Team Name_____ **Score**_____

Ranking _____

North Shore Science League
Science Trivial Pursuit

Provide one answer for each of the following questions. Illegible answers will not be graded. **Time limit is 30 minutes**.

1) This scientist provided an explanation of how gravity works, more specifically, the kinematics of planetary motion, in his Theory of Universal Gravitation.

Answer: _____

2) This scientist provided an explanation as to why gravity exists, simplistically, he stated that gravity resulted from a warping of the space-time continuum.

Answer: _____

3) A force contains two fundamental components, they are **mass** and

Answer: _____

4) What scientist thought that everything is made out of earth, air, fire, and water?

Answer: _____

A. Democritus
B. Promethius
C. Aristarchus
D. Aristotle

5) What do you call the fixed point on which a lever turns?

Answer: _____

A. turnstile
B. fulcrum
C. arm
D. torque
E. block

6) Let's get spacey now. Suppose I'm sitting on my favorite chair somewhere out in space. Suppose you are driving some kind of spacemobile with a big monochromatic yellow lamp on top. Suppose the lamp is burning, of course. When you're driving directly towards me (at extremely high speed, of course), what kind of light will I see?

Answer: _____

A) red-ish
B) yellow, but pulsating
C) yellow
D) blue-ish

7) When I take your favorite CD and tell you I'll make a scratch of 5 mm long and 1 mm deep on it, you'll freak out. But I give you some choices on the position of the scratch. Which choice is the MOST dangerous for your CD and should not be chosen (remember: the topside is the one with the printing on it)?

Answer: _____

A) circumferencial on the topside
B) radial on the topside
C) circumferencial on the backside
D) radial on the backside

8) What is the value of the universal gravitational constant?

Answer: _____ $N*m^2/kg^2$

9) What is Galileo's first name?

Answer: _____

10) Complete the equation:

$v_f^2 = v_i^2 + 2a$ _____

11) A gun shoots a bullet. Which is greater, the force of the bullet on the gun, or the force of the gun on the bullet?

Answer: _____

12) Who invented calculus?

Answer: _____

13) Two balls are released at exactly the same time from the same height. Ball A is thrown horizontally and ball B is dropped. There is no air resistance.

Which statement is true:

Answer: _____

A) Ball A takes more time to reach the ground than Ball B
B) Ball A takes less time to reach the ground than Ball B
C) The two balls take the same time to reach the ground
D) None of these - it depends on how fast ball A is thrown.

14) A recently discovered planet was informally referred to as "Zena" by the group who discovered it. This planet's moon was informally referred to as:

Answer: _____

The chemical formula for water is H^2O, and the chemical formula for the hydroxide ion is OH^-,

15) What is the chemical formula for methane?

Answer: _____

16) What is the chemical formula for the nitrate ion?

Answer: _____

17) What metallic element is essential for the transportation of oxygen by Red Blood Cells?

Answer: _____

A. lead
B. copper
C. mercury
D. tin
E. iron

18) What is a cubit?

Answer: _____

A. an atomic arrangement of a solid
B. a small cube
C. a unit of measurement
D. a type of diamond

19) What was the original name for a kilogram?

Answer: _____

20) The term _____ electrons refers to the electrons in the outermost occupied energy level of an atom.

21) Which former prime minister of England was trained as a scientist?

Answer: _____

22) Who was the French aviator and author (The Little Prince) who has a minor planet named after him?

Answer: _____

23) When an acid is dissolved in water the

Answer: _____

A. acidic solution has a higher pH than pure water
B. concentration of hydrogen ions increases.
C. solution pH will approach 7.
D. solution will always begin to bubble.

24) How many protons are in an Oxygen nucleus?

Answer: _____

25) Alpha particles are composed of this element's nucleus

Answer: _____

26) Zero degrees Kelvin is how many degrees Celsius?

Answer: _____

27) What do you call the thick sheet of muscle that forms the bottom of your chest (thoracic) cavity?

Answer: _____

A. rectus abdominus
B. triceps brachii
C. diaphragm
D. gastrocnemius
E. Sternocleidomastoid

28) Arrange the following in the order in which air passes into the human body: bronchi, alveoli, throat, epiglottis, and trachea.

Answer: _____

29) Similar to a root, this plant structure is a creeping underground stem.

Answer: _____

A) rhizocaul
B) rhodoplast
D) rhizome
E) rhodopsin

30) In 1953, Watson and Crick published their famous paper in Nature where they proposed the correct structure of DNA. This work was based on which scientist's X-ray crystallography data?

Answer: _____

31) What is the process by which two prokaryotic cells transfer plasmids via structures called "sex" pili?

Answer: _____

32) What process/technology is used to separate fragments of genetic material or protein chains into distinct bands on the basis of size and electric field?

Answer: _____

33) Proteins are made in cells on the:

Answer: _____

A. mitochondria
B. ribosomes
C. nucleus
D. cell membrane

34) How are chloroplasts like mitochondria?

Answer: _____

A. they both can use energy from sunlight
B. they look alike
C. they both manufacture food and release energy
D. they are both found in animal cells

35) Ants keep herbivores away from acacia trees. Acacia trees provide ants with food and shelter. This relationship is:

Answer: _____

A. commensalism
B. competition
C. mutualism
D. parasitism

36) Recombinant DNA is formed by splicing together DNA molecules

Answer: _____

A. from two different species
B. from two chromosomes of the same origin
C. and RNA molecules
D. and a protein from a different species

37) Which pair of organic compounds requires nitrogen in order to be produced?

Answer: _____

A. carbohydrates and proteins
B. nucleic acids and lipids
C. proteins and nucleic acids
D. sugars and polysaccharides

38) Before proteins can be synthesized in a eukaryotic cell,

Answer: _____

A. mRNA must pass through pores in the nuclear membrane to enter the cytoplasm
B. thymine molecules must be changed into uracil molecules.
C. transposition must occur in the nucleus.
D. transfer RNA must bring specific nucleotides to the messenger RNA on the ribosomes.

39) In humans, brown eyes are dominant over blue. What conclusions could you draw about the genotypes of a mother and father who had four children, all blue-eyed, if both parents were brown-eyed?

Answer: _____

A. the children were adopted.
B. a "mistake" occurred in one or both parents' genes
C. one parent was heterozygous brown-eyed.
D. both parents were heterozygous brown-eyed.

40) When magma cools and hardens it forms this type of rock

Answer: _____

A. igneous rock
B. sedimentary rock
C. calcareous ooze
D. the asthenosphere
E. metamorphic rock

41) Scientists believe that all the continents were once joined in a giant land mass. The break up of this supercontinent began approximately 200 million years ago. The name of this supercontinent is:

Answer: _____

A. Pangaea
B. Laurasia
C. Eurasia
D. Panthalassia
E. Mesopotamia

42) During the Apollo 15 mission, this NASA astronaut found and retrieved one of the most famous geological specimens from the moon. This rock is often referred to as the genesis rock. The name of the astronaut who found this rock is:

Answer: _____

43) Of the three basic types of rocks, New England geology is dominated by this type of "transformed" rock

Answer: _____

44) In 1912, this scientist proposed the idea of Continental Drift.

Answer: _____

45) The fissile material used in atomic bombs contains the isotope of uranium with atomic mass of:

Answer: _____

46) Who was the first human to break the space barrier,?

Answer: _____

47) Igneous rocks that originated in the White Mountains can often be found along the Maine – Massachusetts coastline. Some of these rocks are larger than houses. The best explanation for the transportation of such large rocks is:

Answer: _____

48) There is a fairly voluminous water flow in the Earth's oceans which conducts heat from the equator to the southern and northern hemispheres. This flow which is driven by temperature and salt concentration is called:

Answer: _____

49) The vast majority of the west coast of both North and South America lies along this type of boundary, (located just off the coast, deep in the Pacific Ocean).

Answer: _____

50) This scientist won the Nobel Prize for his publication on the photo-electric effect

Answer: _____

Answers:

1) Newton
2) Einstein
3) acceleration
4) D
5) B
6) D
7) A
8) 6.67×10^{-11}
9) Galileo
10) (ΔX) or $(x_f - x_i)$ or any similar function
11) Equal
12) Newton
13) C
14) Gabrielle
15) CH4
16) NO_3^{-1}
17) E
18) C
19) a grave
20) valence
21) Thatcher
22) Antoine do Saint-Exupery
23) B
24) 8
25) He
26) -273
27) C
28) throat, epiglottis, trachea, bronchi, aveoli
29) D
30) Franklin
31) conjugation
32) Gel Electrophoresis
33) B
34) C
35) C
36) A
37) C
38) A
39) D
40) A
41) A
42) David Scott
43) Metamorphic
44) Wegener

45) 235
46) Yuri Gagarin
47) glaciers
48) Thermohaline
49) convergent or subduction zone
50) Einstein