

Fill in your A00 number and name correctly on the scantron. Attempt all the questions and fill in the bubbles with your answers.

Use Avogadro's number (A) = 6.022×10^{23} particles

- How many significant figures are in 0.05040?
(a) 2 (c) 4 (e) 6
(b) 3 (d) 5
- An example of a chemical property is:
(a) Freezing point (c) Melting point (e) Boiling point
 (b) Flammability (d) Density
- How many neutrons are in the following isotope: ^{131}I (I=Iodine)?
(a) 53 (c) 127 (e) 184
 (b) 78 (d) 131
- Which of the following is the correct formula for potassium nitrate?
 (a) KNO_3 (c) KNO_2 (e) KNO_4
(b) K_3N (d) KCN
- The sodium atom typically loses 1 electron to become:
(a) A larger sodium anion (c) A larger sodium cation
(b) A smaller sodium anion (d) A smaller sodium cation
- How many 250-mg aspirin tablets can be made from 25.0 kg of aspirin?
(a) 1000 (b) 10,000 (c) 100,000
(d) 1,000,000 (e) 10,000,000
- Which one of the following lists gives the correct symbols for the elements phosphorus, potassium, silver, chlorine, and sulfur?
(a) K, Ag, Po, Cl, S (b) P, Po, Ag, Cl, S (c) Ph, K, Ag, S, Cl
 (d) P, K, Ag, Cl, S (e) Ph, Po, Ag, Cl, S

8. What is the formula for the binary compound formed between Al^{3+} and Se^{2-} ions?
 (a) AlSe (b) Al_2Se (c) Al_2Se_3 (d) Al_3Se_2
 (e) AlSe_3
9. The formulas of the nitrite, phosphate, and nitrate ions are represented, respectively, as
 (a) NO_2^- , PO_4^{3-} , NO_3^- . (b) N^{3-} , PO_3^{3-} , NO_3^- .
 (c) NO^- , P^{5-} , NO_3^- . (d) NO_2^- , P^{3-} , NO_3^- .
 (e) NO_3^- , PO_2^- , N^{3-} .
10. How many electrons does a sulfide ion (S^{2-}) have?
 (a) 6 (b) 8 (c) 18 (d) 20 (e) 16
11. What is the total number of oxygen atoms in 2.60 g of CaCO_3 (MM = 100.0 g/mol)
 (a) 4.70×10^{22} . (b) 6.26×10^{22} . (c) 7.83×10^{22} .
 (d) 3.02×10^{23} . (e) 2.59×10^{23} .
12. How many moles of iron atoms are contained in 4.74 g of iron?
 (Fe = 55.845 g/mol)
 (a) 0.182 mol (b) 0.132 mol (c) 0.0849 mol
 (d) 0.0632 mol (e) 265 mol
13. Which is the largest distance?
 (a) 10 dm (b) 10 cm (c) 10 nm
 (d) 10 pm (e) 10 mm
14. Express the number 0.000938 in scientific notation.
 (a) 938×10^{-6} (b) 9.38×10^2 (c) 9.38×10^4
 (d) 9.38×10^{-4} (e) 0.938×10^{-3}
15. How many electrons does the ion ${}_{27}^{59}\text{Co}^{2+}$ have?
 (a) 25 (b) 27 (c) 29
 (d) 32 (e) 59
16. Choose the group containing the most reactive metals on the periodic table.
 (a) Group 1A (b) Group 3A (c) Group 5A
 (d) Group 7A (e) Group 8A

17. The correct name for FeO is
a) iron oxide. b) iron(II) oxide. c) iron(III) oxide.
d) iron monoxide. e) iron(I) oxide.
18. The formula for aluminum sulfate is
a) $\text{Al}_2(\text{SO}_3)_3$. b) $\text{Al}_2(\text{SO}_4)_3$. c) $\text{Al}_3(\text{SO}_4)_2$.
d) Al_2S_3 . e) Al_3S_2 .
19. Diamond and graphite are both _____ of the same element _____?
a) Isotopes, carbon d) Isotopes, Nitrogen
 b) Allotropes, carbon e) Compounds, carbon
c) Allotropes, gold
20. Bromine has two naturally occurring isotopes, ^{79}Br (50.7% abundance) and ^{81}Br (49.3% abundance). Which expression best describes how the atomic mass of bromine is calculated?
a) $(50.7 \times 79) + (49.3 \times 81)$
b) $(79 + 81) / 2$
 c) $(0.507 \times 79) + (0.493 \times 81)$
d) $(0.507 \times 81) + (0.493 \times 79)$
e) $(0.79 \times 50.7) + (0.81 \times 49.3)$
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