Lightning

1. ESS Short Answer. Name all of the following 4 minerals in which titanium is abundant.

1. Ilmenite
2. Sphene
3. Rutile
4. Carnotite

ANSWER: 1, 2, 3

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2. ESS Short Answer. Vega is the second brightest star in the northern celestial hemisphere after this star with a visual magnitude of -0.05.

ANSWER: ARCTURUS (Accept Alpha Bootis)

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3. Chemistry Short Answer. Which of the following elements is densest?{Plutonium, tungsten, Tantalum, Uranium, gold}

ANSWER: Plutonium

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4. Biology Short Answer. Name the catabolic process in which a partial degradation of sugars occurs without the help of oxygen.

ANSWER: Fermentation

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5. Mathematics Short Answer. According to ancient mayan numerals the number 7 is represented by 2 resting on 1 bar, knowing this, how many dots and bars would be used to represent the number 10?

ANSWER: No dots, 2 lines

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6. Chemistry Multiple Choice. Choose the correct electron configuration for aluminum.

W. 1s2,2s2,2p6,3s2,3p3

X. 1s2,2s2,2p1

Y. 1s2,2s2,2p6,3s2,3p1

Z. 1s2,2s2,2p6,3s2,3p6

ANSWER: Y. 1s2,2s2,2p6,3s2,3p1

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7. Chemistry Multiple Choice. In Lewis structure how many lone electron pairs are shown in one molecule of H2S?

ANSWER: 2

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8. Energy Multiple Choice. What is the daily food intake of a normal adult human in megajoules?

W. 5-7 megajoules

X. 1-2 megajoules

Y. 6-8 megajoules

Z. 8-10 megajoules

ANSWER: Y. 6-8 megajoules

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9. Biology Short Answer. When pili connect a bacterium to another of its kind they form a bridge which allows what to transfer between the bacteria?

ANSWER: Plasmid

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10. Math Multiple Choice. Which of the following numbers is has the factor, 9?

W. 1304

X. 45032

Y. 1503

Z. 8965

ANSWER: Y. 1503

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11. Energy Multiple Choice. In which state, was the first light bulb lit using electricity generated by nuclear power?

W. California

X. Idaho

Y. Pennsylvania

Z. Florida

ANSWER: X. Idaho

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12. Math Pseudo Multiple Choice. A triangle with the three vertices, (4,0) (0,0) and (0,4) is which of the following?

1. Scalene
2. Isosceles
3. Right
4. Equilateral

ANSWER: 2 and 3

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13. Biology Short Answer. Whether a sugar is an aldose or a ketose is dependent on the location of this functional group

ANSWER: Carbonyl Group

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14. ESS Short Answer. Using one significant figure what is the length of the San Andreas Fault line in kilometers?

W. 6000 kilometers

X. 5000 kilometers

Y. 3000 kilometers

Z. 1000 kilometers

ANSWER: 1000 kilometers

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15. Physics Short Answer. In, Er = mc2, what does Er represent?

ANSWER: rest mass energy

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16. ESS Multiple Choice. The southern segment of the San Andreas fault is known as

W. Mojave segment

X. Navajo segment

Y. Hollister segment

Z. Gualala segment

ANSWER: W. Mojave segment

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17. ESS Short Answer. Mount St. Helens was an example of what phenomenon when viscous lava forces its way up and causes a bulge in the mountain.

ANSWER: Cryptodome

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18. Energy Short Answer. Which 19th century scientist proved that any differentiable symmetry of the action of a physical system has a corresponding conservation law?

ANSWER: Emmy Noether

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19. Energy Multiple Choice. What is the daily food intake of a normal adult human in megajoules?

W. 5-7 megajoules

X. 1-2 megajoules

Y. 6-8 megajoules

Z. 8-10 megajoules

ANSWER: Y. 6-8 megajoules

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20. Physics Short Answer. What phase of helium-4 occurs when viscosity of a fluid vanishes and heat capacity becomes infinite?

ANSWER: Superfluidity

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21. Physics Short Answer. The Meissner Effect describes an event in which a magnet does this.

ANSWER: Levitates

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22. Physics Multiple Choice. As a rain drop is falling from the roof of a house, given potential energy ‘X’, the kinetic energy ‘Y’, and the total energy is ‘Z’, we can conclude which of the following?

1. X - Y = Z

2. X + Y = Z

3. As kinetic energy increases potential decreases

4. Z - X = Y

ANSWER: 2. 3. 4.

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23. Biology Multiple Choice. In each segment of a worm there is a pair of excretory tubes called…

W. Setae

X. Nephrostome

Y. Metanephridium

Z. Coelom

ANSWER:Y. Metanephridium