Chemistry A Molecular Approach 6th edition Tro Test Bank

SKU: 9780137832224-TEST-BANK

TBEXAM.COM

***Chemistry: A Molecular Approach, 6e* (Tro)**
Chapter 2 Atoms and Elements

Multiple Choice Questions

1) In a chemical reaction, matter is neither created nor destroyed. Which law does this refer to?
A) Law of Definite Proportions
B) Law of the Conservation of Mass
C) Law of Modern Atomic Theory
D) Law of Multiple Proportions
E) First Law of Thermodynamics
Answer: B
Diff: 1 Var: 1 Page Ref: 2.3
LO: 2.1
Global: G1

2) All samples of a given compound, regardless of their source or how they were prepared, have the same proportions of their constituent elements. Which law does this refer to?
A) Law of Definite Proportions
B) Law of the Conservation of Mass
C) Law of Modern Atomic Theory
D) Law of Multiple Proportions
E) First Law of Thermodynamics
Answer: A
Diff: 1 Var: 1 Page Ref: 2.3
LO: 2.1
Global: G1

TBEXAM.COM

3) When two elements form two different compounds, the masses of element B that combine with 1 g of element A can be expressed as a ratio of small whole numbers. Which law does this refer to?
A) Law of Definite Proportions
B) Law of the Conservation of Mass
C) Law of Modern Atomic Theory
D) Law of Multiple Proportions
E) First Law of Thermodynamics
Answer: D
Diff: 1 Var: 1 Page Ref: 2.3
LO: 2.1
Global: G2

TBEXAM.COM

Copyright © 2023 Pearson Education, Inc.

TBEXAM.COM - THE WORLD'S LARGEST TEST BANK AND SOLUTIONS DATABASE WITH UNBEATABLE RATES
Chemistry A Molecular Approach 6th edition Tro Test Bank

4) Which of the following is an example of the law of multiple proportions?
A) A sample of chlorine is found to contain three times as much Cl-35 as Cl-37.
B) Two different compounds formed from carbon and oxygen have the following mass ratios: 1.33 g O: 1 g C and 2.66 g O: 1 g C.
C) Two different samples of table salt are found to have the same ratio of sodium to chlorine.
D) The atomic mass of bromine is found to be 79.90 amu.
E) Nitrogen dioxide always has a mass ratio of 2.28 g O: 1 g N.
Answer: B
Diff: 2 Var: 1 Page Ref: 2.3
LO: 2.1
Global: G2

5) Which of the following statements is FALSE according to Dalton's Atomic Theory?
A) Atoms combine in simple whole number ratios to form compounds.
B) All atoms of chlorine have identical properties that distinguish them from other elements.
C) One carbon atom will combine with one oxygen atom to form a molecule of carbon monoxide.
D) Atoms of sodium do not change into another element during chemical reaction with chlorine.
E) An atom of nitrogen can be broken down into smaller particles that will still have the unique properties of nitrogen.
Answer: E
Diff: 1 Var: 1 Page Ref: 2.3
LO: 2.1
Global: G2

6) From his research, identify the property NOT observed by Thomson.
TBEXAM.COM
A) Electrons carry a positive charge.
B) Particles travel in straight lines.
C) The area around the charged particle is an electric field.
D) The particles were 2000 times light than hydrogen.
E) The charged particles are independent of the material from which they originate.
Answer: A
Diff: 1 Var: 1 Page Ref: 2.4
LO: 2.2
Global: G1

7) Describe a step in Millikan's experiment.
A) The charge-to-mass ratio was determined.
B) The strength of the electric field did not vary.
C) The falling drops acquired protons.
D) Oil was sprayed into fine droplets with an atomizer.
E) No electric field was used.
Answer: D
Diff: 1 Var: 1 Page Ref: 2.4
LO: 2.2
Global: G1

TBEXAM.COM

Copyright © 2023 Pearson Education, Inc.

TBEXAM.COM - THE WORLD'S LARGEST TEST BANK AND SOLUTIONS DATABASE WITH UNBEATABLE RATES
Chemistry A Molecular Approach 6th edition Tro Test Bank

TBEXAM.COM

8) Identify the description of an atom.
A) neutrons and electrons in nucleus; protons in orbitals
B) neutrons in nucleus; protons and electrons in orbitals
C) protons and neutrons in nucleus; electrons in orbitals
D) protons and electrons in nucleus; neutrons in orbitals
E) electrons in nucleus; protons and neutrons in orbitals
Answer: C
Diff: 1 Var: 1 Page Ref: 2.5
LO: 2.3
Global: G1

9) Identify the **largest** subatomic particle.
A) a neutron
B) an electron
C) a proton
D) an orbital
E) a nucleus
Answer: A
Diff: 1 Var: 1 Page Ref: 2.6
LO: 2.4
Global: G1

10) Identify the **smallest** subatomic particle.
A) a neutron
B) an electron
C) a proton
D) an alpha particle
E) a nucleus
Answer: B
Diff: 1 Var: 1 Page Ref: 2.6
LO: 2.4
Global: G1

11) The mass number is equal to
A) the sum of the number of the electrons and protons.
B) the sum of the number of the neutrons and electrons.
C) the sum of the number of protons, neutrons, and electrons.
D) the sum of the number of protons and neutrons.
E) the number of protons
Answer: D
Diff: 1 Var: 1 Page Ref: 2.6
LO: 2.4
Global: G1

TBEXAM.COM

TBEXAM.COM

Copyright © 2023 Pearson Education, Inc.

TBEXAM.COM – THE WORLD'S LARGEST TEST BANK AND SOLUTIONS DATABASE WITH UNBEATABLE RATES
Chemistry A Molecular Approach 6th edition Tro Test Bank

TBEXAM.COM

12) The atomic number is equal to
A) the number of the protons.
B) the sum of the number of the neutrons and electrons.
C) the sum of the number of protons, neutrons, and electrons.
D) the sum of the number of protons and neutrons.
E) the sum of the number of protons and electrons.
Answer: A
Diff: 1 Var: 1 Page Ref: 2.6
LO: 2.4
Global: G1

13) What does "X" represent in the following symbol?
$^{80}_{35}X$

A) mercury
B) chlorine
C) scandium
D) bromine
E) selenium
Answer: D
Diff: 2 Var: 1 Page Ref: 2.6
LO: 2.4
Global: G2

14) What does "X" represent in the following symbol?
TBEXAM.COM
$^{28}_{14}X$

A) silicon
B) sulfur
C) zinc
D) ruthenium
E) nickel
Answer: A
Diff: 2 Var: 1 Page Ref: 2.6
LO: 2.4
Global: G2

15) Determine the number of protons, neutrons, and electrons in the following:
$^{40}_{18}X$

A) $p^+ = 18$ $n^\circ = 18$ $e^- = 22$
B) $p^+ = 18$ $n^\circ = 22$ $e^- = 18$
C) $p^+ = 22$ $n^\circ = 18$ $e^- = 18$
D) $p^+ = 18$ $n^\circ = 22$ $e^- = 40$
E) $p^+ = 40$ $n^\circ = 22$ $e^- = 18$
Answer: B
Diff: 2 Var: 1 Page Ref: 2.6
LO: 2.4
Global: G2

Copyright © 2023 Pearson Education, Inc.

TBEXAM.COM - THE WORLD'S LARGEST TEST BANK AND SOLUTIONS DATABASE WITH UNBEATABLE RATES
Chemistry A Molecular Approach 6th edition Tro Test Bank

TBEXAM.COM

16) Determine the number of protons, neutrons, and electrons in the following:
$^{25}_{12}X$

A) $p^+ = 12$ $n^\circ = 25$ $e^- = 12$
B) $p^+ = 12$ $n^\circ = 12$ $e^- = 13$
C) $p^+ = 12$ $n^\circ = 13$ $e^- = 12$
D) $p^+ = 25$ $n^\circ = 12$ $e^- = 13$
E) $p^+ = 12$ $n^\circ = 13$ $e^- = 25$
Answer: C
Diff: 2 Var: 1 Page Ref: 2.6
LO: 2.4
Global: G2

17) Determine the number of protons, neutrons, and electrons in the following:
$^{65}_{29}X$

A) $p^+ = 36$ $n^\circ = 29$ $e^- = 36$
B) $p^+ = 29$ $n^\circ = 29$ $e^- = 36$
C) $p^+ = 36$ $n^\circ = 36$ $e^- = 29$
D) $p^+ = 29$ $n^\circ = 36$ $e^- = 29$
E) $p^+ = 29$ $n^\circ = 36$ $e^- = 36$
Answer: D
TBEXAM.COM
Diff: 2 Var: 1 Page Ref: 2.6
LO: 2.4
Global: G2

18) What element is defined by the following information?

$p^+ = 11$ $n^\circ = 12$ $e^- = 11$

A) sodium
B) vanadium
C) magnesium
D) titanium
E) selenium
Answer: A
Diff: 2 Var: 1 Page Ref: 2.6
LO: 2.4
Global: G2

TBEXAM.COM

Copyright © 2023 Pearson Education, Inc.

TBEXAM.COM – THE WORLD'S LARGEST TEST BANK AND SOLUTIONS DATABASE WITH UNBEATABLE RATES
Chemistry A Molecular Approach 6th edition Tro Test Bank

TBEXAM.COM

19) What element is defined by the following information?

$p^+ = 20$ $n^\circ = 20$ $e^- = 20$

A) zirconium
B) calcium
C) potassium
D) neon
E) argon
Answer: B
Diff: 2 Var: 1 Page Ref: 2.6
LO: 2.4
Global: G2

20) What element is defined by the following information?

$p^+ = 17$ $n^\circ = 20$ $e^- = 17$

A) calcium
B) rubidium
C) chlorine
D) neon
E) oxygen
Answer: C
Diff: 2 Var: 1 Page Ref: 2.6
LO: 2.4
Global: G2

TBEXAM.COM

TBEXAM.COM

21) Which of the following statements about subatomic particles is FALSE?
A) A neutral atom contains the same number of protons and electrons.
B) Protons have about the same mass as electrons.
C) Neutrons have no charge.
D) Protons and electrons have opposite, but equal in magnitude, charges.
E) Neutrons and protons are found in the nucleus of an atom.
Answer: B
Diff: 1 Var: 1 Page Ref: 2.6
LO: 2.4
Global: G1

22) Which of the following statements about isotopes is TRUE?
A) Isotopes of the same element differ only in the number of protons.
B) A mass spectrometer can detect the different isotopes .
C) Isotopes of the same element have the same mass.
D) Isotopes of the same element don't usually have the same properties.
E) All elements only have one isotope.
Answer: B
Diff: 1 Var: 1 Page Ref: 2.6
LO: 2.4
Global: G2

Copyright © 2023 Pearson Education, Inc.

TBEXAM.COM – THE WORLD'S LARGEST TEST BANK AND SOLUTIONS DATABASE WITH UNBEATABLE RATES
Chemistry A Molecular Approach 6th edition Tro Test Bank

TBEXAM.COM

23) Give the symbol for thulium.
A) Th
B) T
C) Tl
D) Tm
E) Tu
Answer: D
Diff: 2 Var: 1 Page Ref: 2.6
LO: 2.4
Global: G2

24) In the same element, ions differ in the number of
A) electrons.
B) neutrons.
C) protons.
D) neutrons and protons.
E) electrons and protons.
Answer: A
Diff: 2 Var: 1 Page Ref: 2.6
LO: 2.4
Global: G1

25) What species is represented by the following information?

$p^+ = 12$ $n^\circ = 14$ $e^- = 10$ TBEXAM.COM

A) Si^{4+}
B) Mg
C) Ne
D) Si
E) Mg^{2+}
Answer: E
Diff: 2 Var: 1 Page Ref: 2.6
LO: 2.4
Global: G2

26) What species is represented by the following information?

$p^+ = 47$ $n^\circ = 62$ $e^- = 46$

A) Ag^+
B) Nd
C) Pd
D) Ag
E) Pd^+
Answer: A
Diff: 2 Var: 1 Page Ref: 2.6
LO: 2.4
Global: G2

Copyright © 2023 Pearson Education, Inc.

TBEXAM.COM - THE WORLD'S LARGEST TEST BANK AND SOLUTIONS DATABASE WITH UNBEATABLE RATES
Chemistry A Molecular Approach 6th edition Tro Test Bank

TBEXAM.COM

27) What species is represented by the following information?

$p^+ = 17$ $n^\circ = 18$ $e^- = 18$

A) Cl
B) Cl^-
C) Ar
D) Ar^+
E) Kr
Answer: B
Diff: 2 Var: 1 Page Ref: 2.6
LO: 2.4
Global: G2

28) Identify the atom or ion of carbon with the largest radius.
A) $p^+ = 6$ $n^\circ = 6$ $e^- = 6$
B) $p^+ = 6$ $n^\circ = 7$ $e^- = 6$
C) $p^+ = 6$ $n^\circ = 6$ $e^- = 7$
D) $p^+ = 6$ $n^\circ = 6$ $e^- = 5$
Answer: C
Diff: 2 Var: 1 Page Ref: 2.6
LO: 2.4
Global: G2

TBEXAM.COM

29) Predict the charge of an aluminum ion.
A) 5-
B) 1+
C) 1-
D) 2+
E) 3+
Answer: E
Diff: 2 Var: 1 Page Ref: 2.7
LO: 2.6
Global: G2

30) Predict the charge of a phosphorus ion.
A) 2+
B) 4+
C) 3-
D) 3+
E) 2-
Answer: C
Diff: 2 Var: 1 Page Ref: 2.7
LO: 2.6
Global: G2

Copyright © 2023 Pearson Education, Inc.

TBEXAM.COM – THE WORLD'S LARGEST TEST BANK AND SOLUTIONS DATABASE WITH UNBEATABLE RATES
Chemistry A Molecular Approach 6th edition Tro Test Bank

TBEXAM.COM

31) Which of the following statements is TRUE?
A) Calcium is a nonmetal.
B) Argon is fairly unreactive.
C) Silicon is a metal.
D) Uranium is a lanthanide.
E) Polonium is a metalloid.
Answer: B
Diff: 1 Var: 1 Page Ref: 2.7
LO: 2.5
Global: G2

32) Which of the following does NOT describe a metal?
A) good conductor of heat
B) good conductor of electricity
C) tends to gain electrons
D) forms ionic compounds with nonmetals
E) found on the left side of the periodic table
Answer: C
Diff: 1 Var: 1 Page Ref: 2.7
LO: 2.5
Global: G1

33) Which of the following describes a nonmetal?
A) are only solids
B) found in the left side of the periodic table
C) conducts electricity
D) are poor conductors of heat
E) tend to lose electrons
Answer: D
Diff: 1 Var: 1 Page Ref: 2.7
LO: 2.5
Global: G2

34) Semiconductors are
A) metalloids.
B) noble gases.
C) nonmetals.
D) metals.
Answer: A
Diff: 1 Var: 1 Page Ref: 2.7
LO: 2.5
Global: G1

TBEXAM.COM

TBEXAM.COM

Copyright © 2023 Pearson Education, Inc.

TBEXAM.COM - THE WORLD'S LARGEST TEST BANK AND SOLUTIONS DATABASE WITH UNBEATABLE RATES
Chemistry A Molecular Approach 6th edition Tro Test Bank

TBEXAM.COM

35) Which of the following statements is TRUE?
A) Nonmetals are located on the right side of the periodic table.
B) Metals tend to gain electrons.
C) Noble gases are very reactive.
D) Alkali metals are generally not reactive.
E) Nonmetals tend to lose electrons.
Answer: A
Diff: 1 Var: 1 Page Ref: 2.7
LO: 2.5
Global: G1

36) Identify the purple halogen.
A) chlorine
B) bromine
C) iodine
D) fluorine
E) astatine
Answer: C
Diff: 1 Var: 1 Page Ref: 2.7
Global: G2

37) Identify the instrument that is used to determine the mass of an atom.
A) mass spectrometer
B) nuclear magnetic resonance spectrometer
C) infrared spectrometer
D) gas chromatograph
E) ultraviolet spectrophotometer
Answer: A
Diff: 1 Var: 1 Page Ref: 2.8
Global: G1

TBEXAM.COM

38) The atomic mass for cadmium is
A) 48
B) 112.41
C) 40.08
D) 20
E) 64.411
Answer: B
Diff: 2 Var: 1 Page Ref: 2.8
LO: 2.7
Global: G2

TBEXAM.COM

Copyright © 2023 Pearson Education, Inc.

TBEXAM.COM – THE WORLD'S LARGEST TEST BANK AND SOLUTIONS DATABASE WITH UNBEATABLE RATES
Chemistry A Molecular Approach 6th edition Tro Test Bank

TBEXAM.COM

39) Calculate the atomic mass of silver if silver has 2 naturally occurring isotopes with the following masses and natural abundances:

Ag-107	106.90509 amu	51.84%
Ag-109	108.90476 amu	48.46%

A) 107.90 amu
B) 108.00 amu
C) 107.79 amu
D) 108.32 amu
E) 108.19 amu
Answer: E
Diff: 2 Var: 1 Page Ref: 2.8
LO: 2.7
Global: G4

40) Calculate the atomic mass of gallium if gallium has 2 naturally occurring isotopes with the following masses and natural abundances:

Ga-69	68.9256 amu	60.11%
Ga-71	70.9247 amu	39.89%

A) 69.72 amu
B) 69.93 amu
C) 70.00 amu
D) 69.80 amu
E) 70.68 amu
Answer: A
Diff: 2 Var: 1 Page Ref: 2.8
LO: 2.7
Global: G4

TBEXAM.COM

TBEXAM.COM

41) Silver has an atomic mass of 107.868 amu. The Ag-109 isotope (108.905 amu) is 48.16%. What is the amu of the other isotope?
A) 106.9 amu
B) 107.1 amu
C) 106.7 amu
D) 107.3 amu
Answer: A
Diff: 3 Var: 1 Page Ref: 2.8
LO: 2.7
Global: G4

Copyright © 2023 Pearson Education, Inc.

TBEXAM.COM – THE WORLD'S LARGEST TEST BANK AND SOLUTIONS DATABASE WITH UNBEATABLE RATES
Chemistry A Molecular Approach 6th edition Tro Test Bank

TBEXAM.COM

42) Gallium has an atomic mass of 69.723 amu. The Ga-69 (68.926 amu) is 60.11%. What is the amu of the other isotope?
A) 70.92 amu
B) 70.94 amu
C) 70.88 amu
D) 70.86 amu
Answer: A
Diff: 3 Var: 1 Page Ref: 2.8
LO: 2.7
Global: G4

43) Calculate the atomic mass of element "X", if it has 2 naturally occurring isotopes with the following masses and natural abundances:

X-45	44.8776 amu	32.88%
X-47	46.9443 amu	67.12%

A) 46.26 amu
B) 45.91 amu
C) 46.34 amu
D) 46.84 amu
E) 44.99 amu
Answer: A
Diff: 3 Var: 1 Page Ref: 2.8
LO: 2.7
Global: G4

TBEXAM.COM

44) Identify how the atomic mass of an element is determined.
A) average mass of all ions
B) average mass of the isotopes that compose that element
C) average mass of only the radioactive particles
D) average mass of the electrons in that element
E) average mass of the protons in that element
Answer: B
Diff: 1 Var: 1 Page Ref: 2.8
LO: 2.7
Global: G1

45) What mass (in mg) does 2.63 moles of nickel have?
A) 44.8 mg
B) 2.23×10^4 mg
C) 129 mg
D) 3.56×10^5 mg
E) 1.54×10^5 mg
Answer: E
Diff: 3 Var: 1 Page Ref: 2.9
LO: 2.8
Global: G4

Copyright © 2023 Pearson Education, Inc.

TBEXAM.COM - THE WORLD'S LARGEST TEST BANK AND SOLUTIONS DATABASE WITH UNBEATABLE RATES
Chemistry A Molecular Approach 6th edition Tro Test Bank

TBEXAM.COM

46) How many moles of Kr are contained in 398 mg of Kr?
A) 4.75×10^{-3} moles Kr
B) 33.4 moles Kr
C) 2.11×10^{-4} moles Kr
D) 2.99×10^{-3} moles Kr
E) 1.19×10^{-4} moles Kr
Answer: A
Diff: 3 Var: 1 Page Ref: 2.9
LO: 2.8
Global: G4

47) How many moles of Cs are contained in 595 kg of Cs?
A) 2.23×10^{2} moles Cs
B) 4.48×10^{3} moles Cs
C) 7.91×10^{4} moles Cs
D) 1.26×10^{3} moles Cs
E) 5.39×10^{2} moles Cs
Answer: B
Diff: 3 Var: 1 Page Ref: 2.9
LO: 2.8
Global: G4

48) How many iron atoms are contained in 354 g of iron?
A) 2.62×10^{25} Fe atoms
TBEXAM.COM
B) 2.13×10^{26} Fe atoms
C) 4.69×10^{24} Fe atoms
D) 3.82×10^{24} Fe atoms
E) 9.50×10^{22} Fe atoms
Answer: D
Diff: 3 Var: 1 Page Ref: 2.9
LO: 2.8
Global: G4

49) How many phosphorus atoms are contained in 158 kg of phosphorus?
A) 3.07×10^{27} phosphorus atoms
B) 2.95×10^{27} phosphorus atoms
C) 3.25×10^{28} phosphorus atoms
D) 1.18×10^{24} phosphorus atoms
E) 8.47×10^{24} phosphorus atoms
Answer: A
Diff: 3 Var: 1 Page Ref: 2.9
LO: 2.8
Global: G4

TBEXAM.COM

Copyright © 2023 Pearson Education, Inc.

TBEXAM.COM – THE WORLD'S LARGEST TEST BANK AND SOLUTIONS DATABASE WITH UNBEATABLE RATES
Chemistry A Molecular Approach 6th edition Tro Test Bank

TBEXAM.COM

50) Calculate the mass (in kg) of 4.87×10^{25} atoms of Zn.
A) 5.29 kg
B) 1.89 kg
C) 8.09 kg
D) 1.24 kg
E) 1.09 kg
Answer: A
Diff: 3 Var: 1 Page Ref: 2.9
LO: 2.8
Global: G4

51) Calculate the mass (in ng) of 2.33×10^{20} atoms of O.
A) 6.19×10^{6} ng
B) 1.62×10^{7} ng
C) 2.25×10^{3} ng
D) 3.73×10^{6} ng
E) 4.69×10^{7} ng
Answer: A
Diff: 3 Var: 1 Page Ref: 2.9
LO: 2.8
Global: G4

52) How many xenon atoms are contained in 2.36 moles of xenon?
A) 3.92×10^{24} xenon atoms
TBEXAM.COM
B) 2.55×10^{23} xenon atoms
C) 1.42×10^{24} xenon atoms
D) 7.91×10^{25} xenon atoms
E) 1.87×10^{26} xenon atoms
Answer: C
Diff: 2 Var: 1 Page Ref: 2.9
LO: 2.8
Global: G4

TBEXAM.COM

Copyright © 2023 Pearson Education, Inc.

TBEXAM.COM - THE WORLD'S LARGEST TEST BANK AND SOLUTIONS DATABASE WITH UNBEATABLE RATES
Chemistry A Molecular Approach 6th edition Tro Test Bank

TBEXAM.COM

Algorithmic Questions

1) Identify the discovery that Millikan made.
A) the mass of a proton
B) the charge of a neutron
C) the charge of a single electron
D) the mass of an alpha particle
E) molecules
Answer: C
Diff: 1 Var: 1 Page Ref: 2.4
LO: 2.2
Global: G1

2) Identify the discovery that Thomson made.
A) a neutron
B) an electron
C) the charge of a single electron
D) a beta particle
E) molecules
Answer: B
Diff: 1 Var: 1 Page Ref: 2.4
LO: 2.2
Global: G1

3) Identify the radioactive particle.
TBEXAM.COM
A) an alpha particle
B) an anion
C) a molecule
D) a proton
E) a mole
Answer: A
Diff: 1 Var: 1 Page Ref: 2.5
Global: G1

4) Rutherford proposed the
A) atomic bomb.
B) coal.
C) Third Law of Conservation.
D) theory of evolution.
E) nuclear theory.
Answer: E
Diff: 1 Var: 1 Page Ref: 2.5
Global: G1

TBEXAM.COM

Copyright © 2023 Pearson Education, Inc.

TBEXAM.COM – THE WORLD'S LARGEST TEST BANK AND SOLUTIONS DATABASE WITH UNBEATABLE RATES
Chemistry A Molecular Approach 6th edition Tro Test Bank

TBEXAM.COM

5) Identify the charges of the protons, neutrons, and electrons.
A) protons +1, neutrons 0, electrons -1
B) protons 0, neutrons -1, electrons 0
C) protons -1, neutrons 0, electrons +1
D) protons 0, neutrons +1, electrons -1
E) protons +1, neutrons -1, electrons 0
Answer: A
Diff: 1 Var: 1 Page Ref: 2.6
LO: 2.4
Global: G1

6) Identify the element that has an atomic number of 70.
A) mercury
B) gallium
C) ytterbium
D) bromine
E) oxygen
Answer: C
Diff: 2 Var: 1 Page Ref: 2.6
LO: 2.4
Global: G2

7) Give the symbol for boron.
A) B
B) Bo
C) Br
D) Bn
E) Bb
Answer: A
Diff: 2 Var: 1 Page Ref: 2.6
LO: 2.4
Global: G2

TBEXAM.COM

8) An atom of ^{79}Br contains _____ protons.
A) 35
B) 114
C) 44
D) 72
E) 79
Answer: A
Diff: 2 Var: 1 Page Ref: 2.6
LO: 2.4
Global: G4

TBEXAM.COM

Copyright © 2023 Pearson Education, Inc.

TBEXAM.COM - THE WORLD'S LARGEST TEST BANK AND SOLUTIONS DATABASE WITH UNBEATABLE RATES
Chemistry A Molecular Approach 6th edition Tro Test Bank

TBEXAM.COM

9) An atom of $^{17}_{O}$ contains _____ electrons.

A) 17
B) 25
C) 9
D) 11
E) 8
Answer: E
Diff: 2 Var: 1 Page Ref: 2.6
LO: 2.4
Global: G4

10) The atomic number of an atom of $^{118}_{Xe}$ is

A) 172.
B) 54.
C) 64.
D) 110.
E) 118.
Answer: B
Diff: 2 Var: 1 Page Ref: 2.6
LO: 2.4
Global: G2

11) How many electrons are in each neutral atom of titanium?

A) 22
B) 29
C) 26
D) 25.9
E) 47.9
Answer: A
Diff: 2 Var: 1 Page Ref: 2.6
LO: 2.4
Global: G4

12) How many neutrons are in nickel-59?

A) 28
B) 30
C) 31
D) 30.7
E) 58.7
Answer: C
Diff: 2 Var: 1 Page Ref: 2.6
LO: 2.4
Global: G4

TBEXAM.COM

TBEXAM.COM

Copyright © 2023 Pearson Education, Inc.

TBEXAM.COM – THE WORLD'S LARGEST TEST BANK AND SOLUTIONS DATABASE WITH UNBEATABLE RATES
Chemistry A Molecular Approach 6th edition Tro Test Bank

TBEXAM.COM

13) How many protons are in each neutral atom of cobalt?
A) 27
B) 23
C) 22
D) 21.9
E) 58.9
Answer: A
Diff: 2 Var: 1 Page Ref: 2.6
LO: 2.4
Global: G4

14) An ion has 8 protons, 9 neutrons, and 10 electrons. The symbol for the ion is
A) $^{17}_{O}2-$.
B) $^{17}_{O}2+$.
C) $^{19}_{F}+$.
D) $^{19}_{F}-$.
E) $^{17}_{Ne}2+$.
Answer: A
Diff: 2 Var: 1 Page Ref: 2.6
LO: 2.4
Global: G2

15) Isotopes differ in the number of
A) beta particles.
TBEXAM.COM
B) electrons.
C) atoms.
D) neutrons.
E) electrons and neutrons.
Answer: D
Diff: 1 Var: 1 Page Ref: 2.6
LO: 2.4
Global: G1

16) Identify a cation.
A) an atom that has lost an electron
B) an atom that has gained an electron
C) an atom that has lost a a proton
D) an atom that has gained a proton and an electron
E) an atom that has lost a neutron and an electron
Answer: A
Diff: 1 Var: 1 Page Ref: 2.6
LO: 2.4
Global: G1

TBEXAM.COM

Copyright © 2023 Pearson Education, Inc.

TBEXAM.COM – THE WORLD'S LARGEST TEST BANK AND SOLUTIONS DATABASE WITH UNBEATABLE RATES
Chemistry A Molecular Approach 6th edition Tro Test Bank

TBEXAM.COM

17) Identify an anion.
A) an atom that has lost a proton
B) an atom that has gained an electron
C) an atom that has lost a neutron and an electron
D) an atom that has gained a proton and neutron
E) an atom that has gained a proton
Answer: B
Diff: 1 Var: 1 Page Ref: 2.6
LO: 2.4
Global: G1

18) How many electrons does the Ca^{2+} ion possess?
A) 22
B) 18
C) 4
D) 8
E) 20
Answer: B
Diff: 2 Var: 1 Page Ref: 2.6
LO: 2.4
Global: G4

19) How many protons does the Al^{3+} ion possess?
A) 16
B) 10
C) 4
D) 8
E) 13
Answer: E
Diff: 2 Var: 1 Page Ref: 2.6
LO: 2.4
Global: G4

20) What is the chemical symbol for thorium?
A) Tm
B) Th
C) Ti
D) Tl
E) Tr
Answer: B
Diff: 2 Var: 1 Page Ref: 2.6
LO: 2.4
Global: G2

TBEXAM.COM

TBEXAM.COM

Copyright © 2023 Pearson Education, Inc.

TBEXAM.COM – THE WORLD'S LARGEST TEST BANK AND SOLUTIONS DATABASE WITH UNBEATABLE RATES
Chemistry A Molecular Approach 6th edition Tro Test Bank

TBEXAM.COM

21) What is the chemical symbol for molybdenum?
A) Me
B) Pb
C) Mo
D) K
E) Mb
Answer: C
Diff: 2 Var: 1 Page Ref: 2.6
LO: 2.4
Global: G2

22) What is the chemical symbol for chlorine?
A) Ca
B) Ch
C) Cl
D) Cb
E) Ci
Answer: C
Diff: 2 Var: 1 Page Ref: 2.6
LO: 2.4
Global: G2

23) Which element has the chemical symbol, Pb?
A) tin
B) lead
C) mercury
D) potassium
E) protactinium
Answer: B
Diff: 2 Var: 1 Page Ref: 2.6
LO: 2.4
Global: G2

24) Which element has the chemical symbol, Sc?
A) samarium
B) lead
C) scandium
D) mercury
E) silicon
Answer: C
Diff: 2 Var: 1 Page Ref: 2.6
LO: 2.4
Global: G2

TBEXAM.COM
TBEXAM.COM

Copyright © 2023 Pearson Education, Inc.

TBEXAM.COM – THE WORLD'S LARGEST TEST BANK AND SOLUTIONS DATABASE WITH UNBEATABLE RATES
Chemistry A Molecular Approach 6th edition Tro Test Bank

TBEXAM.COM

25) An atom that has an atomic number of 34 and a mass number of 76 is an isotope of an atom that has
A) an atomic number of 32 and a mass number of 76.
B) an atomic number of 34 and a mass number of 80.
C) 42 neutrons and 34 protons.
D) 42 protons and 34 neutrons.
E) 42 electrons and 34 neutrons.
Answer: B
Diff: 2 Var: 1 Page Ref: 2.6
LO: 2.4
Global: G2

26) Which of the following represent isotopes?

A: $^{56}_{26}X$ B: $^{56}_{27}X$ C: $^{55}_{26}X$ D: $^{58}_{28}X$

A) A and D
B) A and C
C) B and C
D) C and D
E) all of the above
Answer: B
Diff: 2 Var: 1 Page Ref: 2.6
LO: 2.4
Global: G2

TBEXAM.COM

27) Identify the element that "X" represents.
$^{235}_{92}X$

A) tin
B) copper
C) terbium
D) niobium
E) uranium
Answer: E
Diff: 2 Var: 1 Page Ref: 2.6
LO: 2.4
Global: G2

TBEXAM.COM

Copyright © 2023 Pearson Education, Inc.

TBEXAM.COM – THE WORLD'S LARGEST TEST BANK AND SOLUTIONS DATABASE WITH UNBEATABLE RATES
Chemistry A Molecular Approach 6th edition Tro Test Bank

TBEXAM.COM

28) How many protons (p) and neutrons (n) are in an atom of $^{227}_{89}Ac$?

A) 89 p, 138 n
B) 89 p, 227 n
C) 138 p, 89 n
D) 227 p, 89n
E) 89 p, 138 e
Answer: A
Diff: 2 Var: 1 Page Ref: 2.6
LO: 2.4
Global: G4

29) How many protons (p) and neutrons (n) are in an atom of radium-226?
A) 88 p, 138 n
B) 88 p, 226 n
C) 138 p, 88 n
D) 226 p, 88 n
Answer: A
Diff: 2 Var: 1 Page Ref: 2.6
LO: 2.4
Global: G4

30) What is the element symbol for an atom that has 24 protons and 28 neutrons?
A) Cr
B) N
C) Ni
D) Te
E) Rb
Answer: A
Diff: 2 Var: 1 Page Ref: 2.6
LO: 2.4
Global: G2

31) How many electrons are in a neutral atom of fluorine-19?
A) 4
B) 9
C) 10
D) 19
E) 94
Answer: B
Diff: 2 Var: 1 Page Ref: 2.6
LO: 2.4
Global: G4

TBEXAM.COM
TBEXAM.COM

Copyright © 2023 Pearson Education, Inc.

TBEXAM.COM – THE WORLD'S LARGEST TEST BANK AND SOLUTIONS DATABASE WITH UNBEATABLE RATES
Chemistry A Molecular Approach 6th edition Tro Test Bank

TBEXAM.COM

32) Identify the chemical symbol of element Q in $^{76}_{34}Q$.

A) As
B) Mo
C) Os
D) Se
E) Al
Answer: D
Diff: 2 Var: 1 Page Ref: 2.6
LO: 2.4
Global: G2

33) An atom of ^{32}P contains _____ neutrons.

A) 15
B) 47
C) 17
D) 27
E) 32
Answer: C
Diff: 2 Var: 1 Page Ref: 2.6
LO: 2.4
Global: G4

34) The mass number of an atom of ^{15}O is _____.

TBEXAM.COM

A) 8
B) 23
C) 7
D) 15
E) 9
Answer: D
Diff: 2 Var: 1 Page Ref: 2.6
LO: 2.4
Global: G2

35) What is the identity of element Q if the ion Q^{2+} contains 86 electrons?

A) Pb
B) S
C) Rn
D) Ra
E) Th
Answer: D
Diff: 2 Var: 1 Page Ref: 2.6
LO: 2.4
Global: G2

TBEXAM.COM

Copyright © 2023 Pearson Education, Inc.

TBEXAM.COM – THE WORLD'S LARGEST TEST BANK AND SOLUTIONS DATABASE WITH UNBEATABLE RATES
Chemistry A Molecular Approach 6th edition Tro Test Bank

36) Give the number of neutrons in $^{39}K^{+}$.
A) 18
B) 21
C) 17
D) 19
E) 20
Answer: E
Diff: 2 Var: 1 Page Ref: 2.6
LO: 2.4
Global: G4

37) Give the number of electrons in P^{3-}.
A) 18
B) 15
C) 12
D) 14
E) 19
Answer: A
Diff: 2 Var: 1 Page Ref: 2.6
LO: 2.4
Global: G4

38) Give the number of protons in Na^{+}.
A) 10
B) 13
C) 24
D) 11
E) 17
Answer: D
Diff: 2 Var: 1 Page Ref: 2.6
LO: 2.4
Global: G4

TBEXAM.COM

39) How many electrons are in the ion, Cu^{2+}?
A) 27
B) 29
C) 31
D) 64
E) 61
Answer: A
Diff: 2 Var: 1 Page Ref: 2.6
LO: 2.4
Global: G4

TBEXAM.COM

Copyright © 2023 Pearson Education, Inc.

TBEXAM.COM – THE WORLD'S LARGEST TEST BANK AND SOLUTIONS DATABASE WITH UNBEATABLE RATES
Chemistry A Molecular Approach 6th edition Tro Test Bank

TBEXAM.COM

40) How many electrons are in the ion, Cl^-?
A) 16
B) 18
C) 34
D) 36
E) 22
Answer: B
Diff: 2 Var: 1 Page Ref: 2.6
LO: 2.4
Global: G4

41) In which of the following sets do all species have the same number of electrons?
A) Cl^-, Ar, Ca^{2+}
B) C, N^{3-}, O^{2-}
C) Mg^{2+}, Sr^{2+}, Ba^{2+}
D) Br, Br^-, Br^+
Answer: A
Diff: 2 Var: 1 Page Ref: 2.6
LO: 2.4
Global: G2

42) In which of the following sets do all species have the same number of protons?
A) I^-, Xe, Ba^{2+}
B) Si, P^{3-}, S^{2-}
C) K^+, Rb^+, Cs^+
D) O, O^{2-}, O^{2+}
Answer: D
Diff: 2 Var: 1 Page Ref: 2.6
LO: 2.4
Global: G2

TBEXAM.COM

43) Predict the charge that a calcium ion would have.
A) 6-
B) 2-
C) 4-
D) 2+
E) 1-
Answer: D
Diff: 2 Var: 1 Page Ref: 2.7
LO: 2.6
Global: G2

TBEXAM.COM

Copyright © 2023 Pearson Education, Inc.

TBEXAM.COM – THE WORLD'S LARGEST TEST BANK AND SOLUTIONS DATABASE WITH UNBEATABLE RATES
Chemistry A Molecular Approach 6th edition Tro Test Bank

TBEXAM.COM

44) Predict the charge that an ion formed from oxygen would have.
A) 1+
B) 6-
C) 3-
D) 4+
E) 2-
Answer: E
Diff: 2 Var: 1 Page Ref: 2.7
LO: 2.6
Global: G2

45) Predict the charge that the ion formed from chlorine would have.
A) 1-
B) 2+
C) 1+
D) 4-
E) 3+
Answer: A
Diff: 2 Var: 1 Page Ref: 2.7
LO: 2.6
Global: G2

46) Predict the charge of the **most** stable ion of cesium.
A) 1+
B) 2-
C) 4-
D) 5+
E) 6+
Answer: A
Diff: 2 Var: 1 Page Ref: 2.7
LO: 2.6
Global: G2

TBEXAM.COM

47) Which of the following elements is a metal?
A) Te
B) P
C) F
D) Ag
E) Ar
Answer: D
Diff: 2 Var: 1 Page Ref: 2.7
LO: 2.5
Global: G2

TBEXAM.COM

Copyright © 2023 Pearson Education, Inc.

TBEXAM.COM – THE WORLD'S LARGEST TEST BANK AND SOLUTIONS DATABASE WITH UNBEATABLE RATES
Chemistry A Molecular Approach 6th edition Tro Test Bank

TBEXAM.COM

48) Which of the following elements is a metalloid?
A) As
B) O
C) I
D) Ni
E) Ne
Answer: A
Diff: 2 Var: 1 Page Ref: 2.7
LO: 2.5
Global: G2

49) Which of the following elements is a noble gas?
A) Ge
B) O
C) Cl
D) Co
E) Kr
Answer: E
Diff: 2 Var: 1 Page Ref: 2.7
LO: 2.5
Global: G2

50) Which of the following elements is a halogen?
A) Te
B) S
C) Br
D) Fe
E) He
Answer: C
Diff: 2 Var: 1 Page Ref: 2.7
LO: 2.5
Global: G2

TBEXAM.COM

51) Which of the following elements is a nonmetal?
A) U
B) O
C) Pb
D) Na
E) Mg
Answer: B
Diff: 2 Var: 1 Page Ref: 2.7
LO: 2.5
Global: G2

TBEXAM.COM

Copyright © 2023 Pearson Education, Inc.

TBEXAM.COM - THE WORLD'S LARGEST TEST BANK AND SOLUTIONS DATABASE WITH UNBEATABLE RATES
Chemistry A Molecular Approach 6th edition Tro Test Bank

TBEXAM.COM

52) Which of the following elements is a alkali metal?
A) U
B) O
C) Cl
D) Li
E) Be
Answer: D
Diff: 2 Var: 1 Page Ref: 2.7
LO: 2.5
Global: G2

53) Which of the following elements is an alkaline earth metal?
A) Pu
B) S
C) I
D) Rb
E) Be
Answer: E
Diff: 2 Var: 1 Page Ref: 2.7
LO: 2.5
Global: G2

54) Which of the following elements is a transition metal?
A) Ru
B) P
C) Cl
D) Rb
E) Sr
Answer: A
Diff: 2 Var: 1 Page Ref: 2.7
LO: 2.5
Global: G2

TBEXAM.COM

55) Lithium belongs to the _____ group of the periodic table.
A) alkali metal
B) alkaline earth metal
C) halogen
D) metalloid
Answer: A
Diff: 2 Var: 1 Page Ref: 2.7
LO: 2.5
Global: G2

TBEXAM.COM

Copyright © 2023 Pearson Education, Inc.

TBEXAM.COM – THE WORLD'S LARGEST TEST BANK AND SOLUTIONS DATABASE WITH UNBEATABLE RATES
Chemistry A Molecular Approach 6th edition Tro Test Bank

TBEXAM.COM

56) Iodine belongs to the _____ group of the periodic table.
A) alkali earth metal
B) metal
C) halogen
D) noble gas
E) transition metal
Answer: C
Diff: 2 Var: 1 Page Ref: 2.7
LO: 2.5
Global: G2

57) Krypton belongs to the _____ group of the periodic table.
A) alkali earth metal
B) metalloid
C) halogen
D) noble gas
Answer: D
Diff: 2 Var: 1 Page Ref: 2.7
LO: 2.5
Global: G2

58) Magnesium belongs to the _____ group of the periodic table.
A) alkali metal
B) alkaline earth metal
C) halogen
D) nonmetal
E) transition element
Answer: B
Diff: 2 Var: 1 Page Ref: 2.7
LO: 2.5
Global: G2

59) Which of the following elements has chemical properties similar to tellurium?
A) chlorine
B) lithium
C) hydrogen
D) sulfur
E) krypton
Answer: D
Diff: 2 Var: 1 Page Ref: 2.7
LO: 2.5
Global: G2

TBEXAM.COM

TBEXAM.COM

Copyright © 2023 Pearson Education, Inc.

TBEXAM.COM – THE WORLD'S LARGEST TEST BANK AND SOLUTIONS DATABASE WITH UNBEATABLE RATES
Chemistry A Molecular Approach 6th edition Tro Test Bank

TBEXAM.COM

60) Which of the following elements is a gas at room temperature?
A) hydrogen
B) carbon
C) mercury
D) potassium
E) calcium
Answer: A
Diff: 1 Var: 1 Page Ref: 2.7
Global: G2

61) Which of the following elements is a liquid at room temperature?
A) radon
B) carbon
C) bromine
D) lithium
E) barium
Answer: C
Diff: 1 Var: 1 Page Ref: 2.7
Global: G2

62) Which of the following elements is a solid at room temperature?
A) chlorine
B) helium
C) bromine
D) argon
E) calcium
Answer: E
Diff: 1 Var: 1 Page Ref: 2.7
Global: G2

TBEXAM.COM

63) Which of the following elements is **not** a solid at room temperature?
A) Ni
B) Pt
C) Ne
D) Mg
E) Li
Answer: C
Diff: 1 Var: 1 Page Ref: 2.7
Global: G2

64) Which of the following elements is classified as a metalloid?
A) potassium
B) germanium
C) iodine
D) silver
E) calcium
Answer: B
Diff: 2 Var: 1 Page Ref: 2.7
LO: 2.5
Global: G2

Copyright © 2023 Pearson Education, Inc.

TBEXAM.COM - THE WORLD'S LARGEST TEST BANK AND SOLUTIONS DATABASE WITH UNBEATABLE RATES
Chemistry A Molecular Approach 6th edition Tro Test Bank

TBEXAM.COM

65) Which of the following elements is a **good** conductor of heat and electricity?
A) carbon
B) fluorine
C) neon
D) aluminum
Answer: D
Diff: 2 Var: 1 Page Ref: 2.7
LO: 2.5
Global: G2

66) Which one of the following elements is a **poor** conductor of heat and electricity?
A) chromium
B) phosphorus
C) zinc
D) gold
E) calcium
Answer: B
Diff: 2 Var: 1 Page Ref: 2.7
LO: 2.5
Global: G2

67) All of the following elements are nonmetals EXCEPT
A) arsenic.
B) carbon.
C) helium.
D) neon.
E) chlorine
Answer: A
Diff: 2 Var: 1 Page Ref: 2.7
LO: 2.5
Global: G2

TBEXAM.COM

68) Identify the cation.
A) S^{2-}
B) K^{+}
C) Cl
D) Kr
E) Cl_2
Answer: B
Diff: 2 Var: 1 Page Ref: 2.7
LO: 2.5
Global: G2

TBEXAM.COM

Copyright © 2023 Pearson Education, Inc.

TBEXAM.COM – THE WORLD'S LARGEST TEST BANK AND SOLUTIONS DATABASE WITH UNBEATABLE RATES
Chemistry A Molecular Approach 6th edition Tro Test Bank

TBEXAM.COM

69) Identify the anion.
A) F^-
B) Na^+
C) Br
D) Kr
E) O_2
Answer: A
Diff: 2 Var: 1 Page Ref: 2.7
LO: 2.5
Global: G2

70) Which of the following elements is NOT a metal?
A) Ca
B) Li
C) Ne
D) Zn
E) Co
Answer: C
Diff: 2 Var: 1 Page Ref: 2.7
LO: 2.5
Global: G2

71) Which of the following elements is in Group 4?
A) Rf
B) K
C) Po
D) Ar
E) Pd
Answer: A
Diff: 2 Var: 1 Page Ref: 2.7
LO: 2.5
Global: G2

TBEXAM.COM

72) Which of the following elements is in Period 4?
A) Rf
B) V
C) Po
D) Ne
E) Cd
Answer: B
Diff: 2 Var: 1 Page Ref: 2.7
LO: 2.5
Global: G2

TBEXAM.COM

Copyright © 2023 Pearson Education, Inc.

TBEXAM.COM – THE WORLD'S LARGEST TEST BANK AND SOLUTIONS DATABASE WITH UNBEATABLE RATES
Chemistry A Molecular Approach 6th edition Tro Test Bank

TBEXAM.COM

73) List the element that is in the **highest** percentage by mass in our bodies.
A) carbon
B) calcium
C) oxygen
D) silicon
E) potassium
Answer: C
Diff: 2 Var: 1 Page Ref: 2.7
Global: G2

74) The average atomic mass for niobium is _____.
A) 77
B) 41
C) 92.91
D) 100
E) 52
Answer: C
Diff: 2 Var: 1 Page Ref: 2.8
LO: 2.7
Global: G2

75) The atomic number for cadmium is _____.
A) 40.08
B) 20
C) 112.41
D) 48
E) 64
Answer: D
Diff: 2 Var: 1 Page Ref: 2.8
LO: 2.7
Global: G2

76) Which of the following contains the **most** atoms? You shouldn't need to do a calculation here.
A) 10.0 g Na
B) 10.0 g Li
C) 10.0 g K
D) 10.0 g Rb
E) 10.0 g Cs
Answer: B
Diff: 2 Var: 1 Page Ref: 2.9
LO: 2.8
Global: G2

TBEXAM.COM

TBEXAM.COM

Copyright © 2023 Pearson Education, Inc.

TBEXAM.COM – THE WORLD'S LARGEST TEST BANK AND SOLUTIONS DATABASE WITH UNBEATABLE RATES
Chemistry A Molecular Approach 6th edition Tro Test Bank

TBEXAM.COM

77) Which of the following contains the **fewest** atoms? You shouldn't need to do a calculation here.
A) 10.0 g Al
B) 10.0 g Ne
C) 10.0 g K
D) 10.0 g Rb
E) 10.0 g Ba
Answer: E
Diff: 2 Var: 1 Page Ref: 2.9
LO: 2.8
Global: G2

78) How many Cu atoms are contained in 896 g of Cu?
A) 5.90×10^{25} Cu atoms
B) 4.25×10^{21} Cu atoms
C) 8.49×10^{24} Cu atoms
D) 4.27×10^{22} Cu atoms
E) 8.22×10^{24} Cu atoms
Answer: C
Diff: 3 Var: 1 Page Ref: 2.9
LO: 2.8
Global: G4

79) Calculate the mass (in g) of 1.9×10^{24} atoms of Pb.
A) 4.1×10^{2} g
TBEXAM.COM
B) 2.2×10^{2} g
C) 3.1×10^{2} g
D) 1.7×10^{2} g
E) 6.5×10^{2} g
Answer: E
Diff: 3 Var: 1 Page Ref: 2.9
LO: 2.8
Global: G4

80) How many zinc atoms are contained in 3.75 moles of zinc?
A) 1.23×10^{24} zinc atoms
B) 2.26×10^{24} zinc atoms
C) 2.26×10^{23} zinc atoms
D) 9.03×10^{24} zinc atoms
E) 6.50×10^{25} zinc atoms
Answer: B
Diff: 2 Var: 1 Page Ref: 2.9
LO: 2.8
Global: G4

TBEXAM.COM

Copyright © 2023 Pearson Education, Inc.

TBEXAM.COM – THE WORLD'S LARGEST TEST BANK AND SOLUTIONS DATABASE WITH UNBEATABLE RATES
Chemistry A Molecular Approach 6th edition Tro Test Bank

TBEXAM.COM

81) What mass (in g) does 0.990 moles of Kr have?
A) 83.0 g
B) 240119 g
C) 52.8 g
D) 240 g
E) 35.6 g
Answer: A
Diff: 2 Var: 1 Page Ref: 2.9
LO: 2.8
Global: G4

82) How many moles of potassium are contained in 449 g of potassium?
A) 11.5 moles
B) 0.956 moles
C) 6.67 moles
D) 23.6 moles
E) 14.5 moles
Answer: A
Diff: 2 Var: 1 Page Ref: 2.9
LO: 2.8
Global: G4

83) How many moles are in 2.16×10^{24} atoms of platinum?
A) 35.9 moles
B) 3.59 moles
C) 0.359 moles
D) 6.08 moles
E) 1.79 moles
Answer: B
Diff: 2 Var: 1 Page Ref: 2.9
LO: 2.8
Global: G4

84) How many atoms are in 7.50 moles of Au?
A) 4.52×10^{24} atoms
B) 1.52×10^{24} atoms
C) 5.02×10^{24} atoms
D) 3.01×10^{24} atoms
E) 6.04×10^{24} atoms
Answer: A
Diff: 2 Var: 1 Page Ref: 2.9
LO: 2.8
Global: G4

TBEXAM.COM
TBEXAM.COM

Copyright © 2023 Pearson Education, Inc.

TBEXAM.COM – THE WORLD'S LARGEST TEST BANK AND SOLUTIONS DATABASE WITH UNBEATABLE RATES
Chemistry A Molecular Approach 6th edition Tro Test Bank

TBEXAM.COM

85) How many atoms are in 2.50 moles of Cl?
A) 4.52×10^{24} atoms
B) 1.51×10^{24} atoms
C) 3.02×10^{23} atoms
D) 3.20×10^{24} atoms
E) 7.53×10^{23} atoms
Answer: B
Diff: 2 Var: 1 Page Ref: 2.9
LO: 2.8
Global: G4

86) How many atoms of silicon are in 2.50 moles of Si?
A) 4.52×10^{24} atoms
B) 1.51×10^{24} atoms
C) 5.00×10^{23} atoms
D) 3.01×10^{24} atoms
E) 5.50×10^{23} atoms
Answer: B
Diff: 2 Var: 1 Page Ref: 2.9
LO: 2.8
Global: G4

87) How many atoms are in 5.00 moles of O?
TBEXAM.COM
A) 4.52×10^{24} atoms
B) 1.51×10^{24}atoms
C) 5.02×10^{23}atoms
D) 3.01×10^{24} atoms
E) 7.53×10^{23} atoms
Answer: D
Diff: 2 Var: 1 Page Ref: 2.9
LO: 2.8
Global: G4

88) What mass (in kg) does 4.41 moles of copper have?
A) 0.784 kg
B) 0.444 kg
C) 0.820kg
D) 0.280 kg
E) 0.018 kg
Answer: D
Diff: 2 Var: 1 Page Ref: 2.9
LO: 2.8
Global: G4

TBEXAM.COM

Copyright © 2023 Pearson Education, Inc.

TBEXAM.COM – THE WORLD'S LARGEST TEST BANK AND SOLUTIONS DATABASE WITH UNBEATABLE RATES
Chemistry A Molecular Approach 6th edition Tro Test Bank

TBEXAM.COM

89) Which of the following does NOT contain the same number of atoms as 3.30 moles of Li?
A) 3.30 moles of Li
B) 14.5 moles of Ta
C) 3.30 moles of Pb
D) 3.30 moles of Cu
E) 3.30 moles of Au
Answer: B
Diff: 2 Var: 1 Page Ref: 2.9
LO: 2.8
Global: G4

90) Which of the following is equal to exactly 1 mole of atoms?
A) 6.00 grams of carbon
B) 31.93 grams of cobalt
C) 26.98 grams of aluminum
D) 12.31 grams of magnesium
E) 34.00 grams of selenium
Answer: C
Diff: 2 Var: 1 Page Ref: 2.9
LO: 2.8
Global: G4

91) Which of the following is equal to exactly Avogadro's number of atoms?
A) 8.00 grams of oxygen
B) 30.69 grams of nickel
C) 4.003 grams of helium
D) 11.99 grams of sodium
E) 35.00 grams of bromine
Answer: C
Diff: 2 Var: 1 Page Ref: 2.9
LO: 2.8
Global: G4

TBEXAM.COM

92) How many gallium atoms are contained in 7.66×10^5 mmol of gallium?
A) 4.61×10^{26} Ga atoms
B) 4.61×10^{29} Ga atoms
C) 3.83×10^{28} Ga atoms
D) 7.86×10^{20} Ga atoms
E) 3.24×10^{26} Ga atoms
Answer: A
Diff: 2 Var: 1 Page Ref: 2.9
LO: 2.8
Global: G4

Copyright © 2023 Pearson Education, Inc.

TBEXAM.COM – THE WORLD'S LARGEST TEST BANK AND SOLUTIONS DATABASE WITH UNBEATABLE RATES
Chemistry A Molecular Approach 6th edition Tro Test Bank

TBEXAM.COM

Matching Questions

Match the following.

A) Si
B) Fe
C) Mg
D) C
E) K

1) magnesium
Diff: 1 Var: 1 Page Ref: 2.6
Global: G1

2) carbon
Diff: 1 Var: 1 Page Ref: 2.6
Global: G1

3) potassium
Diff: 1 Var: 1 Page Ref: 2.6
Global: G1

4) iron
Diff: 1 Var: 1 Page Ref: 2.6
Global: G1

TBEXAM.COM

5) silicon
Diff: 1 Var: 1 Page Ref: 2.6
Global: G1

Answers: 1) C 2) D 3) E 4) B 5) A

Short Answer Questions

1) Describe an atom and what it is made up of according to modern atomic theory.
Answer: An atom is made up of a nucleus surrounded by electrons. The nucleus contains protons (positively charged particles) and neutrons (neutral particles) and is where most of the mass of an atom comes from, but is a tiny fraction of an atom's volume. The nucleus is surrounded by negatively charged electrons, the same number as there are protons in the nucleus. An atom is therefore neutral overall.
Diff: 2 Var: 1 Page Ref: 2.3
LO: 2.1
Global: G1, G8

2) The atomic number is equal to the number of _____.
Answer: protons
Diff: 1 Var: 1 Page Ref: 2.6
LO: 2.4
Global: G1

Copyright © 2023 Pearson Education, Inc.

TBEXAM.COM - THE WORLD'S LARGEST TEST BANK AND SOLUTIONS DATABASE WITH UNBEATABLE RATES
Chemistry A Molecular Approach 6th edition Tro Test Bank

TBEXAM.COM

3) Why do the isotopes of the same element have the same atomic size?
Answer: Isotopes only differ in the number of neutrons contained within the nucleus. Since the size of an atom is determined by the electrons, isotopes of the same element should be the same size.
Diff: 2 Var: 1 Page Ref: 2.6
LO: 2.4
Global: G2, G8

4) Why doesn't a mass spectrum of silver have a peak at 107.9 amu?
Answer: The average atomic mass of silver is 107.9 amu, but there are no atoms of silver that weigh 107.9 amu. Silver has two isotopes.
Diff: 2 Var: 1 Page Ref: 2.6
Global: G2, G8

5) Are anions typically larger or smaller than their corresponding atom? Why?
Answer: Anions are larger than their corresponding atom because the anion contains more electrons than the atom. Since electrons repel one another AND determine the size of the atom or ion, adding electrons to the atom to form an anion makes it larger.
Diff: 2 Var: 1 Page Ref: 2.6
LO: 2.4
Global: G2, G8

6) Give the name of the element whose symbol is Na.
Answer: sodium
Diff: 2 Var: 1 Page Ref: 2.6
Global: G1

TBEXAM.COM

7) Describe the difference between ions and isotopes.
Answer: Ions have lost or gained of electrons; isotopes differ in the number of neutrons.
Diff: 2 Var: 1 Page Ref: 2.6
LO: 2.4
Global: G2, G8

8) Give an example of a halogen.
Answer: F, Br, I, or Cl
Diff: 2 Var: 1 Page Ref: 2.7
LO: 2.5
Global: G1

9) What group of elements in the periodic table are the **most** unreactive and why?
Answer: The noble gases are the most unreactive since they do not combine with other elements to form compounds.
Diff: 2 Var: 1 Page Ref: 2.7
LO: 2.5
Global: G2, G8

10) Why do elements in the same group tend to have similar chemical properties?
Answer: Since elements in the same group tend to react similarly, they form the ions with the same charge.
Diff: 2 Var: 1 Page Ref: 2.7
LO: 2.5
Global: G2, G8

Copyright © 2023 Pearson Education, Inc.

TBEXAM.COM - THE WORLD'S LARGEST TEST BANK AND SOLUTIONS DATABASE WITH UNBEATABLE RATES
Chemistry A Molecular Approach 6th edition Tro Test Bank

TBEXAM.COM

11) Give the name of the instrument that is used to measure masses of atoms and the percent abundance of isotopes.
Answer: mass spectrometer
Diff: 2 Var: 1 Page Ref: 2.8
Global: G1

12) The number 6.022×10^{23} is called _____.
Answer: Avogadro's number
Diff: 1 Var: 1 Page Ref: 2.9
Global: G1

New Questions for AMA 6e

1) How many moles are in 0.893 g of Copper?
A) 0.141 mol Cu
B) 0.0141 mol Cu
C) 56.8 mol Cu
D) 71.2 mol Cu
E) 1.48×10^{-24} mol Cu
Answer: B
Diff: 2 Var: 1 Page Ref: 2.9
LO: 2.8
Global: G4

TBEXAM.COM

2) Pick the correct isotopic symbol for the technetium with 56 neutrons.
A) $^{56}_{43}Tc$
B) $^{43}_{56}Tc$
C) $^{99}_{43}Tc$
D) $^{43}_{99}Tc$
E) $^{99}_{56}Tc$
Answer: C
Diff: 2 Var: 1 Page Ref: 2.6
LO: 2.4
Global: G2

TBEXAM.COM

Copyright © 2023 Pearson Education, Inc.

TBEXAM.COM - THE WORLD'S LARGEST TEST BANK AND SOLUTIONS DATABASE WITH UNBEATABLE RATES
Chemistry A Molecular Approach 6th edition Tro Test Bank

3) Which statement about subatomic particles is true?
A) Electrons have twice the mass of neutrons.
B) Some atoms don't have any protons.
C) Protons and neutrons have charges of the same magnitude but opposite signs.
D) Protons and electrons have charges of the same magnitude but opposite signs.
E) Protons have twice the mass of neutrons.
Answer: D
Diff: 1 Var: 1 Page Ref: 2.5
LO: 2.3
Global: G1

4) Determine the number of neutrons, electrons, and protons in the isotope: $^{109}_{47}Ag$.

A) p+ = 47 n^0 = 47 e^- = 62
B) p+ = 47 n^0 = 62 e^- = 47
C) p+ = 62 n^0 = 47 e^- = 47
D) p+ = 47 n^0 = 62 e^- = 109
E) p+ =109 n^0 = 62 e^- = 47
Answer: B
Diff: 2 Var: 1 Page Ref: 2.6
LO: 2.4
Global: G2

5) An element has 3 naturally occurring isotopes. Isotope 1 has a mass of 23.99 amu and a relative abundance of 78.99%, isotope 2 has a mass of 24.99 amu and a relative abundance of 10.00%, and isotope 3 has a mass of 25.98 amu with a relative abundance of 11.01%. What is the atomic mass and identity of this element?
TBEXAM.COM
A) 22.99 amu
B) 24.21 amu
C) 24.40 amu
D) 26.98 amu
E) 24.31 amu
Answer: E
Diff: 2 Var: 1 Page Ref: 2.8
LO: 2.7
Global: G4

6) How many atoms are in 5.78 g of Ba?
A) 1.32×10^{-21} atoms Ba
B) 1.43×10^{25} atoms Ba
C) 2.53×10^{22} atoms Ba
D) 6.98×10^{-26} atoms Ba
E) 3.86×10^{26} atoms Ba
Answer: C
Diff: 3 Var: 1 Page Ref: 2.9
LO: 2.8
Global: G4

Copyright © 2023 Pearson Education, Inc.

TBEXAM.COM - THE WORLD'S LARGEST TEST BANK AND SOLUTIONS DATABASE WITH UNBEATABLE RATES
Chemistry A Molecular Approach 6th edition Tro Test Bank
TBEXAM.COM

TBEXAM.COM

7) Predict the charge formed by a Se ion.
A) +1
B) +2
C) +3
D) -1
E) -2
Answer: E
Diff: 2 Var: 1 Page Ref: 2.7
LO: 2.6
Global: G2

8) Determine the number of electrons and protons in a Ga^+ ion.
A) $p^+ = 31$ $e^- = 31$
B) $p^+ = 28$ $e^- = 31$
C) $p^+ = 31$ $e^- = 30$
D) $p^+ = 28$ $e^- = 28$
E) $p^+ = 32$ $e^- = 28$
Answer: C
Diff: 2 Var: 1 Page Ref: 2.7
LO: 2.6
Global: G2

9) Which of the following pairs of elements are the most similar?
A) Nitrogen and oxygen
TBEXAM.COM
B) Nitrogen and nickel
C) Sodium and magnesium
D) Titanium and gallium
E) Chlorine and fluorine
Answer: E
Diff: 1 Var: 1 Page Ref: 2.7
LO: 2.5
Global: G2

10) Find the mass and natural abundance of Si-30 if the mass and natural abundance of Si-28 are 27.9769 and 92.2% and the mass and natural abundance of Si-29 are 28.9765 amu and 4.67%.
A) 30 amu; 3.1%
B) 29 amu; 3.1%
C) 28 amu; 3.1%
D) 27 amu; 3.33%
E) 26 amu; 3.33%
Answer: A
Diff: 3 Var: 1 Page Ref: 2.8
LO: 2.7
Global: G4

TBEXAM.COM

Copyright © 2023 Pearson Education, Inc.

TBEXAM.COM – THE WORLD'S LARGEST TEST BANK AND SOLUTIONS DATABASE WITH UNBEATABLE RATES
Chemistry A Molecular Approach 6th edition Tro Test Bank

TBEXAM.COM

11) What is the average mass, in grams, of 3 platinum atoms?
A) 3.239×10^{-22} g Pt
B) 9.718×10^{-22} g Pt
C) 4.982×10^{-24} g Pt
D) 5.535×10^{-25} g Pt
E) 2.554×10^{-26} g Pt
Answer: B
Diff: 3 Var: 1 Page Ref: 2.8
LO: 2.7
Global: G4

12) How many Bismuth atoms are contained in 0.097 g Bi?
A) 5.84×10^{22} Bi atoms
B) 2.88×10^{21} Bi atoms
C) 2.79×10^{20} Bi atoms
D) 4.67×10^{-4} Bi atoms
Answer: C
Diff: 3 Var: 1 Page Ref: 2.9
LO: 2.8
Global: G4

13) Upon decomposition, one sample of magnesium fluoride produces 1.65 g of magnesium and 2.57 g of fluorine. A second sample produces 1.32 g of magnesium. How much fluorine (in grams) does the second sample produce?
TBEXAM.COM
A) 0.642 g F
B) 0.847 g F
C) 1.56 g F
D) 1.90 g F
E) 2.06 g F
Answer: E
Diff: 3 Var: 1 Page Ref: 2.3
LO: 2.1
Global: G2

14) A pure titanium cube has an edge length of 2.52 in. How many titanium atoms does it contain? Titanium has a density of 4.50 g/cm^3.
A) 3.30×10^{24} atoms Ti
B) 5.66×10^{22} atoms Ti
C) 1.48×10^{25} atoms Ti
D) 3.62×10^{23} atoms Ti
E) 1.43×10^{23} atoms Ti
Answer: C
Diff: 3 Var: 1 Page Ref: 2.9
LO: 2.8
Global: G4

TBEXAM.COM

Copyright © 2023 Pearson Education, Inc.

TBEXAM.COM – THE WORLD'S LARGEST TEST BANK AND SOLUTIONS DATABASE WITH UNBEATABLE RATES
Chemistry A Molecular Approach 6th edition Tro Test Bank

15) Which statements are inconsistent with Rutherford's nuclear theory as it was originally stated?
A) Neutral lithium atoms contain more neutrons than protons.
B) Since electrons are smaller than protons and since a hydrogen atom contains only one proton and one electron, it must follow that the volume of a hydrogen atom is mostly due to the proton.
C) A phosphorus atom has 15 protons in its nucleus and 150 electrons outside of its nucleus.
D) The majority of the mass of a fluorine atom is due to its nine electrons.
E) A nitrogen atom has seven protons in its nucleus and seven electrons outside of its nucleus.
Answer: E
Diff: 2 Var: 1 Page Ref: 2.5
LO: 2.3
Global: G1

16) What is the mass, in grams, of 2.3 mol of W?
A) 4.2×10^{2} g W
B) 3.2×10^{2} g W
C) 5.9×10^{2} g W
D) 1.3×10^{-2} g W
E) 1.7×10^{-2} g W
Answer: A
Diff: 3 Var: 1 Page Ref: 2.9
LO: 2.8
Global: G4

17) A slinky has a length when compressed of approximately 2.25 inches. If you stacked Avogadro's number of slinkies one on top of the other on Earth's surface, how far would the stack extend (in km)? [For comparison, the Sun is about 150 million km from Earth, and the nearest star (Proxima Centauri) is about 40 trillion km from Earth.]
TBEXAM.COM
A) 3.44×10^{25} km
B) 5.33×10^{22} km
C) 1.35×10^{21} km
D) 3.44×10^{19} km
E) 5.72×10^{-5} km
Answer: D
Diff: 3 Var: 1 Page Ref: 2.9
LO: 2.8
Global: G4

18) How many moles of zinc do 2.4×10^{25} zinc atoms represent?
A) 1.4×10^{49} mol Zn
B) 40 mol Zn
C) 70 mol Zn
D) 0.40 mol Zn
E) 2.5×10^{49} mol Zn
Answer: B
Diff: 2 Var: 1 Page Ref: 2.9
LO: 2.8
Global: G4

Copyright © 2023 Pearson Education, Inc.

TBEXAM.COM
Chemistry A Molecular Approach 6th edition Tro Test Bank
TBEXAM.COM - THE WORLD'S LARGEST TEST BANK AND SOLUTIONS DATABASE WITH UNBEATABLE RATES

19) How many electrons are necessary to produce a charge of −2.0 C? What is the mass of this many electrons?

A) 3.2×10^{-19} electrons and 3.25×10^{8} g

B) 1.25×10^{19} electrons and 1.38×10^{46} g

C) 1.25×10^{19} electrons and 1.14×10^{-8} g

D) -1.25×10^{19} electrons and -1.14×10^{-8} g

E) 3.2×10^{-19} electrons and 2.91×10^{-46} g

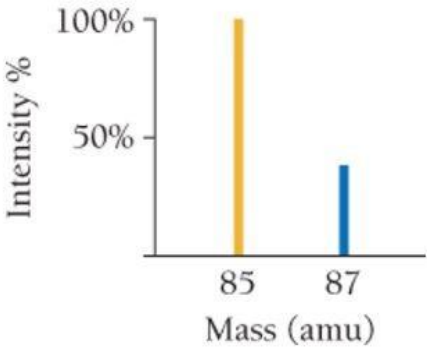
Answer: C

Diff: 3 Var: 1 Page Ref: 2.4

LO: 2.2

Global: G1

20) Use the mass spectrum of Rb to determine the atomic mass.



TBEXAM.COM

A) 85.0 amu

B) 85.6 amu

C) 86.0 amu

D) 86.6 amu

E) 87.0 amu

Answer: B

Diff: 3 Var: 1 Page Ref: 2.8

LO: 2.7

Global: G4

21) What is the mass (in g) of 4.72×10^{21} plutonium atoms?

A) 1.15×10^{24} g Pu

B) 1.93×10^{19} g Pu

C) 3.21×10^{-5} g Pu

D) 7.84×10^{-3} g Pu

E) 1.91 g Pu

Answer: E

Diff: 3 Var: 1 Page Ref: 2.9

LO: 2.8

Global: G4

Copyright © 2023 Pearson Education, Inc.

TBEXAM.COM - THE WORLD'S LARGEST TEST BANK AND SOLUTIONS DATABASE WITH UNBEATABLE RATES
Chemistry A Molecular Approach 6th edition Tro Test Bank

TBEXAM.COM

22) Determine the number of protons and neutrons in the isotope $^{226}_{88}Ra$.

A) $p^+ = 226$ $n° = 88$
B) $p^+ = 88$ $n° = 226$
C) $p^+ = 226$ $n° = 138$
D) $p^+ = 88$ $n° = 138$
E) $p^+ = 138$ $n° = 88$
Answer: D
Diff: 2 Var: 1 Page Ref: 2.6
LO: 2.4
Global: G2

23) What species is represented by the following information?

$p^+ = 20$ $n° = 20$ $e^- = 18$

A) Ca
B) Ca^{2+}
C) Ar
D) K^+
E) Zr
Answer: B
Diff: 2 Var: 1 Page Ref: 2.6
LO: 2.4
Global: G2

TBEXAM.COM

24) Determine the number of protons and electrons in Ga^{3+}.

A) $p^+ = 31$ $e^- = 31$
B) $p^+ = 28$ $e^- = 28$
C) $p^+ = 28$ $e^- = 30$
D) $p^+ = 31$ $e^- = 29$
E) $p^+ = 31$ $e^- = 28$
Answer: E
Diff: 2 Var: 1 Page Ref: 2.7
LO: 2.6
Global: G2

TBEXAM.COM

Copyright © 2023 Pearson Education, Inc.

TBEXAM.COM – THE WORLD'S LARGEST TEST BANK AND SOLUTIONS DATABASE WITH UNBEATABLE RATES
Chemistry A Molecular Approach 6th edition Tro Test Bank

TBEXAM.COM

25) Calculate the atomic mass and identify element "X", if it has 5 naturally occurring isotopes with the following masses and natural abundances:

X-46	45.953 amu	8.28%
X-47	46.952 amu	7.44%
X-48	47.948 amu	73.72%
X-49	48.948 amu	5.41%
X-50	49.945 amu	5.18%

A) 44.96 amu; Sc
B) 47.76 amu; Ti
C) 47.87 amu; Ti
D) 50.94 amu; V
E) 47.94 amu; Ti
Answer: C
Diff: 3 Var: 1 Page Ref: 2.8
LO: 2.7
Global: G4

TBEXAM.COM

TBEXAM.COM

Copyright © 2023 Pearson Education, Inc.

TBEXAM.COM – THE WORLD'S LARGEST TEST BANK AND SOLUTIONS DATABASE WITH UNBEATABLE RATES
Chemistry A Molecular Approach 6th edition Tro Test Bank