Jeopardy style Questions –

1. The genus Ophisaurus consists of a group of legless-lizards that resemble snakes.  What physical characteristic could you observe about one of these lizards that would indicate that this is not a snake.  *Answer:  Moveable eyelids or external ear openings.*
2. An ecological interaction in which a member of one species harms a member of another species without gaining any benefit is known as what? *Answer: Ammensalism*
3. Geology is a study that encompasses the study of both rocks and minerals. What is the individual study of minerals alone known as? *Answer: mineralogy*
4. What is the valence of oxygen? *Answer: 2*
5. What is a large, but weak red flash that can appear above active thunderstorms and often appears at the same time as a powerful positive cloud to ground lightning strike? *Answer: Red Sprite*
6. Cornstarch reacts with what solution, forming a dark purple color? *Answer: iodine*
7. What are the three parts of an epidemiological triangle? *Answer: agent, host, environment*
8. Old world monkeys, those found throughout Asia and Africa, and new world monkeys, those found throughout South America, have a defining difference. What is the biological feature that distinguishes new world and old world monkeys? *Answer: Prehensile Tails*
9. How many times more acidic is gastric acid, with a pH of 3, to water, with a pH of 7? *Answer: 10,000 times more acidic*
10. What famous experiment allowed scientists Robert Millikan and Harvey Fletcher to measure the elementary charge? *Answer:* *Oil drop experiment*
11. At a distance of 1R from a planet’s surface, the gravitational field strength is 6 N/kg. R is the radius of the planet. What is the gravitational field strength at a distance of 2R from the surface? *Answer: 8/3 N/kg*
12. Food is moved through the esophagus using what type of muscle movement? *Answer: peristalsis*
13. What is the product in the bicarbonate buffer system as a result of a chemical reaction combining H2O and CO2? *Answer: carbonic acid*
14. To the nearest degree, what is 300 Kelvin in Celsius? *Answer: 27℃*
15. What are the three smallest bones in the human body? *Answer: malleus, incus, stapes*
16. Suppose I already have 1L of 12M HCl in my beaker. How much water should I add to my beaker to get a final concentration of 3M? *Answer: 3 L (slightly tricky because you must remember to subtract the the 1L already existing in the beaker from the answer!)*
17. If an animal cell with a 0.9% NaCl content is put into an area with a 0.1% NaCl content, it may burst due to which property? *Answer: Osmosis*
18. Plants use these properties of water to help get water up their stems. *Answer: cohesion and adhesion*
19. How long does it take for the moon to travel a full orbit around the earth? *Answer: 27 days.*
20. What percentage of the sun is made up of hydrogen? *Answer: 70%*
21. Down’s Syndrome is characterized by the extra presence of what in the cell? *Answer: Chromosome 21*
22. A property known to be exhibited by all objects that produce a gravitational field around them, affecting all other objects with this specific property, also theorized to be a result of the existence of the Higgs boson, as well as being a property that allows physicists to measure the object’s resistance to acceleration, is known as what? *Answer: mass*
23. *What fundamental force is responsible for beta radiation? Answer: Weak Force*
24. *What is the name of the logical operator that inverts the input? Answer: "Not operator", "Not gate"’*
25. A bacteria population doubles every hour. If I leave 1 bacteria in a petri dish, how many will be there in 5 hours. *Answer: 32*
26. What famous scientist proved the germ theory of disease by using heat to kill bacteria in a liquid? (Hint: His name is on every gallon of milk) *Answer: Louis Pasteur*
27. What is the magnitude of the velocity of a ball in freefall 5 seconds after release? Assume a gravitational acceleration of 9.8 m/s/s. *Answer: 49 m/s*
28. An ideal gas is in a sealed container with a volume of 3L, pressure of 1.3 atm, and a temperature of 227 K. The temperature is increased 23 K. Assuming volume remains constant, what is the new pressure of the gas. Give your answer in kPa *Answer: 1.5 x 10^2 kPa*
29. What is the process of replicating chromosomes known as? *Answer: Mitosis*
30. Who developed the theory of seafloor spreading? *Answer: Harry Hess*
31. Mold secretes a toxic substance that is bad for humans. What is it called? *Answer: Mycotoxins*
32. What type of acid is in endospores that makes endospores resistant to heat? *Answer: Dipicolinic Acid*
33. Convert 2 Newton-Metre to Joules. *Answer: 2 Joules*
34. Rounded to the nearest integer, how many seconds does it take for a 1 kg ball to fall 490 meters from rest on Earth? *Answer: 10 seconds*
35. If the ISS is 400 km above the surface of the earth, what is the acceleration due to gravity on the ISS? (Round to the nearest whole number) (9 m/s^2)
36. What are the transport systems called in a plant stem? What does each one transport, and how does this affect the plant’s survival? (xylem and phloem, water and solutes/food, respiration and photosynthesis are enabled)
37. 1000 cal = how many Joules? (4180 J)
38. What experiment proved the existence of a nucleus in the atom? (Rutherford’s gold foil experiment)
39. Briefly explain the Calvin Cycle. Include the words “RuBP”, “NADPH”, “ATP”, and “Glucose” in your response. (Sample Answer: The reactions of the Calvin cycle add carbon (from carbon dioxide in the atmosphere) to a simple five-carbon molecule called RuBP. These reactions use chemical energy from NADPH and ATP that were produced in the light reactions. The final product of the Calvin cycle is glucose.)
40. What is Homeostasis? (An organism maintaining precise internal conditions under changing circumstances)
41. What type of vehicle is Bernoulli's principle most used? Answer: airplanes
42. A metal and nonmetal form what kind of bond? Answer: Ionic
43. What is the primary oxygen-carrying protein found in red blood cells? answer: Hemoglobin
44. What is the SI base unit for mass? answer:Kilogram
45. What is the specific heat of water? Answer: 4.184J/g
46. What is the standard temperature in Kelvins in chemistry(STP)? Answer: 273K
47. The only elements that are liquid at room temperature are? Answer: Bromine and Mercury
48. What is the most abundant element in the universe? Answer: Hydrogen
49. The phospholipid bilayer composes which part of a cell? Answer: the membrane
50. Heisenberg’s uncertainty principle states what? Answer: One can never know the exact position and the exact speed of an object at the same time
51. The prefix nano- represents 10 to what power? Answer: -9
52. What are the two types of photoreceptors in human eyes? Answer: rods and cones
53. How big is a Hydrogen atom? *Answer: 53 Picometers (1e-12 meters)*
54. What is the ideal gas constant with units of (L\*atm)/(mol\*K)? *Answer: 0.08206*