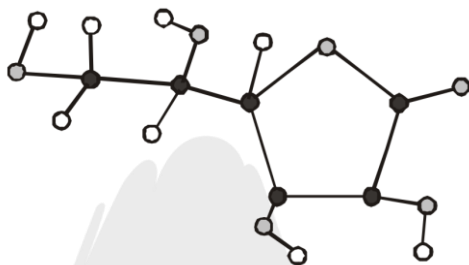


Only one correct:

1. A certain positive ion A^{+2} has 22 neutrons and 18 electrons. What is the mass number of most abundant isotope of A
 (A) 42 (B) 38 (C) 40 (D) none
2. Examine the model of vitamin C and determine the molecular formula. In the model shown, the black sphere = C atom, \circ sphere = H atom, \circ Sphere = O atom.



- (A) $C_8H_6O_6$ (B) $C_6H_8O_6$ (C) $C_6H_{10}O_6$ (D) none
3. In a scale of 10^{-18} m, match the particle with respect to their probable size

List-I

- (P) Atom
 (Q) Nucleus
 (R) Proton

List-II

- (1) 1,000
 (2) 10,000
 (3) 100,000,000

Code:

- (A) P-1 Q-2 R-3
 (B) P-3 Q-2 R-1
 (C) P-1 Q-3 R-2
 (D) P-2 Q-3 R-1

More than one may be correct:

4. Specie 'X' with mass number 37 contains 11.1% more neutrons as compared to electrons, then what is the INCORRECT representation of specie 'X' ?
 (A) ${}^{37}_{17}\text{Cl}^-$ (B) ${}^{37}_{17}\text{Cl}$ (C) ${}^{35}_{17}\text{Cl}^-$ (D) ${}^{35}_{17}\text{Cl}$

Matrix match type

5. **Column-I** **Column-II**
- | | |
|----------------------------|--|
| (A) Charge on electron | (P) $1.6022 \times 10^{-19}\text{C}$ |
| (B) e/m_e | (Q) $1.758820 \times 10^{11}\text{Ckg}^{-1}$ |
| (C) Mass of proton, m_p | (R) 1.00867u |
| (D) Mass of neutron, m_n | (S) 1.00727u |

$$(T) 4.8 \times 10^{-10} \text{esu}$$

6. Match the following

Column-I

- (A) the physical property of metal that allows it to be drawn into wire
 (B) a single particle composed of two or more atoms property
 (C) a property that can be observed without changing the chemical formula of a substance
 (D) a substance that cannot be broken down into simple substances.

Column-II

- (P) Element
 (Q) Physical
 (R) Molecule
 (S) Ductility
 (T) Malleability

Integer Type

7. From the following:

Sugar solution, air, copper, silver, gold, water, glucose, oxygen gas, hydrogen, ammonia, carbon dioxide, smoke, dust, brass, soap solution, bronze

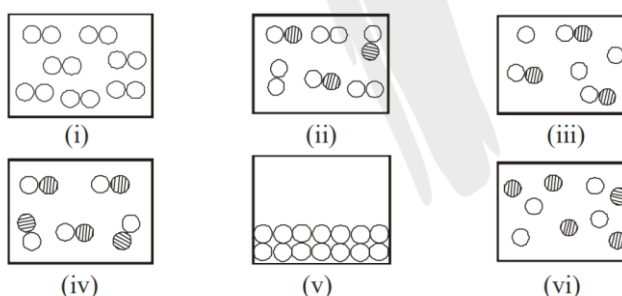
Estimate total number of –

(i) pure substances = x (ii) Homogeneous mixtures = y (iii) Heterogeneous mixture = z.

Find $x - z + y$

Fill your answer as sum of digits till you get the single digit answer.

8. A certain anion carries -9.6×10^{-19} Coulombs of static electric charge. Calculate the number of electronic charges present on it.
9. Match each description below with the following microscopic picture. More than one picture may fit for each description. A picture may be used more than once or not used at all:



- (A) a gaseous compound
 (B) a mixture of two gases element
 (C) a solid element
 (D) a mixture of a gaseous element and gases compound

10. Complete the following table

Element	Symbol	Protons	Neutrons	Electrons	Mass number
	^{32}S				
		30			65
			20	20	

A

ANSWER KEY

DPP-1

1. (C) 2. (B) 3. (B) 4. (B,C,D) 5. A-PT, B-Q, C-S, D-R
6. A – S, B – R, C – Q, D – P
7. 10, OMR Ans. 1
8. 6
9. (A) ii, iii, iv ; (B) vi ; (C) v ; (D) iii , ii
- 10.

Element	Symbol	Protons	Neutrons	Electrons	Mass number
Sulphur	^{32}S	16	16	16	32
Zinc	^{65}Zn	30	35	30	65
Calcium	^{40}Ca	20	20	20	40

SOLUTION

1. (C)
2. (B)
3. (B)
4. (B,C,D)
5. A-PT, B-Q, C-S, D-R
6. A – S, B – R, C – Q, D – P
7. Pure substances = copper, silver, gold, water, glucose, oxygen gas, hydrogen, ammonia, carbon dioxide; homogeneous mixture = sugar solution, air, brass, bronze; heterogeneous mixture = smoke, dust, soap solution.

$$x = 9, y = 4, z = 3$$

$$8. \frac{9.6 \times 10^{-19}}{1.6 \times 10^{-19}} = 6$$

9. (A) ii, iii, iv ; (B) vi ; (C) v ; (D) iii , ii

10.

Element	Symbol	Protons	Neutrons	Electrons	Mass number
Sulphur	^{32}S	16	16	16	32
Zinc	^{65}Zn	30	35	30	65
Calcium	^{40}Ca	20	20	20	40