

### 3. ELEMENTS - SYMBOLS AND RULES SOLUTIONS

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#### TEACHING TASK

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#### JEE MAINS LEVEL QUESTIONS

1. Symbol is usually derived from the name of the element, often in  
A)French B)Italian C)German D)Latin

**Answer:D**

Solution:Many chemical symbols come from Latin names (e.g., Au for gold from "aurum", Na for sodium from "natrium")

2. Beryllium is said to have a sweet taste. The symbol for beryllium is  
A)B B)Be C)Br D) Ys

**Answer:B**

Solution:Beryllium's symbol is Be (from its English name)

3. Calcium is found in your bones and teeth. The symbol for calcium is  
A)C B)Ca C)Cl D)Cm

**Answer:B**

Solution:Calcium's symbol is Ca (from its Latin name "calx" meaning lime)

4. Zn is the chemical symbol for.....

A)Zinc B)nothing it isn't a chemical symbol C)Helium D)Xenon

**Answer:A**

Solution:Zn is the standard symbol for zinc

5. Cl is the chemical symbol for...

A)Chlorine B)Carbon C)Copper D)Silicon

**Answer:A**

Solution:Cl stands for chlorine (from Greek "chloros" meaning greenish-yellow)

6. Symbol 'Al' stands for:

A) Alumina B)Aluminium C)Alumnium D)Alumina

**Answer:B**

Solution:Al is the symbol for aluminium (from Latin "alumen")

7. The atomic number of Zirconium is

A) 21 B)18 C)39 D)40

**Answer:D**

Solution:Zirconium (Zr) has atomic number 40

8. Which of the following is correct?

A)Rubidium-Rb B)Bromine-B C)Silver-S D)Tin-Ti

**Answer:A**

Solution:Correct pairs: Rb-Rubidium (others are wrong: Bromine-Br, Silver-Ag, Tin-Sn)

9. Which of the following is correct?

A)Platinum-Pt B)Copper-C C)Cobalt-CO D)Zinc-Z

**Answer:A**

Solution:Correct pairs: Pt-Platinum (others are wrong: Copper-Cu, Cobalt-Co, Zinc-Zn)

10. Ge stands for

A)Gold B)Germanium C)Argon D)Gallium

**Answer:B**

Solution:Ge is the symbol for germanium (named after Germany)

### **JEE ADVANCED LEVEL QUESTIONS**

#### **Multi correct answer type:**

11. Which of the following symbols are correct?

A)SE B)Cl C)Cu D)NA

**Answer:B,C**

Solution:Chemical symbols must follow:

1st letter capitalized, 2nd letter (if present) lowercase.

Based on English/Latin names (e.g., Cu from Latin cuprum).

SE and NA violate capitalization rules.

12. The atomic number and symbol of Arsenic is

A)A B)33 C)32 D)As

**Answer:B,D**

Solution:Arsenic: Symbol: As , Atomic number: 33

#### **Assertion and Reason Type:**

13. Assertion : Short hand representation of an element is symbol.

Reason : Symbol has both qualitative and quantitative significance.

**Answer:A**

Solution:Assertion (True): Symbols (e.g., H for hydrogen, O for oxygen) are standardized shorthand notations for elements.

Reason (True & Correct Explanation):

Qualitative significance: A symbol identifies the element (e.g., Na = sodium).

Quantitative significance: It represents one atom of the element in chemical equations

14. Assertion : Symbol of Cobalt is Co but not CO.

Reason : The first letter of symbol is always capital while second letter is always small.

**Answer:A**

Solution:Assertion (True): Cobalt's symbol is Co (not CO, which represents carbon monoxide).

Reason (True & Correct Explanation):

Chemical symbols follow strict formatting:

First letter capitalized (e.g., Co, Fe).

Second letter lowercase (e.g., Co, Fe).

This rule prevents confusion with compounds (e.g., CO vs. Co).

**Comprehension Type:****Comprehension - I:**

15. The symbol of Titanium is:

A)T B)Ti C)Tm D)Tm

**Answer:B**

Solution:Naming Rule for Titanium's Symbol:

The symbol is derived from the first two letters of its English name: Titanium → Ti.

This follows the IUPAC rule where symbols typically use:

The first letter (capitalized) + second letter (lowercase) if needed for uniqueness.

**Comprehension - II:**

16. Atomic mass of Neon is

A)10 B)15 C)16 D)20

**Answer:D**

Solution:Neon's atomic mass is approximately 20.18 (rounded to 20)

This is the weighted average of its isotopes (mainly Ne-20 and Ne-22)

17. Latin name of Sodium is Natrium . Then its symbol is:

A) N B)S C)Na D)NA

**Answer:C**

Solution:For Sodium:Latin name: Natrium

Symbol: Na (not NA)

**Integer type:**

18. Atomic mass of oxygen is .....

**Answer:16**

Solution:Standard atomic weight of oxygen is approximately 15.999, which rounds to 16 for most calculations

19. Number of elements whose symbols are derived from latin names with Atomic number<20. ....

**Answer:2**

Solution:Elements with Latin-derived symbols ( $Z < 20$ ):

Sodium (Na),Atomic number: 11, Latin name: Natrium

Potassium (K),Atomic number: 19, Latin name: Kalium

**Matrix Matching Type:**

20.**Answer:A-2,B-3,C-4,D-1**

Solution:

Column - I	Column - II
A. Vanadium	2)V
B. Gallium	3)Ga
C.Argon	4)Ar
D.Bromine	1)Br

21. **Answer:A-4,B-3,C-2,D-1**

Solution:

Column - I	Column - II ( ATOMIC NUMBER)
A)Calcium	4)20
B)Cobalt	3)27
C) Yttrium	2)39
D)Manganese	1)25

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## LEARNERS TASK

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### CONCEPTUAL UNDERSTANDING QUESTIONS (CUQ's)

1. Yttrium symbol is

A) A B)Yt C)Y D)C

**Answer:C**

Solution:Yttrium's symbol is Y (from its English name).

2. O stands for symbol of:

A) Osmium B)Oxygen C)Aluminium D)Aurum

**Answer:B**

Solution:O is the symbol for Oxygen

3. Symbol of sulphur

A)So B)S C)st D)Sf

**Answer:B**

Solution:Sulphur's symbol is S

4. The short hand representation of an element is called

A)Symbol B)Element C)Substance D)Atom.

**Answer:A**

Solution: The shorthand representation of an element is called Symbol

5. Symbol of Rubidium is

A)R B)Ru C)Rb D)Re

**Answer:C**

Solution:Rubidium's symbol is Rb (from its English name).

6. Ni is symbol of

A)Neon B)Nitrogen C)Tin D)Nickel

**Answer:D**

Solution:Ni comes from Latin nickelum.

7. Symbol of potassium is

A)P B)K C)Po D)Ka

**Answer:B**

Solution:Potassium's symbol is K (from Latin kalium).

8. Atomic mass of carbon is

A)6 B)14 C)8 D)12

**Answer:D**

Solution: Carbon's standard atomic mass is 12.01 (~12).

9. The scientist who suggested symbols is

A) Chaptal B) Lavoisier C) J.J. Berzelius D) Neils Bohr

**Answer: C**

Solution: Jöns Jacob Berzelius introduced modern chemical symbols (1813).

10. Symbol of sodium is

A) S B) N C) Na D) So

**Answer: C**

Solution: Sodium's symbol is Na (from Latin natrium).

### **JEE MAIN LEVEL QUESTIONS**

1. The letter used to identify an element in the periodic table is known as

A) formula B) idea C) symbol D) hint

**Answer: C**

Solution: Symbols (e.g., H, O, Na) are standardized shorthand for elements.

2. What is the chemical symbol for magnesium?

A) Ma B) Mn C) M D) Mg

**Answer: D**

Solution: Derived from its English name (Mg = Magnesium).

3. Helium is named for Helios or the sun. The symbol for helium is

A) H B) He C) Hm D) Su

**Answer: B**

Solution: The symbol for helium is He

Named after Greek Helios (sun), symbol is He.

4. Phosphorus glows green in the presence of oxygen. The symbol for phosphorus is:

A) K B) Ka C) P D) Ph

**Answer: C**

Solution: The symbol for phosphorus is P. From its English name (P = Phosphorus)

5. Argon is found in some fluorescent lights. The symbol for argon is

A) A B) Ag C) Ar D) N

**Answer: C**

Solution: The symbol for argon is Ar from its English name.

6. The symbol of chromium is \_\_\_\_.

A) Cl B) Cr C) C D) Ch

**Answer: B**

Solution: Transition metal; symbol Cr from Latin chroma (color).

7. Li is symbol of

A) Oxygen B) Lanthium C) Luetetium D) Lithium

**Answer: D**

Solution: Li is symbol of Lithium

8. The element with atomic number 21 is

A) Sulphur B) Silicon C) Scandium D) Selenium

**Answer: C**

Solution: The element with atomic number 21 is Scandium

9. Which of the following is symbol of inert gas ?

A)K B)A C)Kr D)N

**Answer:C**

Solution:Krypton (Kr): Noble gas (Group 18).

10. Which of the following symbol is based on latin name?

A)Carbon B)Sulphur C)Sodium D)Nitrogen

**Answer:C**

Solution:Na = Sodium (from Latin natrium).

### **JEE ADVANCED LEVEL QUESTIONS**

#### **Multi correct answer type:**

11. Which of the following have atomic number less than 20?

A) Copper B)Chlorine C)Carbon D)Sulphur.

**Answer:B,C,D**

Solution:Copper (Cu) = 29

Chlorine (Cl) = 17 (<20)

Carbon (C) = 6 (<20)

Sulphur (S) = 16 (<20)

12. Which of the following is correct statement?

A) Symbol for Rhodium is RH. B)Symbol for Boron is B

C)Symbol for Krypton is Kr D)Atomic number of chlorine is 17

**Answer:B,C,D**

Solution:Boron (B):

Correct symbol: B (from English name).

Krypton (Kr):

Noble gas; correct symbol: Kr.

Chlorine (Cl):

Atomic number 17 (Group 17, Halogen).

Rhodium (Rh):

Symbol is Rh (not RH; symbols are case-sensitive).

#### **Comprehension Type:**

##### **Comprehension - I:**

Symbols of elements are given based on first letter or latin names or first two letters ...

13. Which of the following elements symbols are not based on latin names?

A)Oxygen B)Copper C)Iron D)Sodium

**Answer:A**

Solution:Oxygen → Symbol: O → Based on English name Not Latin-based

Copper → Symbol: Cu → From Latin Cuprum

Iron → Symbol: Fe → From Latin Ferrum

Sodium → Symbol: Na → From Latin Natrium

14. The symbol of element strontium is

A)se B)SE C)sE D)Sr

**Answer:D**

Solution:The correct symbol for Strontium is Sr — the first letter is uppercase, the second is lowercase, as per IUPAC rules.

##### **Comprehension - II:**

15. Symbol P represents

A)Potassium B)Phosphorus C)Polonium D)Platinum.

**Answer:B**

Solution:Symbol P represents Phosphorus

**Integer type:**

16 Atomic number of Gallium is .....

**Answer:31**

Solution:Gallium (symbol: Ga) has an atomic number of 31 in the periodic table.

17. Atomic number of Flourine is .....

**Answer:9**

Solution: Fluorine (symbol: F) is a halogen with atomic number 9.

18. Atomic mass of oxygen is .....

**Answer:16**

Solution:The most common isotope of oxygen has an atomic mass of 16 u.

19. Sum of digits of atomic number Scandium is ....

**Answer:3**

Solution: Scandium (Sc) has atomic number 21. Sum of digits =  $2 + 1 = 3$

20. Number of elements whose symbols are derived from latin names with Atomic number<20. ....

**Answer:2**

Solution:Latin name-based symbols (with atomic number < 20)

Sodium – Symbol: Na (from Latin Natrium) → Z = 11

Potassium – Symbol: K (from Latin Kalium) → Z = 19

## KEY

TEACHING TASK									
JEE MAINS LEVEL QUESTIONS									
1	2	3	4	5	6	7	8	9	10
D	B	B	A	A	B	D	A	A	B
JEE ADVANCED LEVEL QUESTIONS									
11	12	13	14	15	16	17	18	19	
B,C	B,D	A	A	B	D	C	16	2	
20		21							
A-2,B-3,C-4,D-1		A-4,B-3,C-2,D-1							
LEARNERS TASK									
CUQ'S									
1	2	3	4	5	6	7	8	9	10
C	B	B	A	C	D	B	D	C	C
JEE MAIN LEVEL QUESTIONS									
1	2	3	4	5	6	7	8	9	10
C	D	B	C	C	B	D	C	C	C
JEE ADVANCED LEVEL QUESTIONS									
11	12	13	14	15	16	17	18	19	20
B,C,D	B,C,D	A	D	B	31	9	16	3	2