere
   (Y) Galvani
   (Z) Joule

   ANSWER: Y– GALVANI

BONUS

2. **CHEM; Multiple Choice: In an electrochemical cell, the connecting tube that contains an electrolyte solution is called a**

   (W) half cell.
   (X) cell.
   (Y) cathode.
   (Z) salt bridge.

   ANSWER: Z– SALT BRIDGE

TOSS-UP

3. COMP; Multiple Choice: Which of the following file transfer protocols transfers information in blocks of 1,024 bytes.

(W) Kermit
(X) X modem
(Y) Y modem
(Z) none of the above

ANSWER: Y– YMODEM

BONUS

3. COMP; Multiple Choice: If an asynchronous modem is running at 9600 bits per second, and it is set to 8 data bits. What is the maximum number of characters that can be transmitted in one second? Assume there are no network delays.

(W) 1200
(X) 1066
(Y) 960
(Z) None of the above

ANSWER: Y– 960

TOSS-UP

4. BIOL; Multiple Choice: Allergies result when antigens bind to

(W) mast cells.
(X) antibody-binding sites.
(Y) macrophages.
(Z) plasma cells.

ANSWER: W– MAST CELLS

BONUS

4. BIOL; Multiple Choice: A person who has had a heart transplant is given cyclosporine to depress

(W) active immunity.
(X) passive immunity.
(Y) cell-mediated immune responses.
(Z) suppressor T-cells.

ANSWER: Y– CELL-MEDIATED IMMUNE RESPONSES

TOSS-UP

5. PHYS; Multiple Choice: In wave motion, a trough is

(W) any displacement of particles of the medium.
(X) any maximum displacement of particles of the medium.
(Y) a maximum displacement downward of particles of the medium.
(Z) a maximum displacement upward of particles of the medium.

ANSWER: Y– A MAXIMUM DISPLACEMENT DOWNWARD OF PARTICLES OF THE MEDIUM

BONUS

5. PHYS; Multiple Choice: In a rarefaction, the molecules of the medium are

(W) spaced apart.
(X) close together.
(Y) undisturbed.
(Z) spaced the same as in a compression of that medium.

ANSWER: W– SPACED APART

TOSS-UP

6. GENR; Short Answer: James Lovelock popularized the theory which suggests that the Earth functions as a self-regulating "superorganism." What is the name of this theory?

ANSWER: GAIA (THEORY)

BONUS

6. GENR; Multiple Choice: Pollination by birds is called

(W) autogamy.
(X) ornithophily (pron: or-nith-off'-ily).
(Y) entomophily (pron: ent-eh-mof'-illy).
(Z) anemophily (pron: an-eh-mof'-illy).

ANSWER: X– ORNITHOPHILY

TOSS-UP

7. CHEM; Multiple Choice: The space shuttle uses a kind of hydrogen-oxygen voltaic cell called a

(W) dry cell.
(X) lead storage battery.
(Y) fuel cell.
(Z) nicad.

ANSWER: Y– FUEL CELL

BONUS

7. CHEM; Multiple Choice: A device that produces electricity as the result of redox reactions that can occur on their own is

(W) a voltaic cell.
(X) an electrolytic cell.
(Y) a battery.
(Z) an electrochemical cell.

ANSWER: W– A VOLTAIC CELL

TOSS-UP

8. ASTR; Multiple Choice: Jupiter's moon Io has a surface that is

(W) Covered with active volcanos.
(X) Rocky and covered with craters.
(Y) Covered with ice similar to a frozen ocean.
(Z) Blocked from our view by dense clouds.

ANSWER: W– COVERED WITH ACTIVE VOLCANOS

BONUS

8. ASTR; Multiple Choice: What celestial body was discovered by the Galileo spacecraft to have markings similar to ice flows in the Earth's polar regions?

(W) Europa.
(X) Io.
(Y) Titan.
(Z) Mars.

ANSWER: W– EUROPA

TOSS-UP

9. BIOL; Multiple Choice: When activated, mast cells release

(W) antibodies.
(X) histamines.
(Y) interferon.
(Z) cyclosporine.

ANSWER: X– HISTAMINES

BONUS

9. BIOL; Multiple Choice: Asthma is an allergic reaction in which

(W) smooth muscles around lung passageways contract.
(X) suppressor T-cells and helper T-cells die.
(Y) histamine production decreases.
(Z) antihistamine production increases.

ANSWER: W– SMOOTH MUSCLES AROUND LUNG PASSAGEWAYS CONTRACT

TOSS-UP

10. MATH; Multiple Choice: Where does the function y = 2x squared + 4 meet the x axis?

(W) -2
(X) -1
(Y) 1/2
(Z) none of the above

ANSWER: Z– NONE OF THE ABOVE

BONUS

10. MATH; Short Answer: Fresh mushrooms contain 90% water and dried mushrooms contain 10%. How many pounds of dried mushrooms does one get from 27 pounds of fresh ones?

ANSWER: 3.0 (POUNDS)

TOSS-UP

11. PHYS; Multiple Choice: The photoelectric effect modified

(W) violet light theory.
(X) wave theory.
(Y) red light.
(Z) electron production.

ANSWER: X– WAVE THEORY

BONUS

11. PHYS; Multiple Choice: In the photoelectric effect, electrons are knocked out by photons with

(W) long wavelengths.
(X) short wavelengths.
(Y) low frequencies.
(Z) low frequencies and short wavelengths.

ANSWER: X– SHORT WAVELENGTHS

TOSS-UP

12. CHEM; Multiple Choice: Standard state measurements of cell reactions are usually made at what temperature?

(W) 0 degrees Kelvin
(X) 0 degrees Celsius
(Y) 25 degrees Celsius
(Z) 100 degrees Celsius

ANSWER: Y– 25 DEGREES CELSIUS

BONUS

12. CHEM; Multiple Choice: Which of the following is found in the paste of an alkaline cell?

(W) Ammonium chloride
(X) Lead dioxide
(Y) Potassium hydroxide
(Z) Nickel dioxide

ANSWER: Y– POTASSIUM HYDROXIDE

TOSS-UP

13. COMP; Multiple Choice: Recursion is

(W) a term used in software engineering to describe a recurrent data input error from the user.
(X) a term used in operating systems to describe frequent disk swapping.
(Y) a term used in programming to describe frequent prompting of the user for input.
(Z) a term used in programming to describe a self-calling subroutine.

ANSWER: Z– A TERM USED IN PROGRAMMING TO DESCRIBE A SELF-CALLING SUBROUTINE

BONUS

13. COMP; Multiple Choice: The relational data model on which relational databases are made was invented by

(W) James Rumbaugh.
(X) E. F. Codd.
(Y) Chris J. Date.
(Z) Mary Loomis.

ANSWER: X– E. F. CODD

TOSS-UP

14. BIOL; Multiple Choice: The disease that results when the autoimmune system destroys the myelin sheath of nerve fibers is

(W) multiple sclerosis.
(X) rheumatoid arthritis.
(Y) rheumatic fever.
(Z) juvenile-onset diabetes.

ANSWER: W– MULTIPLE SCLEROSIS

BONUS

14. BIOL; Multiple Choice: "Strep throat" can be very serious because, if left untreated, it can result in

(W) inflammation of the body's joints.
(X) autoimmune reactions in the pancreas.
(Y) scarring of the heart valves.
(Z) the destruction of myelin sheaths of nerves.

ANSWER: Y– SCARRING OF THE HEART VALVES

TOSS-UP

15. ASTR; Multiple Choice: The length of a day on Mars is

(W) 16 hours 27 minutes.
(X) 24 hours 37 minutes.
(Y) 31 hours 13 minutes.
(Z) 37 hours 19 minutes.

ANSWER: X– 24 HOURS 37 MINUTES

BONUS

15. ASTR; Multiple Choice: The designation ALH 84001 refers to

(W) A meteorite from Mars.
(X) An unusual rock formation analyzed by the Sojourner Mars rover.
(Y) An earth crossing asteroid discovered in 1984.
(Z) One of the recently discovered objects in the Kuiper [pron. KYE-per] belt.

ANSWER: W– A METEORITE FROM MARS

TOSS-UP

16. PHYS; Multiple Choice: All waves

(W) are both transverse and longitudinal.
(X) transfer energy through a medium.
(Y) move at right angles to the medium.
(Z) move parallel to the medium.

ANSWER: X– TRANSFER ENERGY THROUGH A MEDIUM

BONUS

16. PHYS; Multiple Choice: The energy of a wave is directly proportional to its

(W) speed.
(X) wavelength.
(Y) amplitude.
(Z) frequency.

ANSWER: Z– FREQUENCY

TOSS-UP

17. CHEM; Multiple Choice: A species readily reduced has a

(W) negative standard reduction potential.
(X) positive standard reduction potential.
(Y) positive standard oxidation potential.
(Z) standard reduction potential of zero.

ANSWER: X– POSITIVE STANDARD REDUCTION POTENTIAL

BONUS

17. CHEM; Multiple Choice: All devices that use electrical energy to drive redox reactions that do not occur on their own are called

(W) voltaic cells.
(X) electrolytic cells.
(Y) batteries.
(Z) electrochemical cells.

ANSWER: Y– ELECTROLYTIC CELLS

TOSS-UP

18. ERSC; Multiple Choice: Which term is used to describe a fault when the hanging wall moves upward in relation to the foot wall?

(W) Thrust fault
(X) Normal fault
(Y) Strike-slip fault
(Z) Transformation fault

ANSWER: W– THRUST FAULT

BONUS

18. ERSC; Multiple Choice: A confined aquifer is said to exist under flowing artesian conditions when its potentiometric surface is

(W) equal to the overlying unconfined aquifer's water table.
(X) equivalent to the top of the confining layer.
(Y) higher than the ground surface.
(Z) lower than the top of the confining layer.

ANSWER: Y– HIGHER THAN THE GROUND SURFACE

TOSS-UP

19. GENR; Multiple Choice: Who was the marine biologist and author of *Silent Spring* who was one of the first people to warn of the dangers of pesticides like DDT?

(W) Jacques Cousteau
(X) Rachel Carson
(Y) Charles Darwin
(Z) Marlin Perkins

ANSWER: X– RACHEL CARSON

BONUS

19. GENR; Multiple Choice: A type of plastic that is biodegradable has been in the news lately. The ingredient that makes it biodegradable is

(W) vegetable oil.
(X) petroleum.
(Y) cornstarch.
(Z) leather.

ANSWER: Y– CORNSTARCH

TOSS-UP

20. PHYS; Multiple Choice: For waves, lambda is the symbol for

(W) wavelength.
(X) frequency.
(Y) amplitude.
(Z) cycles.

ANSWER: W– WAVELENGTH

BONUS

20. PHYS; Multiple Choice: The bending of waves around the edge of a barrier that results in a new series of waves is called

(W) refraction.
(X) reflection.
(Y) diffraction.
(Z) interference.

ANSWER: Y– DIFFRACTION

TOSS-UP

21. BIOL; Short Answer: What is the largest gland in the body?

ANSWER: LIVER

BONUS

21. BIOL; Multiple Choice: Tobacco smoke contains carbon monoxide that

(W) releases epinephrine.
(X) blocks oxygen transport.
(Y) increases pulse rate.
(Z) blocks epinephrine.

ANSWER: X– BLOCKS OXYGEN TRANSPORT

TOSS-UP

22. CHEM; Short Answer: What is Standard Temperature and Pressure (STP)?

ANSWER: 0 DEGREES CELSIUS AND 1 ATMOSPHERE (ACCEPT 273 DEGREES KELVIN)

BONUS

22. CHEM; Multiple Choice: Chemical kinetics is mainly concerned with

(W) reaction rate.
(X) heat of reaction.
(Y) equilibrium.
(Z) completeness of reaction.

ANSWER: W– REACTION RATE

TOSS-UP

23. PHYS; Short Answer: How many quarks make up a neutron?

ANSWER: 3

BONUS

23. PHYS; Multiple Choice: The most efficient transmission of sound is through

(W) liquids.
(X) solids.
(Y) gases.
(Z) vacuums.

ANSWER: X– SOLIDS

TOSS-UP

24. MATH; Short Answer: What is the area of a trapezoid, in square meters, that has a height of 4 meters and parallel sides of length 3 and 4 meters?

ANSWER: 14 (SQUARE METERS)

BONUS

24. MATH; Multiple Choice: If a matrix multiplied by a vector gives a scalar multiple of that vector, the scalar multiple is called

(W) a determinant.
(X) an inverse.
(Y) an eigenvalue.
(Z) a projection.

ANSWER: Y– AN EIGENVALUE

TOSS-UP

25. BIOL; Short Answer: Which vitamin is known as the "coagulation vitamin" because of the vital role it plays in blood clotting?

ANSWER: K

BONUS

25. BIOL; Short Answer: The liver uses Vitamin K to produce what material that is essential to blood clotting?

ANSWER: PROTHROMBIN