Sample PA Test 2017

Question 1

Which choice best describes an ion with charge of 2+ that contains 18 electrons.

1. It has the same number of electrons as an atom of Ca
2. It has Z=22
3. It could be Ar^{2+}
4. It could NOT be Ca^{2+}
5. It could be S^{2+}
6. it has 20 protons

Question 2

Which element is in the same period as carbon?

1. Hydrogen
2. Silicon
3. Tin
4. Phosphorus
5. Sodium
6. Neon

Question 3

Which of the following statements are TRUE when a negatively charged particle approaches a positivel charged particle?

A. the particles are attracted to each other

B. the particles repel each other

C. the closer the particles come to each other, the stronger is the attractive the force between them

D. the particles will not interact with each other

E. statements a and c are both true

F. none of the statements is true

Question 4

What is the pH of a solution containing the strong base $Ba(OH)_2$ at a concentration of 0.064 mol/L? Enter your answer with one decimal place and no units.

$pH = -\log\{H^+\}$ Note: $\{H^+\}$ = molar concentration of H^+

$pOH = -\log\{OH^-\}$

$\{H^+\} \times \{OH^-\} = 1.0 \times 10^{-14} = K_W$ at 25°C

Question 5

The formula of sulfuric acid is

- a. H_2SO_3
- b. H_3SO_3
- c. H_2SO_4
- d. H_2S
- e. HSO_4

Question 6

Convert the number below into exponential format (sample 1.23E-4) and enter it with one decimal place as your answer.

0.00035

Question 7

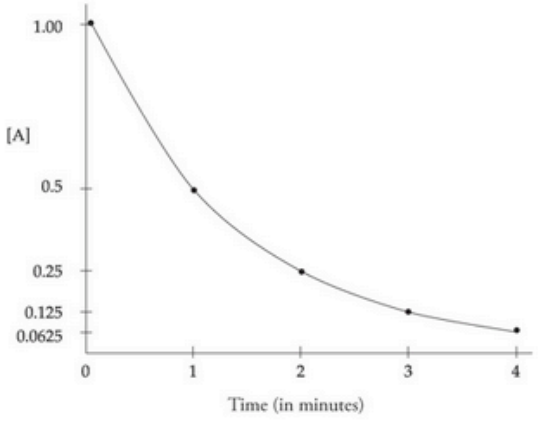
Evaluate y in the expression below and enter your answer as the nearest whole number.

y =

$$\frac{23.4 \times 21}{3 \div 5}$$

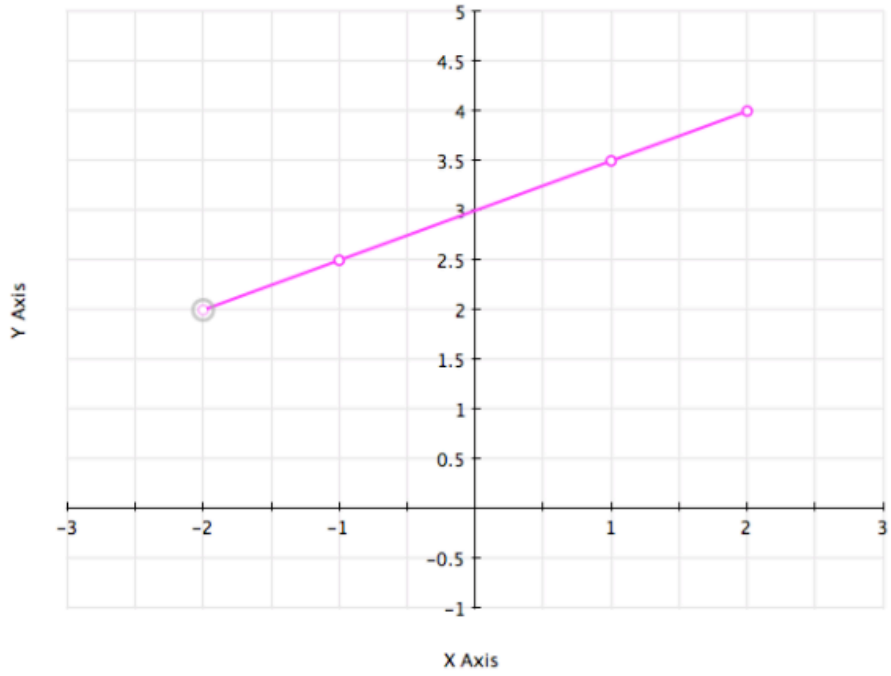
Question 8

The graph shown below is for the conversion of a species A to a different species B (A-->B). From the graph, determine how long in minutes does it take for there to be only 25% of A remaining? [A] is the molar concentration of A. Enter your answer with one decimal place and no units.



Question 9

A linear function plot is shown below. The plot represents a function of the form **Y** = **mX** + **b** where **m** represents the slope of the plot line and **b** represents the intercept. Determine **m** and **b** from the plot. If **Y** = 51.4, calculate the value of **X** and enter it in the box with one digit to the right of the decimal point.



Question 10

Which of the following represents the greatest mass?(1cg = 0.01 g , 1 dg = 0.10 g)

a. 10.0 dg

b. 0.0010 kg

c. 3.0×10^2 mg

d. 1.0×10^6 mg

e. 2.0×10^5 cg

Answers: **1**. 6; **2**. 6; **3**. E; **4**. 13.1; **5**. c; **6**. 3.5E-4; **7**. 819; **8**. 2.0; **9**. 96.8; **10**. e