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Science Bowl

Question Set

1. Astronomy- *Multiple Choice* The most common type of optical telescope used by observatories is

W.) Reflecting

X.) Refracting

Y.) Radio

Z: Schmidt Cassegrain

1. **Bonus**: Astronomy-*Short Answer* Why are large refracting telescopes not feasible to use?
2. Astronomy: *Multiple Choice*: The nearest star excluding the sun is

W.) Sirius A

X.) Sirius B

Y.) Proxima Centauri

Z.) Rigil

4.) **Bonus**: Astronomy- *Short Answer* When a supergiant star dies what can happen to it?

5.) Astronomy: *Multiple Choice:* Which moon in the solar system has an atmosphere composed mainly of nitrogen

W.) Mimas

X.) Europa

Y.) Titan

Z.) Rhea

6.)  **Bonus:** Astronomy: *Short Answer:* What are two outcomes of the universe? Which one is supported more and why?

7. Astronomy: *Short Answer*: Comets that take more than 200 years to orbit originate from and are called?

1. They are called short-period comets and originate from the Kuiper Belt.

2. They are called medium-period comets and originate from meteors crashing into planets.

3. They are called long-period comets and originate from the Oort Cloud.

4. They are called long term existence comets and originate from beyond the galaxy.

8.**Bonus:** Astronomy: *Short Answer:* What properties differ between the inner planets and the outer planets?

9. Astronomy: *Multiple Choice*: What is the difference between ultraviolet, gamma, visible light and x-ray?

W.) Temperature

X.) Wavelength

Y.) Velocity

Z.) Amplitude

10. **Bonus**: Astronomy: *Short Answer*: What are some of the ways of detecting an extra solar planet? (minimum 3 ways.)

11.) Astronomy: *Short Answer*: Why is aperture more important than magnification power

1.) If there is more aperture, then dimmer objects can be observed

2.) If there is more aperture, then the objects will appear brighter

3.) Aperture will reduce the amount of atmospheric turbulence.

4.) If there is more aperture, Dawes Limit is reduced to a fraction of a micrometer.

12. **Bonus:** Astronomy: *Short Answer* What is the difference between absolute magnitude and apparent magnitude.

13. Math: *Multiple Choice* Factor

W.)

X.)

Y.)

Z.) (x+3) (x+3)

14. **Bonus**: Math *Short Answer*: What is the mean of the data set {1,4,5,5,5,7,9,10,12,25}

15. Math: *Multiple Choice*: What is the degree in the polynomial

W.) 5

X.) 2

Y.) 3

Z.) 4

16. **Bonus:** Math : *Short Answer* Evaluate

17.) Math: *Multiple Choice*: What is the coefficient of the ?

W.) 1

X.) 2

Y.) 3

Z.) 4

18. **Bonus:** Math: *Short Answer.* What would the area of a hexagon equal if the base equaled 5 units?

19. Math: *Multiple Choice:*

W.)

X.) (

Y.) 2(

Z.)

20. **Bonus:** Math: Short Answer: What are three different characteristics of a square and a rectangle?

21.). Math: *Multiple Choice:* Convert

W.)

X.)

Y.)

Z.) Log 3

22.) **Bonus** Math: *Short Answer:* In the sequence of 1,2,2,3,3,3,4,4,4,,,,15,,, and son. The pattern of one 1, two 2’s, three 3’s, four 4’s and so on. Which of the following numbers will be at 111th position?

23. Math: *Multiple Choice:* What is the median of the data set {11,24,24,7,36,45, 2,0,3 }

W.) 11

X.) 45

Y.) 36

Z.) 7

24. **Bonus:** Math: Short Answer:

25. Math: *Multiple Choice:* A bag contains 3 red marbles, 4 blue marbles, and 13 green marbles. What is the chance of getting a red marble

W.)

X.) 3

Y.)

Z.)

26. **Bonus**: Math: *Short Answer:* Ronald McDonald is buying a pizza and can choose from 3 different sizes, 2 different thicknesses, and 12 different toppings. If he must choose 1 size, 1 thickness, and 1 topping, how many different options does he have?

27. Biology: *Multiple Choice*: The most abundant organic compound on Earth is

W.) Glycogen

X.) Chitin

Y.) Cellouse

Z.) Aldose

28.) **Bonus:** Biology: Short Answer: What are some various functions of proteins?

29.) Biology: *Multiple Choice*: In the tertiary structure of a water soluble protein where would you most likely find an amino acid with a hydrophobic r group?

W.) at both ends of the polypeptide chain

X.) On the inside, away from water

Y.) covalently bonded to another art R group

Z.) on the outside, next to the water

30.)  **Bonus:**  Biology : Short Answer: What is the difference between unsaturated fats and saturated fats?

31.) Biology: Multiple-choice: which of the following require a host cell because they cannot make proteins on their own?

W.) viruses

X.) bacteria

Y.) eukaryotes

Z.) fungi

32.) **Bonus:**  Biology: short answer: Why is hydrogen bonding essential to life?

33.) Biology: Multiple-choice : Down syndrome is caused by

W.) An extra chromosome 21

X.) Lack of Chromosome 21

Y.) An extra Chromosome 15

Z.) An extra chromosome 36

34.) Bonus: Biology: Short Answer: What is metastasis?

35.) Biology: multiple choice: The nitrogenous base that is different in RNA is

W.) Aegil

X.) Uracil

Y.) Thymine

Z.) Cytosine

36. **Bonus:** Biology: Short Answer: What are the main structures of the eye?

37. Earth Science: Multiple Choice: Shifts in Earth’s continents most likely caused a

change in Earth’s

W.) continental drift

X.) Mass

Y.) Structure

Z.) Climatic Regions

38.) **Bonus**: Earth Science: Short Answer: What are the three main types of rock and what are the differences between them?

39.) Earth Science: Multiple Choice: What scale is used to measure tornado intensity?

W.) Richter Scale

X.) Fujita Scale

Y.) Saffir-Simpson Scale

Z.) Torzarra Scale

40.) **Bonus:** Earth Science: Short Answer: What are three conditions required for the birth of a hurricane?

41.) Chemistry: Multiple Choice: Which of the following elements is classified as a

metal?

W.) Boron

X.) Nitrogen

Y.) Argon

Z.) Lithium

42. **Bonus**: Chemistry: Short Answer: What are five signs of a chemical reaction?

43.) Chemistry: Multiple Choice: Which formula represents a salt?

W.) C

X.) KCl

Y.) CH3OH

Z.)

44.) **Bonus:** Chemistry: Short Answer: Why is water polar?

45.) Chemistry: Multiple Choice: The fourth energy shell of an atom has a capacity of how many electrons

W.) 18

X.) 16

Y.) 32

Z.) 24

46.) **Bonus**: Chemistry: Short Answer: What are some of the limiting factors of the Bohr model?

47.) General Science: Multiple Choice: Which mammal lays eggs

W.) platypus

X.) anteater

Y.) duck

Z.) whale

48.) **Bonus:** General Science: Short Answer: A kilometer is equal to how many picometers?

49.) Physics: Multiple Choice: In an elastic collision, momentum is conserved, as is?

W.) Kinetic Energy

X.)Speed  
Y.) Velocity

Z.) momentum

50.) **Bonus**: Physics: Short Answer: Describe the difference between speed and velocity?