

CHOOSE THE CORRECT ANSWERS

Q1: Pure water is:

- (A) an element
- (B) a molecular compound
- (C) a homogeneous mixture
- (D) a heterogeneous mixture
- (E) an ionic compound

Q2: Which of the following is an SI derived unit:

- (A) cubic meter "m³" for volume
- (B) gram per liter "g/L" for density
- (C) gram "g" for mass
- (D) mile per hour "mi/h" for speed
- (E) Kelvin "K" for temperature

Q3: If the temperature is -40 °F, its value in °C is:

- (A) 0
- (B) -8
- (C) 40
- (D) -32
- (E) -40

$$^{\circ}\text{C} = \frac{5}{9} (^{\circ}\text{F} - 32)$$

Q4: Knowing that the volume of a bubble is

$\left(\frac{4 \times \pi \times r^3}{3}\right)$, if a bubble contains 0.105 g of a gas and if the radius (r) of the bubble is 2.6 cm, the density in g/L of the gas in this bubble is: $\text{cm}^3 = \text{mL}$

- (A) 1.25
- (B) 1.98
- (C) 1.43
- (D) 1.14
- (E) 12.49

$$\frac{4 \times 3.14 \times (2.6)^3}{3} = 73.58 \text{ cm}^3$$

$$d = \frac{m}{V} \Rightarrow \frac{0.105}{0.07358} = 1.43 \text{ g/L}$$

Q5: The number of significant figures in 0.07080 m, is:

- (A) Three
- (B) four
- (C) five
- (D) six
- (E) Two

Q6: At a certain temperature, if the speed of sound is 343 m/s; its speed in km/h is:

- (A) 1.23×10^3
- (B) 1.23×10^6
- (C) 1.26×10^4
- (D) 2.10×10^4
- (E) 1.30×10^4

$$343 \frac{\text{m}}{\text{s}} \times \frac{1 \text{ km}}{10^3 \text{ m}} \times \frac{60 \text{ s}}{1 \text{ min}} \times \frac{60 \text{ min}}{1 \text{ h}}$$

Q7: For the following equation:

$$\frac{(7.8 - 0.34)}{(1.15 + 0.82)} = X$$

the value of X with the correct number of significant figures is:

- (A) 3.787
- (B) 3.79
- (C) 4
- (D) 3.80
- (E) 3.8

$$\frac{(7.8 - 0.34)}{(1.15 + 0.82)} = \frac{7.46}{1.97} = \frac{7.5}{1.97} = 3.8071 = 3.8$$

Q8: Three students (A, B and C) were asked to measure 87.0 mL of ethanol with a graduated cylinder. The student's measurements were as follow:

A	B	C
87.1	86.9	87.7
88.2	87.1	87.8

Which of the following is correct:

- (A) Student A is the most precise and the least accurate
- (B) Student B is the most precise and student C is the most accurate
- (C) Student C is the most precise and student B is the most accurate
- (D) Student B is the most precise and the least accurate
- (E) Student A is the most precise and the least accurate

Q9: Which of the following statements is true?

- (A) All particles in the nucleus of an atom are charged.
- (B) The atom is best described as a uniform sphere of matter in which electrons are embedded.
- (C) The mass of the nucleus is only a very small fraction of the mass of the entire atom.
- (D) The volume of the nucleus is only a very small fraction of the total volume of the atom.
- (E) The number of neutrons in a neutral atom must equal the number of electrons.

Q10: The isotope of an unknown element, X, has a mass number of 79. The most stable ion of the isotope has 36 electrons and forms a binary ionic compound with sodium, having a formula of NaX. Which of the following statements is true?

- (A) NaX is a covalent compound $79 \times$
 (B) The isotope of X has 35 protons
 (C) The isotope of X has 43 neutrons $X^- \quad e=36$
 (D) X is the krypton element, Kr $50, \quad A=35$
 (E) The isotope of X has 43 protons $n=44$

Q11: Which of the compounds NH_4Cl , CCl_4 , NF_3 and BaF_2 is/are likely to be ionic?

- (A) Only NH_4Cl
 (B) Only NF_3
 (C) Both CCl_4 and BaF_2
 (D) Both NH_4Cl and BaF_2
 (E) Both CCl_4 and NF_3

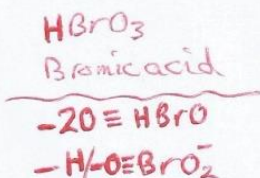
Q12: Which of the following is true?

	Substance	Protons	Neutrons	Electrons
(A)	$^{120}_{50}\text{Sn}$	70	50	70
(B)	$^{25}_{12}\text{Mg}^{2+}$	12	13	12
(C)	$^{56}_{26}\text{Fe}^{2+}$	26	30	24
(D)	$^{32}_{16}\text{S}^{2-}$	16	18	18
(E)	$^{35}_{17}\text{Cl}$	18	18	18

$\frac{A}{Z}X \quad z=p \quad A=p+n$

Q13: The formula of hypobromous acid and of bromite ion respectively are:

- (A) HBrO_2 and BrO_2^-
 (B) HBrO and BrO^-
 (C) HBrO_2 and BrO^{2-}
 (D) HBrO_2 and BrO^-
 (E) HBrO and BrO_2^-



Q14: The name of the compound which has the formula " $\text{FeCl}_3 \cdot 6\text{H}_2\text{O}$ " is:

- (A) Iron (III) chloride hexahydrate
 (B) Ferrous (III). hexahydrate
 (C) Iron (III) chloride water (VI)
 (D) Iron trichloride hexawater
 (E) Iron chloride hexahydrate

Q15: Which of the following name is not true:

- (A) Dihydrogen monoxide (water) H_2O
 (B) Carbon dioxide (dry ice) CO_2
 (C) Dinitrogen monoxide (laughing gas) N_2O
 (D) Hydrogen monoiodide HI *Hydrogen iodide*
 (E) Dinitrogen tetrachloride N_2Cl_4