

Practise Exam Chapter 2

1. Which one of the following contributes to the charge but does NOT contribute significantly to the mass of an atom?
 - A) electrons
 - B) nuclei
 - C) photons
 - D) neutrons
 - E) protons

2. Which one of the statements below is true?
 - A) When two atoms combine, they do so in definite proportions by weight
 - B) When two different compounds combine to form an element, they do so in definite proportions by weight
 - C) When two different elements combine to form a compound, they do so in definite proportions by weight
 - D) When two molecules combine, they do so in definite proportions by weight
 - E) When two different elements combine to form a mixture, they do so in definite proportions by weight

3. Silver and antimony are an example of two elements which belong to the same
 - A) class
 - B) generation
 - C) grade
 - D) group
 - E) period

4. Which description below fits the ${}_{29}^{65}\text{Cu}$ atom?
 - A) 29 protons, 65 neutrons, 29 electrons
 - B) 29 protons, 36 neutrons, 34 electrons
 - C) 29 protons, 36 neutrons, 31 electrons
 - D) 29 protons, 36 neutrons, 29 electrons
 - E) 31 protons, 34 neutrons, 29 electrons

5. A naturally occurring element consists of **three** isotopes. The data on the isotopes:
isotope #1: 147.9554 u, 10.563%
isotope #2: 150.9496 u, 70.811%
isotope #3: 152.9461 u, 18.626%
What is the average atomic weight of this naturally occurring element?
A) 50.335 u
B) 150.62 u
C) 150.67 u
D) 151.01 u
E) 151.08 u
6. The atomic mass of naturally occurring silver, which is a mixture of two isotopes, is listed as 107.868 u. This means that
A) all silver atoms found in nature have a mass which is 107.868/12.000 times as great as that of a ^{12}C atom
B) all silver atoms found in nature have a mass which is 107.868/1.0079 times as great as that of a ^1H atom
C) some silver atoms found in nature have a mass which is 107.868/12.000 times as great as that of a ^{12}C atom
D) some silver atoms found in nature have a mass which is 107.868/1.0079 times as great as that of a ^1H atom
E) no silver atoms found in nature have a mass which is 107.868/12.000 times as great as that of a ^{12}C atom
7. The symbol "Fe" is used to represent the element:
A) fermium
B) fendium
C) copper
D) iron
E) zinc
8. The value listed for the average atomic mass of bromine is 79.909 u. It consists of two isotopes, one with a mass of 78.9183 u and one with a mass of 80.9163 u. What is the percent, by weight, of the most abundant isotope in naturally occurring bromine?

9. Consider the atoms of ^{65}Cu and ^{65}Zn . Both of these atoms have the same
A) number of electrons
B) mass
C) number of neutrons
D) atomic mass number
E) number of protons

10. Which one of the pairs below contains elements from the same period?
- A) iron, barium
 - B) potassium, gold
 - C) potassium, barium
 - D) potassium, iron
 - E) tin, bromine
11. The species shown below which has 24 protons is
- A) ${}^{52}_{24}\text{Cr}$
 - B) ${}^{55}_{25}\text{Mn}$
 - C) ${}^{24}_{12}\text{Mg}$
 - D) ${}^{45}_{21}\text{Sc}$
 - E) ${}^{51}_{23}\text{V}$
12. The formula mass of $\text{Co}(\text{NH}_3)_6(\text{ClO}_4)_3$ is
- A) 318.53 u
 - B) 389.43 u
 - C) 402.57 u
 - D) 459.47 u
 - E) 754.13 u
13. How many moles of ${}^{12}\text{C}$ are there in a 3.50 g sample of this substance?
- A) 0.291 moles
 - B) 0.292 moles
 - C) 1.00 moles
 - D) 3.43 moles
 - E) 3.50 moles
14. The atomic weight of aluminum is 26.98 u. How many moles of Al are there in a 4.56 g sample of aluminum?
- A) 0.106 moles
 - B) 0.114 moles
 - C) 0.123 moles
 - D) 0.169 moles
 - E) 7.79×10^{22} moles

15. The formula mass of $(\text{NH}_4)_2\text{SO}_4$ is
- A) 84.12 u
 - B) 116.12 u
 - C) 118.13 u
 - D) 132.14 u
 - E) 221.53 u
16. A sample of phosphorus trifluoride, PF_3 , contains 1.400 moles of the substance. How many atoms are there in the sample?
- A) 4
 - B) 5.6
 - C) 8.431×10^{23}
 - D) 2.409×10^{24}
 - E) 3.372×10^{24}
17. A sample of sulfolane, $\text{C}_4\text{H}_8\text{O}_2\text{S}$, contains 5.00×10^{24} atoms. How many moles of sulfolane are there in the sample?
- A) 0.120 moles
 - B) 0.554 moles
 - C) 1.81 moles
 - D) 8.30 moles
 - E) 3.33×10^{23} moles
18. The atomic weight of chromium is 51.996 u. How many moles of Cr are there in a 5.44 g sample of chromium?
- A) 0.0875 moles
 - B) 0.0907 moles
 - C) 0.105 moles
 - D) 0.220 moles
 - E) 2.33 moles
19. How many moles of carbon atoms are combined with 11.2 moles of hydrogen atoms in a sample of the compound, C_3H_8 ?
- A) 3.00
 - B) 5.60
 - C) 4.20
 - D) 6.02×10^{23}
 - E) 29.9

20. Which set below includes only alkali metal elements?
- A) gallium, germanium, iron, barium, tellurium
 - B) lithium, sodium, potassium, rubidium, francium
 - C) magnesium, gallium, fluorine, mendelevium, neptunium
 - D) radium, polonium, actinium, platinum, selenium
 - E) uranium, francium, gallium, plutonium, titanium

Answer Key

1. A
2. C
3. E
4. D
5. D
6. E
7. D
8. 50.415 %
9. D
10. D
11. A
12. D
13. B
14. D
15. D
16. E
17. B
18. C
19. C
20. B