



CHEMISTRY

BOOKS - TARGET CHEMISTRY (HINGLISH)

PERIODIC CLASSIFICATION OF ELEMENTS

Choose The Correct Alternative

1. The number of electrons in the outermost shell of alkali metals is _____ .

A. 1

B. 2

C. 3

D. 7

Answer: A



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2. Alkaline earth metals have valency 2. This means that their position in the modern periodic table is in

A. group 2

B. group 16

C. period 2

D. d-block

Answer:



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3. Molecular formula of the chloride of an element X is XCl . This compound is a solid having high melting point. Which of the following elements be present in the same group as X.

A. Na

B. Mg

C. Al

D. Si

Answer:

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4. In which block of the modern periodic table are the nonmetals found?

A. s-block

B. p-block

C. d-block

D. f-block

Answer:

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5. A student was asked to select two elements in a periodic table . He selects neon and argon . In both these elements, the number of electrons in the outermost shell is _____ .

A. 2

B. 6

C. 7

D. 8

Answer: D



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6. Four students note down the name of two metals from period 3 . Itbr) Rita: Sodium and silicon

Nilesh: Magnesium and aluminium

Rohan: Sodium and potassium

Preeti: Sodium and aluminium

Who have correctly noted down the names of the metals?

A. Rita and Preeti

B. Nilesh and Preeti

C. Rita and Rohan

D. Only Preeti

Answer: B



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7. Deduce the maximum electron holding capacity of the shells K, L and M?

A. 2

B. 8

C. 18

D. 32

Answer: D



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8. The correct decreasing order atomic radius

is:

A. $F > O > S$

B. $F > S > O$

C. $S > F > O$

D. $S > O > F$

Answer: D



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9. When a small piece of beryllium was added to water taken in a beaker, what will you observe?

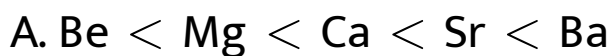
- A. Vigorous chemical reaction occurs with evolution of a gas.
- B. Formation of precipitate is seen .
- C. Colour of solution turns black.
- D. No reaction occurs.

Answer: D



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10. The correct increasing order of reactivity of alkaline earth metals with water is:



Answer: A



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11. Which one of the following does not increase while moving down the group of the periodic table ?

- A. Atomic radius
- B. Metallic character
- C. Valence electrons
- D. Number of shell

Answer: C



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12. Valency of the elements in the halogen group is ____.

A. one

B. two

C. three

D. four

Answer: A



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13. The most reactive element in the halogen group is _____

A. astatine

B. iodine

C. chlorine

D. fluorine

Answer: D



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14. The halogen which is liquid at room temperature is

A. fluorine

B. astetine

C. bromine

D. iodine

Answer: C



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15. The metallic character of elements _____ in a group from top to bottom .

A. increases

B. decreases

C. remains constant

D. shows indefinite behaviour

Answer: A



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16. Valency of elements _____ in a period from left to right.

A. increases

B. decreases

C. remains constant

D. increases in the beginning and then decreases

Answer: D



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17. Which of the following is the lightest inert gas?

A. Argon

B. Helium

C. Neon

D. Xenon

Answer: B



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18. An inert gas element placed in period 6 is used in the treatment of cancer . Identify the element.

A. Xenon

B. Radon

C. Argon

D. Krypton

Answer: B



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Complete The Paragraph

1. Select the appropriate options and complete the following paragraph.

(2, 7, 18, 32, atomic mass, atomic number, hydrogen, lithium)

In the modern periodic table, all known elements are listed in increasing order of their _____. It starts with the lightest elements. The modern periodic table has _____ groups and _____ periods. The first period contains only _____

elements while the seventh period contains _____ elements .



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Name The Following

1. The period with electrons in the shells K, L and M



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2. The valency is zero for



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3. The family of nonmetals having valency one



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4. The family of metals having valency one



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5. The family of metals having valency two



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6. Name the first element of group 16



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7. The group 18 element placed in period 3



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8. The element having atomic number 92



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9. The Halogen which is solid at room temperature is



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10. The inert gas which contains electrons in K and L shells only



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11. The alkaline earth metal which does not react with water



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12. The alkaline earth metal that reacts with steam only



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True Or False

1. Atomic number (Z) of an element is the number of protons present in the nucleus of an atom of that element .



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2. Gallium oxide (Ga_2O_3) is an amphoteric oxide.



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3. Hydrogen resembles alkali metals as well as halogens.



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4. In the long form of periodic table, groups 3 to 12 constitute the p-block.



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5. One picometer (pm) is equal to 10^{-12} meter

.



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6. Atomic radius increases while going from left to right within a period.



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7. Electronegativity increases while going from left to right within a period.



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8. Smaller the electropositivity or electronegativity of the element higher the reactivity.



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9. The valency of group 16 elements 2 .



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Odd One Out

1. Lithium, beryllium, boron, chlorine



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2. Beryllium, magnesium, potassium, calcium



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3. Fluorine, helium, neon, argon



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4. Carbon, nitrogen, fluorine, sulphur



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5. Lithium, sodium, magnesium, potassium



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6. Fe, Co, Ni, Al



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7. Fluorine, oxygen, bromine, iodine



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[Complete The Analogy](#)

1. Gallium oxide : Ga_2O_3 :: Gallium
chloride : _____



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2. Molecular formula of beryllium oxide : BeO :
: Molecular formula of beryllium chloride



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3. Li : Second period :: Al : _____



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4. Alkali metals : s-Block :: Transition elements
: _____



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5. Sulphur : _____ :: Calcium : (2, 8, 8, 2)



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6. Valency of potassium atom : one : : Valency of argon atom : _____



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Match The Following

1. Rearrange the columns 2 and 3 so as to match with the column 1.

	Column 1		Column 2		Column 3
i.	Triad	a.	Lightest and negatively charged particle in all the atoms	1.	Mendeleev
ii.	Octave	b.	Concentrated mass and positive charge	2.	Thomson
iii.	Atomic number	c.	Average of the first and the third atomic mass	3.	Newlands
iv.	Period	d.	Properties of the eighth element similar to the first	4.	Rutherford
v.	Nucleus	e.	Positive charge on the nucleus	5.	Dobereiner
vi.	Electron	f.	Sequential change in molecular formulae	6.	Moseley



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2. Match the groups given in Column I with the corresponding blocks of the periodic table given in Column II.

	Column I		Column II
i.	Alkali metals	a.	Group 17
ii.	Alkaline earth metals	b.	Group 1
iii.	Halogen family	c.	Group 18
iv.	Inert gases	d.	Group 2



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3. Match the elements given in Group 'A' with their electronic configuration given in Group

'B'.

Group 'A'		Group 'B'	
i.	Potassium	a.	(2, 8, 1)
ii.	Aluminium	b.	(2, 8, 8, 1)
		c.	(2, 8, 3)
		d.	(2, 8, 2)



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4. Match the groups given in Column I with the corresponding block of the periodic table given in Column II.

Column I		Column II	
i.	Groups 1 and 2	a.	p-block
ii.	Groups 3 to 12	b.	d-block
		c.	f-block
		d.	s-block



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Answer The Following

1. State Dobereiner's law of triads giving one example .



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2. In Dobereiner's triads Li, Na, K the atomic masses of lithium and potassium are 6.9 and

39.1 respectively, then what will be the atomic mass of sodium?



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3. State the drawback of Dobereiner's triads:



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4. Chlorine, bromine and iodine form a Dobereiner's triad . Chlorine has atomic mass

35.5 and iodine has atomic mass 126.9 . Predict the atomic mass of bromine.



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5. State Newlands' law of octaves.



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6. State Newlands' law of octaves.



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7. What were the limitations of Newlands' Law of Octaves?



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8. State Mendeleev's periodic law.



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9. State Mendeleev's periodic law.



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10. Write merits of Mendeleev's periodic table.



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11. What are the limitations of Mendeleev's periodic table?



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12. What is the difference between Mendeleev's periodic law and modern periodic law?



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13. State Modern periodic law.



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14. Write short note on: Structure of the modern periodic table.



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15. Give four examples of each of the following:

i. Nonmetals



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16. s-Block elements



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17. Alkali metals (or group 1 elements)



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18. Alkaline earth metals (or group 2 elements)



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19. p-Block elements.



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20. d-block elements



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21. Halogen family



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22. Period 2 elements



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23. Period 3 elements



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24. Write short note on: Position of isotopes in the Mendeleev's and the modern periodic table.



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25. What is meant by periodic trends in the modern periodic table ?



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26. Define: Atomic radius (Atomic size)



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27. How is the ability to lose or accept electrons in the valence shell determined?





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28. What is meant by the term electropositivity of an element?



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29. How does metallic character vary in a period and a group?



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30. Write the names from the description.

The metalloids in the second and third periods.



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31. Nonmetals in the third period.



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32. Two elements having valency 4.



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33. What is the cause of nonmetallic character of elements?



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34. What is the expected trend in the variation of nonmetallic character of elements from left to right in a period?



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35. What would be the expected trend in the variation of nonmetallic character of elements down a group?



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36. Answer the following question with respect to the modern periodic table.

i. Explain the gradation in reactivity of halogen family.



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37. What are the similarities in properties of elements in halogen family?

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38. Why are inert gases placed in zero group?

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39. Write a short note on noble gases.

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40. Write the name and symbol of the element from the description.

i. The atom having the smallest size.



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41. Write the name and symbol of the element

The atom having the smallest atomic mass.



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42. Write the name and symbol of the element

The most electronegative atom.



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43. The noble gas with the smallest atomic radius.



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44. Write the name and symbol of the element

The most reactive nonmetal.



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45. An element has its electronic configuration

as (2,8,2). Now answer the question.

What is the atomic number of this element?



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46. An element has its electronic configuration as (2,8,2). Now answer the question.

What is the group of this element?



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47. An element has its electronic configuration as (2,8,2). Now answer the question.

To which period does this element belong?



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48. An element has its electronic configuration as (2,8,2). Now answer the question.

With which of the following elements would this element resemble? (Atomic number are given in the brackets)

N(7), Be(4), Ar(18), Cl(17)



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49. What is the difference between electronegativity and electropositivity?



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50. Consider the elements of period 2 in the modern periodic table. Answer the following questions with explanation.

Name the element in which both the shells are completely filled with electrons.



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51. Consider the elements of period 2 in the modern periodic table. Answer the following questions with explanation.

Name the element which has same number of electrons in the first and second shell.



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52. Consider the elements of period 2 in the modern periodic table. Answer the following questions with explanation.

Which is the most electropositive element in this period?



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53. Write down the electronic configuration of the following elements from the given atomic numbers. Answer the following question with explanation.

$_{3}Li$, $_{14}Si$, $_{2}He$, $_{11}Na$, $_{15}P$

Which of these elements belong to period 3?



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54. Write down the electronic configuration of the following elements from the given atomic numbers. Answer the following question with explanation.

${}_{.1}H$, ${}_{.7}N$, ${}_{.20}Ca$, ${}_{.16}S$, ${}_{.4}Be$, ${}_{.18}Ar$

Which of these elements belong to the second group ?



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55. Write down the electronic configuration of the following elements from the given atomic numbers. Answer the following question with explanation.

$\cdot 7$, $\cdot 6$ *C*, $\cdot 8$ *O*, $\cdot 5$ *B*, $\cdot 13$ *Al*

Which is the most electronegative element among these?



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56. Write down the electronic configuration of the following elements from the given atomic numbers. Answer the following question with explanation.

$_{4}\text{Be}$, $_{6}\text{C}$, $_{8}\text{O}$, $_{5}\text{B}$, $_{13}\text{Al}$

Which is the most electropositive element among these?



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57. Write down the electronic configuration of the following elements from the given atomic numbers. Answer the following question with explanation.

$_{11}\text{Na}$, $_{15}\text{P}$, $_{17}\text{Cl}$, $_{14}\text{Si}$, $_{12}\text{Mg}$

Which of these has the largest atoms?



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58. Write down the electronic configuration of the following elements from the given atomic

numbers. Answer the following question with explanation.

${}_{19}\text{K}$, ${}_{3}\text{Li}$, ${}_{11}\text{Na}$, ${}_{4}\text{Be}$

Which of these atoms has the smallest atomic radius?



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59. Write down the electronic configuration of the following elements from the given atomic numbers. Answer the following question with explanation.

$\cdot_{13} \text{Al}$, $\cdot_{14} \text{Si}$, $\cdot_{11} \text{Na}$, $\cdot_{12} \text{Mg}$, $\cdot_{16} \text{S}$

Which of the above elements has the highest metallic character?



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60. Write down the electronic configuration of the following elements from the given atomic numbers. Answer the following question with explanation.

$\cdot_6 \text{C}$, $\cdot_3 \text{Li}$, $\cdot_9 \text{F}$, $\cdot_7 \text{N}$, $\cdot_8 \text{O}$

Which of the above elements has the highest nonmetallic character?



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Give Reasons

1. The third period contains only eight elements even though the electron capacity of the third shell is 18.



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2. Elements belonging to the same group have the same valency. Give reason



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3. Atomic radius goes on decreasing while going from left to right in a period. Give reason



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4. Atomic radius goes on increasing down a group. Give reason



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5. Metallic character goes on decreasing while going from left to right in a period. Give reason



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1. What are the basic differences between Mendeleev's periodic table and modern periodic table?



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2. Metallic character and nonmetallic character



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[Complete The Given Chart Table](#)

1. Complete the following table.

Triad	Elements	Atomic mass
A	Lithium (Li)	6.9
	Sodium (Na)	–
	Potassium (K)	39
B	Calcium (Ca)	40.1
	Strontium (Sr)	–
	Barium (Ba)	137.3



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2. Complete the following table.

Element	Atomic No.	Electronic configuration	Type of element
Sodium	11	2,8,1	Metal
Magnesium	12	2,8,2	–
–	13	2,8,3	Metal
Silicon	14	–	Metalloid
Phosphorus	15	2,8,5	–
–	16	–	Nonmetal
Chlorine	17	2,8,7	Nonmetal



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Questions Based On Diagram

1. Draw electronic configuration diagram for:

Potassium



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2. Draw electronic configuration diagram for:

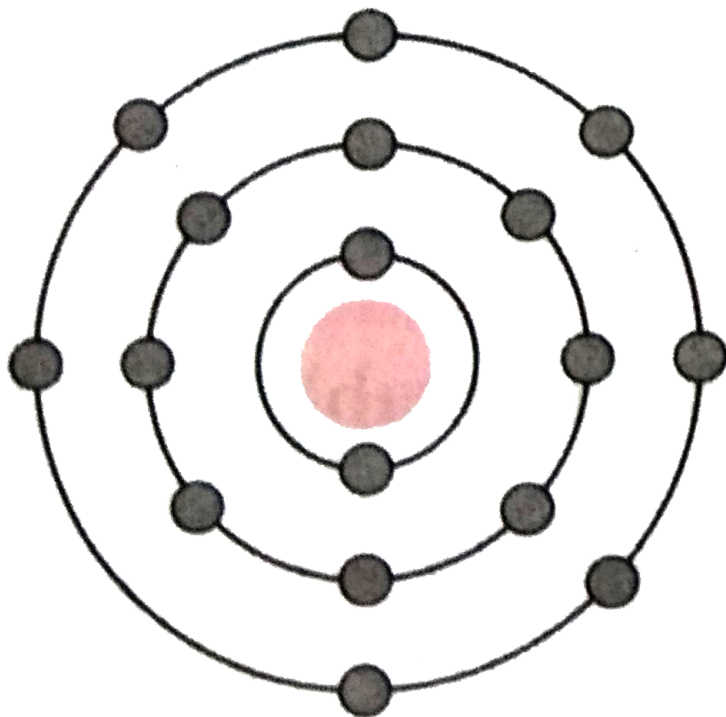
Argon



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3. Find out the number of valence electrons and valency of the atoms represented in the

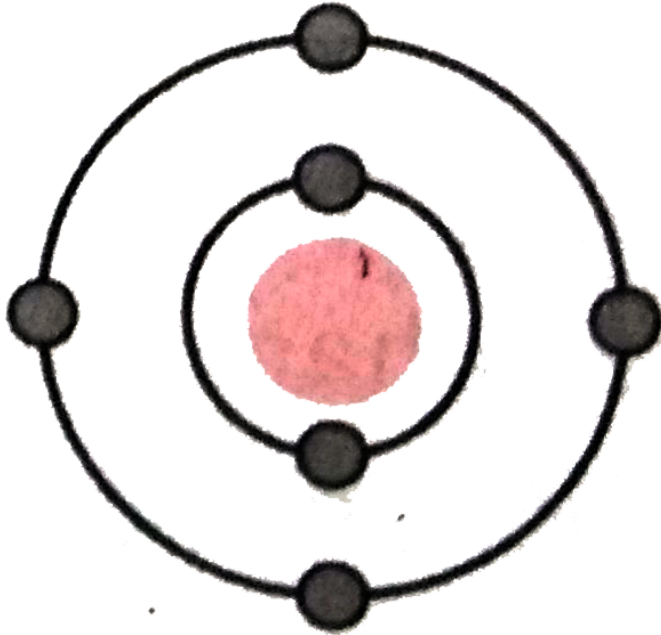
following figures.



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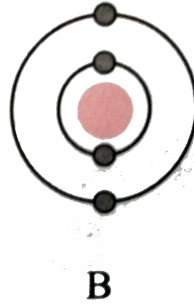
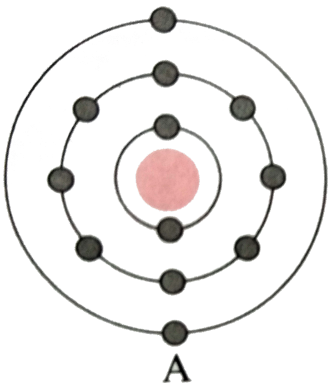
4. Find out the number of valence electrons and valency of the atoms represented in the

following figures.



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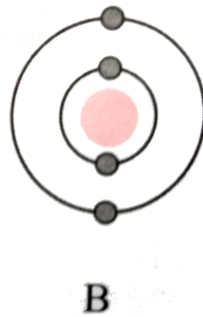
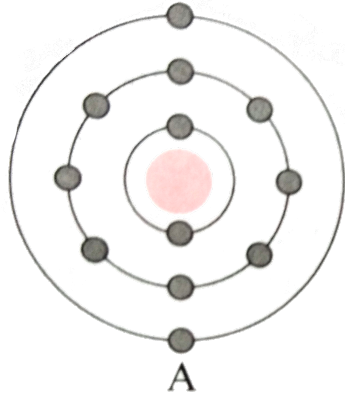
5. Atoms of two different elements are represented in the following diagram.



Identify elements A and B.

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6. Atoms of two different elements are represented in the following diagram.

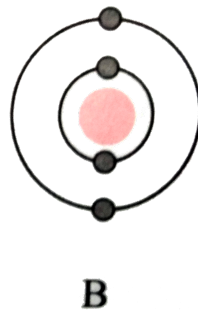
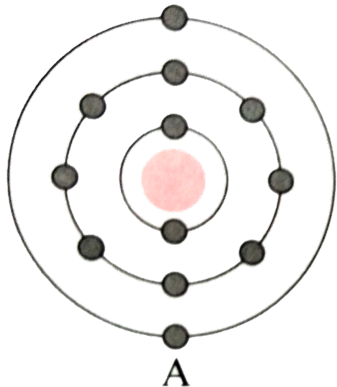


Do these elements belong to the same group ? Justify your answer.



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7. Atoms of two different elements are represented in the following diagram.



Which element is more electropositive ?

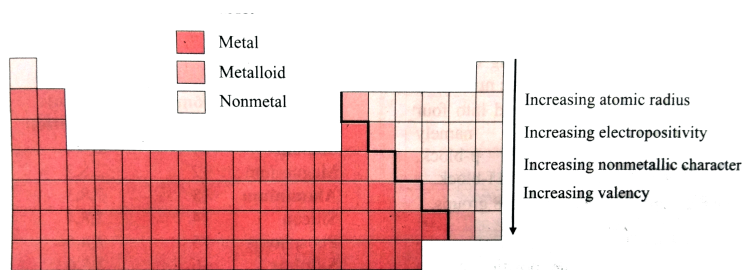
Explain with reason.



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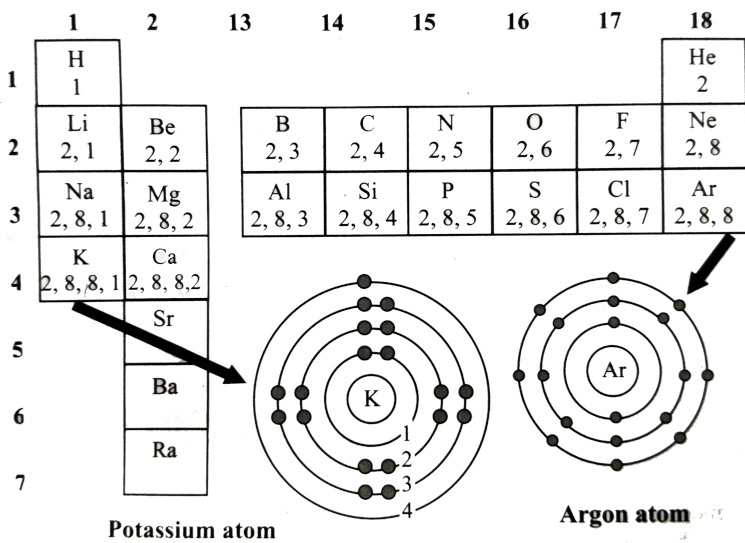
8. Study the following periodic table. A student has marked two periodic trends incorrectly.

Identify these trends.



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9. Observe the following diagram and write the answers of the following question

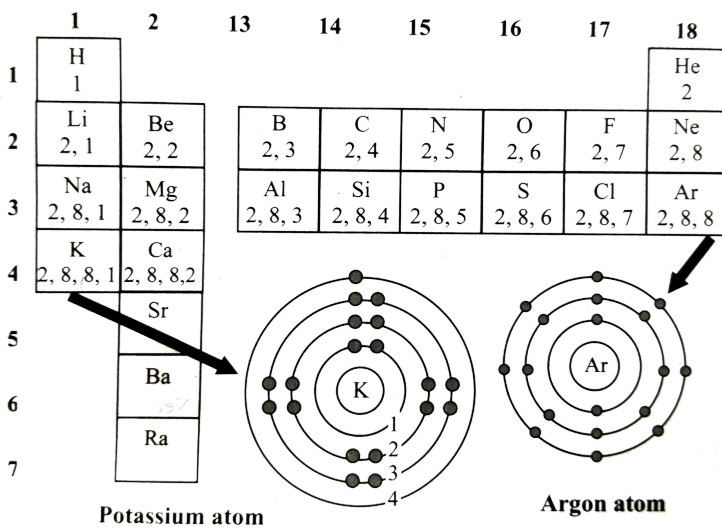


Write the atomic numbers of first two elements in the second group.



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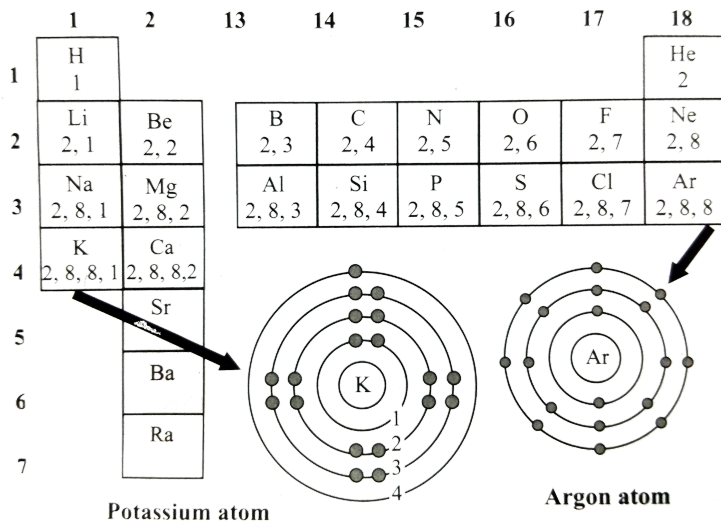
10. Observe the following diagram and write the answers of the following question



Write the number of valence electrons of the elements in the halogen group.

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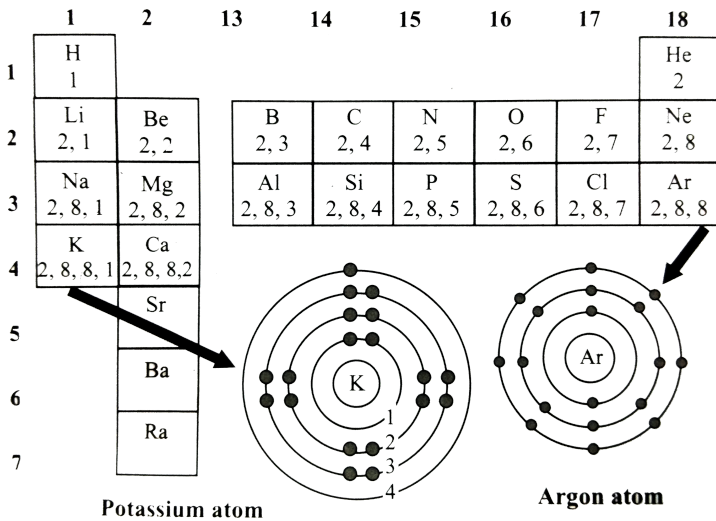
11. Observe the following diagram and write the answers of the following question



The diagram of electronic configuration of magnesium atom is as follows:

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12. Observe the following diagram and write the answers of the following question

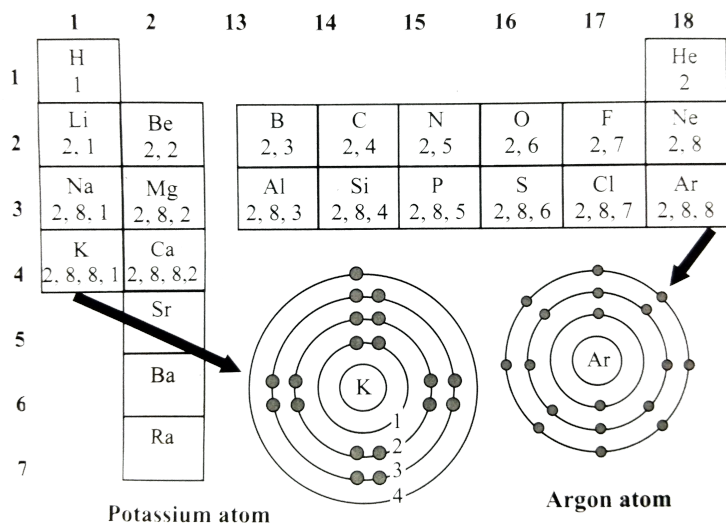


After completion of a period, what change does take place in the electronic configuration of the next element?



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13. Observe the following diagram and write the answers of the following question



Write the names of any two elements from the diagram which do not take part in chemical reaction.



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14. Study the below given periodic table in which four elements are indicated by alphabets: A, B, C and D.

C														B	D	A	

Which element is a metalloid? Name this element.



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15. Study the below given periodic table in which four elements are indicated by alphabets: A, B, C and D.

1	2																	18
C		3	4	5	6	7	8	9	10	11	12		B	D	A			

Among 'C' and 'D' which element has larger atomic radius?



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16. Study the below given periodic table in which four elements are indicated by alphabets: A, B, C and D.

1	2																18
C		3	4	5	6	7	8	9	10	11	12		B	D	A		

Identify element 'A' and write its electronic configuration.



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Questions Based On Paragraph

1. In the modern periodic table, the elements are arranged in the increasing order of their atomic number. This arrangement is based on the modern periodic law, which states that the properties of elements are a periodic function of their atomic numbers. In the modern periodic table, each column is called a group and each row is called a period. Elements within the same group show similarity and gradation in properties. This is due to the

same number of electrons in the outermost shell .

Based on the above paragraph, answer the following question:

State the law on which modern periodic table is based.



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2. In the modern periodic table, the elements are arranged in the increasing order of their atomic number. This arrangement is based on

the modern periodic law, which states that the properties of elements are a periodic function of their atomic numbers. In the modern periodic table, each column is called a group and each row is called a period. Elements within the same group show similarity and gradation in properties. This is due to the same number of electrons in the outermost shell .

Based on the above paragraph, answer the following question:

How many groups are there in the modern periodic table?



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3. In the modern periodic table, the elements are arranged in the increasing order of their atomic number. This arrangement is based on the modern periodic law, which states that the properties of elements are a periodic function of their atomic numbers. In the modern periodic table, each column is called a group and each row is called a period. Elements within the same group show similarity and gradation in properties. This is due to the

same number of electrons in the outermost shell .

Based on the above paragraph, answer the following question:

What is the number of valence electrons in an element of group 1 and group 18 respectively?



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4. In the modern periodic table, the elements are arranged in the increasing order of their atomic number. This arrangement is based on

the modern periodic law, which states that the properties of elements are a periodic function of their atomic numbers. In the modern periodic table, each column is called a group and each row is called a period. Elements within the same group show similarity and gradation in properties. This is due to the same number of electrons in the outermost shell .

Based on the above paragraph, answer the following question:

What is the trend in the variation of valency while going down a group?



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5. In the modern periodic table, the elements are arranged in the increasing order of their atomic number. This arrangement is based on the modern periodic law, which states that the properties of elements are a periodic function of their atomic numbers. In the modern periodic table, each column is called a group and each row is called a period. Elements within the same group show similarity and gradation in properties. This is due to the

same number of electrons in the outermost shell .

Based on the above paragraph, answer the following question:

Which pair of elements do you think will have similar properties?

- a. Sodium and Argon
- b. Sodium and Potassium
- c. Potassium and Neon



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6. In the following table, six elements A, B, C, D, E and F (here letters are not the usual symbols of the elements) of the modern periodic table with their atomic numbers are given.

3	4	5	6	7	8	9	10
A					E		G
11	12	13	14	15	16	17	18
B	C		D			F	

Which of these is an inert gas ?



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7. In the following table, six elements A, B, C, D, E and F (here letters are not the usual symbols of the elements) of the modern periodic table with their atomic numbers are given.

3	4	5	6	7	8	9	10
A					E		G
11	12	13	14	15	16	17	18
B	C		D			F	

Which of these is a halogen ?



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8. In the following table, six elements A, B, C, D, E and F (here letters are not the usual symbols of the elements) of the modern periodic table with their atomic numbers are given.

3	4	5	6	7	8	9	10
A					E		G
11	12	13	14	15	16	17	18
B	C		D			F	

Which of these are metals?



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9. In the following table, six elements A, B, C, D, E and F (here letters are not the usual symbols of the elements) of the modern periodic table with their atomic numbers are given.

3	4	5	6	7	8	9	10
A					E		G
11	12	13	14	15	16	17	18
B	C		D			F	

If B combines with F, what would be the formula of the compound formed?



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10. In the following table, six elements A, B, C, D, E and F (here letters are not the usual symbols of the elements) of the modern periodic table with their atomic numbers are given.



Write the electronic configuration of C and E.



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11. A scientist was studying reactions of metals and nonmetals. He knew group 1 and 2 elements. So, he chooses different elements from group 1, group 2 and group 17.

What is valency of magnesium?



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12. A scientist was studying reactions of metals and nonmetals. He knew group 1 and 2 elements. So, he chooses different elements

from group 1, group 2 and group 17.

Name the group 17 element which forms a diatomic molecule and exists in solid state at room temperature.



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13. A scientist was studying reactions of metals and nonmetals. He knew group 1 and 2 elements. So, he chooses different elements from group 1, group 2 and group 17.

Name the group 17 element which belongs to the same period as sodium.



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14. A scientist was studying reactions of metals and nonmetals. He knew group 1 and 2 elements. So, he chooses different elements from group 1, group 2 and group 17.

Write the formula of compound formed in the reaction between lithium and bromine.



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15. A scientist was studying reactions of metals and nonmetals. He knew group 1 and 2 elements. So, he chooses different elements from group 1, group 2 and group 17.

Write the formula of compound formed in the reaction between calcium and fluorine.



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Apply Your Knowledge

1. What are the types of matter?



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2. What are the types of elements?



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3. What are the smallest particles of matter called?



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4. What is the difference between the molecules of elements and compounds?



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5. Identify Dobereiner's triads from the following groups of elements having similar chemical properties.

Mg (24.3), Ca(40.1), Sr(87.6)



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6. Identify Dobereiner's triads from the following groups of elements having similar chemical properties.

S(32.1), Se(79.0), Te(127.6)



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7. Identify Dobereiner's triads from the following groups of elements having similar chemical properties.

Be(9.0), Mg(24.3), Ca(40.1)



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8. There are some vacant places in the Mendeleev's periodic table. In some of these places, the atomic masses are seem to be predicted. Enlist three of these predicted masses along with their group and period.



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9. Due to uncertainty in the masses of some of the elements, a question mark is indicated before the symbol in the Mendeleev's periodic table. What are such symbols?



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10. Would you place the two isotopes of chlorine, Cl-35 and Cl-37 in different slots because of their different atomic masses or in

the same slot because their chemical properties are the same ? Justify your answer.



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11. Write the molecular formulae of oxides of the following elements by referring to the Mendeleev's periodic table: Na, Si, Ca, C, Rb, P, Ba, Cl, Sn



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12. Write the molecular formulae of compounds of the following elements with hydrogen by referring to the Mendeleev's periodic table: C, S, Br, As, F, O, N, Cl



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13. Position of the elements in the periodic table:

How is the problem regarding the position of cobalt (^{59}Co) and nickel (^{59}Ni) in

Mendeleev's periodic table resolved in modern periodic table?



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14. Position of the elements in the periodic table:

How did the position of ${}_{17}^{35}\text{Cl}$ and ${}_{17}^{37}\text{Cl}$ get fixed in the modern periodic table?



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15. Position of the elements in the periodic table:

Can there be an element with atomic mass 53 or 54 in between the two elements, chromium

${}_{24}^{52}Cr$ and manganese ${}_{25}^{55}Mn$?



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16. Position of the elements in the periodic table:

What do you think? Should hydrogen be

placed in group 17 of halogens or group 1 of alkali metals in the modern periodic table?



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17. Go through the modern periodic table (Textbook page no. 23) and write the names one below the other of the elements of group 1.



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18. Write the electronic configuration of the first four elements in this group.



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19. Which similarity do you find in their configuration?



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20. How many valence electrons are there in each of these elements?



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21. On going through the modern periodic table, it is seen that the elements Li, Be, B, C, N, O, F and Ne belong to the period 2. Write down electronic configuration of all of them.



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22. Is the number of valence electrons same for all these elements?



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23. Is the number of shells the same in these ?



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24. The elements in the third period, namely, Na, Mg, Al, Si, P, S, Cl and Ar have electrons in

the three shells: K, L and M. Write down the electronic configuration of these elements and confirm.



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25. What are the values of n for the shells L and M?

A. 1 and 2

B. 1 and 3

C. 2 and 3

D. 3 and 4

Answer: C



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26. What is the maximum number of electrons that can be accommodated in a shell? Write formula.



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27. Deduce the maximum electron holding capacity of the shells K, L and M?



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28. What is the relationship between the electronic configuration of an element and its valency?



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29. The atomic number of beryllium is 4 while that of oxygen is 8. Write down the electronic configuration of the two and deduce their valency from the same.



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30. The table on Textbook page no. 25 is made on the basis of the modern periodic table. Write in it the electronic configuration of the

first 20 elements below the symbol and write the valency below it.



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31. What is the periodic trend in the variation of valency while going from left to right within a period? Explain your answer with reference to period 2 and 3.



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32. What is the periodic trend in the variation of valency while going down a group? Explain your answer with reference to the group 1, group 2 and group 18.



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33. By referring to the modern periodic table, find out the periods to which the above elements belong.



34. State the period to which the above elements belong.

Element	O	B	C	N	Be	Li
Atomic radius (pm)	66	88	77	74	111	152



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35. Arrange the above elements in a decreasing order of their atomic radii.

Element	O	B	C	N	Be	Li
Atomic radius (pm)	66	88	77	74	111	152



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36. Does this arrangement match with the pattern of the second period of the modern periodic table ?

Element	O	B	C	N	Be	Li
Atomic radius (pm)	66	88	77	74	111	152



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37. Why this arrangement of elements is similar to the above period of the modern

periodic table ?

Element	O	B	C	N	Be	Li
Atomic radius (pm)	66	88	77	74	111	152



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38. Which of the above elements have the biggest and the smallest atom ?

Element	O	B	C	N	Be	Li
Atomic radius (pm)	66	88	77	74	111	152



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39. By referring to the modern periodic table, find out the group to which the above elements belong.

Element	K	Na	Rb	Cs	Li
Atomic radius (pm)	231	186	244	262	151



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40. Arrange the above elements vertically downwards in an increasing order of atomic

radii.

Element	K	Na	Rb	Cs	Li
Atomic radius (pm)	231	186	244	262	151



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41. Does this arrangement match with the pattern of the group 1 of the modern periodic table ?

Element	K	Na	Rb	Cs	Li
Atomic radius (pm)	231	186	244	262	151



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42. Which of the above elements have the biggest and the smallest atom ?

Element	K	Na	Rb	Cs	Li
Atomic radius (pm)	231	186	244	262	151



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43. What is the periodic trend observed in the variation of atomic radii down a group ?

Element	K	Na	Rb	Cs	Li
Atomic radius (pm)	231	186	244	262	151



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44. Look at the elements of third period.
Classify them into metals and nonmetals.



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45. On which side of the period are the metals
? Left or right?



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46. On which side of the period did you find the nonmetals?



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47. Inert gas elements



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48. Uses of various elements



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49. Find out the applications of all the inert gases, prepare a chart and display it in the class.



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Chapter Assessment

1. Identify the odd one out justify.

Si, Ge, As, Ga



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2. True or false. If false, write the correct sentence.

Calcium reacts with water to form calcium hydroxide and oxygen gas



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3. Match the following elements given in Column 'A' with its position in the modern

periodic table given in Column 'B'.

	Column 'A'		Column 'B'
a.	Phosphorus	1.	Group 1 and period 1
b.	Helium	2.	Group 18 and period 1
		3.	Group 15 and period 2
		4.	Group 15 and period 3



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4. Elements belonging to the same group have the same valency. Give reason



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5. Atomic radius goes on increasing down a group. Give reason



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6. What are the limitations of Mendeleev's periodic table?



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7. Atomic size of carbon is less than that of boron. Explain the statement.



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8. The atomic masses of three elements X , Y and Z having similar chemical properties are 7, 23 and 39 respectively

(a) Calculate the average atomic mass of elements X and Z

(b) How does the average atomic mass of

elements X and Z compare with the atomic mass of element Y

(c) Which law of classification of elements is illustrated by this example?

(d) What could the elements X , Y and Z be?

(e) Give another example of a set of elements which can be classified according to this law.



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9. Mendeleev predicted the existence of certain elements not known at that time and

named two of them as Eka-Silicon and Eka-aluminium

(a) Name the elements which have taken the place of these elements

(b) Mention the group and the period of these elements in the modern periodic table

(c) Classify these elements as metals, non-metals or metalloids

(d) How many valence electrons are present in each one of them ?



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