CHEMISTRY

BOOKS - EVERGREEN CHEMISTRY (ENGLISH)

PERIODIC PROPERTIES OF ELEMENTS

Examples

1. Write the group and period numbers of sodium from its electronic configuration (Na = 11 = 2, 8, 1)

Watch Video Solution

2. Write the group and period numbers of oxygen from its electronic configuration (O = 8 = 2, 6).

Watch Video Solution

3. Lithium is more metallic than beryllium. Give reason.

Watch Video Solution

Question

1. The number of electrons present in the valence shell of a halogen is :

A. 1

B. 3

C. 5

D. 7

Answer:

Watch Video Solution

2. Which of the following properties do not match with elements of the halogen family?

A. They have seven electrons in their valence shell.

B. They are highly reactive chemically.

C. They are metallic in nature.

D. They are diatomic in their molecular form.

Answer:

Watch Video Solution

3. Give the number of group and the period, of the element having three shells with three electrons in valence shells.

Watch Video Solution

4. In group 1 the atomic radius of sodium is greater than the atomic radius of lithium. Give reason.

Watch Video Solution

5. The size of potassium atom is greater than the size of sodium atom. Give reason.

Watch Video Solution

6. In halogens (group 17) the atomic radius of chlorine is greater than the atomic radius of fluorine. Give reason.

Watch Video Solution

7. The atomic size of beryllium is smaller than the atomic size of lithium. Give reason.

Watch Video Solution

8. The atomic size of lithium is larger than the atomic size of beryllium. Give reason.

Watch Video Solution

9. Look at the atomic radii of some elements of the second period and answer the questions.

Are these elements arranged on the pattern of a period of the periodic table?

Watch Video Solution

10. Look at the atomic radii of some elements of the second period and answer the questions.

Arrange these elements in the decreasing order of their atomic radii.

Watch Video Solution

11. Look at the atomic radii of some elements of the second period and answer the questions.

Which element has the largest atomic radius and which one has the smallest?

Watch Video Solution

12. Look at the atomic radii of some elements of the second period and answer the questions.

How does the atomic radius change on moving from left to right in the period?

Watch Video Solution

13. The ionisation energy of potassium is lower than that of sodium. Give reason.

Watch Video Solution

14. Give reason - The oxidising power of elements increases from left to right along a period.

Watch Video Solution

15. Fill in the blank from the choices given in brackets :

The energy required to remove an electron from a neutral isolated gaseous atom and convert it into a positively charged gaseous ion is called ..... (electron affinity, ionisation potential, electronegativity)

Watch Video Solution

16. Which one of the following elements of period 2 has high electron affinity?

A. Lithium

B. Carbon

C. Fluorine

D. Neon

Answer: C

Watch Video Solution

17. Define the following terms:

Ionisation potential

Watch Video Solution

18. Define the following terms:

Electron affinity .

Watch Video Solution

19. Answer the following questions:

The metals of Group 2 from top to bottom are Be, Mg, Ca, Sr, and Ba.

Which one of these elements will form ions most readily and why?

Watch Video Solution

20. The metals of Group 2 in the periodic table from top to bottom are - Be, Mg, Ca, Sr, & Ba

State the common feature in the electronic configuration of all these elements given.

Watch Video Solution

21. An element has an atomic number 16. State the period to which it belongs.

Watch Video Solution

22. An element has an atomic number 16. State the number of valence electrons.

Watch Video Solution

23. Atomic number of element Z is 16.

Is Z a metal or a non metal.

Watch Video Solution

24. There are three elements E, F, G with atomic numbers 19, 8 and 17 respectively.

Classify the elements as metals and non metals.

Watch Video Solution

25. There are three elements E, F, G with atomic numbers 19, 8 and 17 respectively.

Give the molecular formula of the compound formed between E and G and state the type of chemical bond in this compound.

Watch Video Solution

26. Changes in the properties of elements on moving left to right across a period of the periodic table. For each property, choose the letter corresponding to the correct answer from the choices A, B, C and D.

The nonmetallic character of the elements

A. decreases

B. increases

C. remains the same

D. depends on the period

Answer: B

 Watch Video Solution

27. Changes in the properties of elements occurs on moving top to bottom in a group of the periodic table. Discuss the trend of electronegativity along the group.

A. depends on the number of valence electrons

B. remains the same

C. decreases

D. increases

Answer: D

Watch Video Solution

28. Changes in the properties of elements on moving left to right across a period of the periodic table. For each property, choose the letter corresponding to the correct answer from the choices A, B, C and D.

S.No.	Property	In a group (from top to bottom)	In a period (from left to right)
1.	Atomic size	Increases	Decreases
2.	Ionisation energy	Decreases	Increases
3.	Electronegativity	Decreases	Increases (zero for noble gas)
4.	Electron affinity	Decreases	Increases (zero for noble gas)
5.	Metallic character	Increases	Decreases
6.	Electropositive character	Increases	Decreases
7.	Nonmetallic charater	Decreases	Increases
8.	Electronegative character	Decreases	Increases
9.	Number of valence shells	Different	Same
10.	Valency	Same	Different

The ionisation potential

A. goes up and down.

B. decreases

C. increases

D. remains the same

Answer: C

Watch Video Solution

29. Changes in the properties of elements on moving left to right across a period of the periodic table. For each property, choose the letter corresponding to the correct answer from the choices A, B, C and D.

The electron affinity of the elements

A. decreases

B. increases

C. remains the same

D. sometimes increases and sometimes decreases.

Answer: A

Watch Video Solution

30. Changes in the properties of elements on moving left to right across a period of the periodic table. Discuss the trend of the electron affinity along the period.

A. goes up and then down.

B. decreases and then increases.

C. increases

D. decreases

Answer: C

Watch Video Solution

31. Arrange the following as per the instructions given in the brackets :

Cs, Na, Li, K, Rb (increasing order of metallic character).

Watch Video Solution

32. Arrange the following as per the instructions given in the brackets :

Mg, Cl, Na, S, Si (decreasing order of atomic size).

Watch Video Solution

33. Arrange the following as per the instructions given in the brackets :

Na, K, Cl, S, Si (increasing order of ionization energy).

Watch Video Solution

34. Arrange the following as per instructions given in the brackets:

Cl, F, Br, I (increasing order of electron affinity)

Watch Video Solution

35. Arrange the following as per the instruction given in the brackets:

He, Ar, Ne (Increasing order of the number of electron shells)

Watch Video Solution

36. Arrange the following as per the instruction given in the brackets:

Na, Li, K (Increasing lonisation Energy)

Watch Video Solution

37. Arrange the following as per the instruction given in the brackets:

F, Cl, Br (Increasing electronegativity)

Watch Video Solution

38. Arrange the following as per the instruction given in the brackets:

Na, K, Li (Increasing atomic size)

Watch Video Solution

39. An element Z has atomic number 16. Answer the following questions on Z:

State the period and group to which z belongs.

Watch Video Solution

40. An element Z has atomic number 16. Answer the following questions on Z:

Is Z a metal or a non-metal ?

Watch Video Solution

41. An element Z has atomic number 16. Answer the following questions on Z:

State the formula between Z and Hydrogen.

Watch Video Solution

42. An element Z has atomic number 16. Answer the following questions on Z:

What kind of a compound is this?

Watch Video Solution

Question Fill In The Blanks From The Choices Given In The Brackets

1. Select the correct answer

Across a period, the ionization potential [increases, decreases, remains same].

Watch Video Solution

2. Select the correct answer

Down the group, electron affinity [increases, decreases, remains same]

Watch Video Solution

Important Assignments

1. The elements of group 1 are called alkali metals. Give reason.

Watch Video Solution

2. Name two metals each one of which has one electron in its outermost shell.

Watch Video Solution

3. The elements of group 2 are called alkaline earth metals. Give reason.

Watch Video Solution

4. The alkaline earth metals are placed in the same group. Give reason.

Watch Video Solution

5. Name two elements which show chemical reactions similar to magnesium.

Watch Video Solution

6. Name the property which all the elements of group 13 have in common.

Watch Video Solution

7. Name an element which has a total of two shells and there are three electrons in its valence shell.

Watch Video Solution

8. Name an element which has twice as many electrons in its second shell as in the first shell.

Watch Video Solution

9. Name an element which has a total of three shells and there are four electrons in its valence shell.

Watch Video Solution

10. The elements of group 16 are called as chalcogens. Give reason.

Watch Video Solution

11. Name all the elements of group 17.

Watch Video Solution

12. Why are the elements of group 17 called halogens?

Watch Video Solution

13. Name the property common to all the elements of the group in which fluorine is placed.

Watch Video Solution

14. Why are the elements of group 18 called noble gases?

Watch Video Solution

15. Name an element that has two shells each one of which is completely filled with electrons.

Watch Video Solution

16. Name two elements with filled outermost shell.

Watch Video Solution

17. Helium is an unreactive gas and neon has very poor reactivity. What do these elements have in common?

Watch Video Solution

18. What is the general name given to the elements of atomic numbers from 89-103?

Watch Video Solution

Question For Practice

1. How many groups are there in the modern periodic table?

Watch Video Solution

2. Write the names and symbols of the first two elements of group 2.

Watch Video Solution

3. Boron is the first element of group 13. Name the second element of this group.

Watch Video Solution

4. Name the first and second elements of groups 14.

Watch Video Solution

5. To which group does nitrogen (at. no. 7) belong in the periodic table?

Watch Video Solution

6. Name the first two elements of group 17.

Watch Video Solution

7. Write the number of electrons in the outermost shell of Sodium

Watch Video Solution

8. Define a period of the modern periodic table of elements.

Watch Video Solution

9. Name the first and last element in period 2

Watch Video Solution

10. Which one is the fundamental property of an element-atomic number or mass number?

Watch Video Solution

11. Lithium is the first metal of group 1. Name the second and third metals of this group.

Watch Video Solution

12. Match the atomic number 2, 4, 8, 15, and 19 with of the following:

A solid non-metal belonging to the third period.

Watch Video Solution

13. Match the atomic number 2, 4, 8, 15, and 19 with of the following:

A metal of valency 1.

Watch Video Solution

14. Match the atomic number 2, 4, 8, 15, and 19 with of the following:

A gaseous element with valency 2.

Watch Video Solution

15. Match the atomic number 2, 4, 8, 15, and 19 with of the following:

An element belonging to Group 2.

Watch Video Solution

16. Match the atomic number 2, 4, 8, 15 and 19 with the following:

A noble gas.

Watch Video Solution

Illustrative Assignments

1. In group 17 of the periodic table, fluorine is more reactive than chlorine, and chlorine is less reactive than fluorine. Give reasons.

Watch Video Solution

2. In group 1 (alkali metals), sodium is more reactive than lithium, or lithium is less reactive than sodium. Give reason.

Watch Video Solution

3. Magnesium is an element of group 2 of the periodic table. It forms compounds such as (i) magnesium oxide,

MgO, (ii) magnesium hydroxide, $Mg(OH)_2$, (iii) magnesium sulphate, $MgSO_4$ and (iv) magnesium chloride, $MgCl_2$. Calcium is also an element of group 2. Write the formulae of calcium oxide, calcium hydroxide, calcium sulphate and calcium chloride.

Watch Video Solution

4. answer the following questions:

What will be valency of oxygen.

Watch Video Solution

5. In the periodic table given below, lithium, carbon, oxygen and neon are placed in their correct positions. The

positions of eight other elements are represented by letters. These letters are not symbols for the elements concerned.

By reference to the above table, answer the following questions:

How many electrons will be in the outermost shell of element F?

Watch Video Solution

6. In the periodic table given below, lithium, carbon, oxygen and neon are placed in their correct positions. The positions of eight other elements are represented by letters. These letters are not symbols for the elements

concerned.

By reference to the above table, answer the following questions:

What type of bonds can F form?

Watch Video Solution

7. In the periodic table given below, lithium, carbon, oxygen and neon are placed in their correct positions. The positions of eight other elements are represented by letters. These letters are not symbols for the elements concerned.

By reference to the above table, answer the following

questions:

Which one is the least reactive metal?

Watch Video Solution

8. In the periodic table given below, lithium, carbon, oxygen and neon are placed in their correct positions. The positions of eight other elements are represented by letters. These letters are not symbols for the elements concerned.

By reference to the above table, answer the following questions:

Which one is the most reactive nonmetal?

Watch Video Solution

9. In the periodic table given below, lithium, carbon, oxygen and neon are placed in their correct positions. The positions of eight other elements are represented by letters. These letters are not symbols for the elements concerned.

By reference to the above table, answer the following questions:

Name the family of elements represented by E,F,G,R,S.

Watch Video Solution

10. In the periodic table given below, lithium, carbon, oxygen and neon are placed in their correct positions. The

positions of eight other elements are represented by letters. These letters are not symbols for the elements concerned.

By reference to the above table, answer the following questions:

what will be the formula of oxide formed with G?

Watch Video Solution

11. In the periodic table given below, lithium, carbon, oxygen and neon are placed in their correct positions. The positions of other elements are represented by letters. These letters are not symbols for the elements concerned.

By reference to the above table, answer the following questions:

Amongst Li, X, Y which atom has the largest size?

Watch Video Solution

12. What is the electronic configuration of the element in the third period which gains one electron to change into an anion?

Watch Video Solution

13. What is the name given to the energy released when an atom in its isolated gaseous state accepts an electron to form an anion?

Watch Video Solution

14. The following table represents the first three periods of the modern periodic table . Study the table and answer the questions that follow

How many electrons are present in the valence shell of the element with the atomic number 18?

Watch Video Solution

15. The following table represents the first three periods of the modern periodic table . Study the table and answer the questions that follow:

Name the element which has the highest ionisation energy.

Watch Video Solution

16. The following table represents the first three periods of the modern periodic table (the atomic number of the element is given below its symbol). Study the table and answer the questions that follow:

Name the element which has the highest ionisation energy.

Watch Video Solution

17. What type of bonding will be present in the oxide of the element with atomic number 1?

Watch Video Solution

18. Write the formula of the sulphate of the element with atomic number 13.

Watch Video Solution

19. Fill in the blanks : The atomic size___ as we move from left to right across the period, because the_____ increases but the_____ remains the same.

Watch Video Solution

20. The position of three elements A, B and C in the periodic table are shown below:

State whether C is a metal or nonmetal.

Watch Video Solution

21. The position of three elements A, B and C in the periodic table are shown below:

State whether C is less or more reactive than A.

Watch Video Solution

22. The position of three elements A, B and C in the periodic table are shown below:

Will C be smaller or larger in size than A?

Watch Video Solution

23. The position of three elements A, B and C in the periodic table are shown below:

Which type of ion, cation or anion, will be formed by element C?

Watch Video Solution

24. Amongst the elements of period 3 :

Na Mg Al Si P S Cl Ar

Indicate the atomic numbers of the following type of elements:

Nonmetals

Watch Video Solution

25. Amongst the elements of period 3 :

Na Mg Al Si P S Cl Ar

Indicate the atomic numbers of the following type of elements:

Elements forming negative ions

Watch Video Solution

26. Amongst the elements of period 3 :

Na Mg Al Si P S Cl Ar

Indicate the atomic numbers of the following type of elements:

Metals

Watch Video Solution

27. Amongst the elements of period 3 :

Na Mg Al Si P S Cl Ar

Indicate the atomic numbers of the following type of elements:

Elements forming positive ions

Watch Video Solution

28. A group of elements in the Periodic Table are given pelow (Boron is the first member of the group and Thallium is the last).

Boron

Aluminium

Gallium

Indium

Thallium

Answer the following questions in relation to the above group of elements :

Which element has the most metallic character ?

Watch Video Solution

29. A group of elements in the Periodic Table are given pelow (Boron is the first member of the group and Thallium is the last).

Boron

Aluminium

Gallium

Indium

Thallium

Answer the following questions in relation to the above group of elements :

Which element would be expected to have the highest electronegativity ?

Watch Video Solution

30. A group of elements in the Periodic Table are given pelow (Boron is the first member of the group and Thallium is the last).

Boron

Aluminium

Gallium

Indium

Thallium

Answer the following questions in relation to the above group of elements :

If the electronic configuration of Aluminium is 2, 8, 3, how many electrons are there in the outer shell of Thallium ?

Watch Video Solution

31. A group of elements in the Periodic Table are given pelow (Boron is the first member of the group and Thallium is the last).

Boron

Aluminium

Gallium

Indium

Thallium

Answer the following questions in relation to the above group of elements :

The atomic number of Boron is 5. Write the chemical formula of the compound formed when Boron reacts with Chlorine.

Watch Video Solution

32. A group of elements in the Periodic Table are given pelow (Boron is the first member of the group and Thallium is the last).

Boron

Aluminium

Gallium

Indium

Thallium

Answer the following questions in relation to the above group of elements :

Will the elements in the group to the right of this Boron group be more metallic or less metallic in character ? Justify your answer.

Watch Video Solution

Questions For Practice Fill In The Blanks By Using Correct Word Term Given In The Brackets And Rewrite The Complete Sentence In Your Notebook

1. Horizontal rows of periodic table are called

Watch Video Solution

2. In the periodic table, the vertical columns are called _____ (periods/groups)

Watch Video Solution

3. The number of electrons in the outermost shell of the atom of an element tells the _____ to which the element

belongs. (group/period)

Watch Video Solution

4. Period 1 contains _____ elements. (two/eight)

Watch Video Solution

5. The elements in a period have _____valencies. (same/different).

Watch Video Solution

6. In the modern periodic table, elements are classified according to their_____. (atomic masses/atomic number)

Watch Video Solution

7. Elements in the same group have __ chemical properties. (similar/different).

Watch Video Solution

8. As we move across a period from left to right, metallic character _____ (decreases/ increases)

Watch Video Solution

9. As we move across a period from left to right, nonmetallic character_____ (decreases/increases)

Watch Video Solution

10. The atomic size of lithium is _____ than that of sodium. (greater/smaller).

Watch Video Solution

11. Properties of the elements mainly depend on their _____. (electronic configuration/atomic masses)

Watch Video Solution

12. Fluorine is _____electronegative than lithium. (more/less)

Watch Video Solution

13. Atomic size decreases in a _____of the periodic table as the atomic number increases from left to right. (group/period)

Watch Video Solution

14. In a group, the atomic size_____ from top to bottom. (increases / decreases).

Watch Video Solution

15. Ionisation energy decreases in a _____ as atomic number increases. (group/period)

Watch Video Solution

16. Ionisation energy of sodium is _____ than that of potassium. (more/less)

Watch Video Solution

17. If an element of period 2 has one electron in its outermost shell, then it is likely to be a _____. (metal/nonmetal)

Watch Video Solution

18. The element at the bottom of a group would be expected to show _____metallic character than the element at the top. (less/more)

Watch Video Solution

19. Properties of the elements are a periodic function of their _____ . (atomic number/ mass number/relative atomic mass)

Watch Video Solution

20. The ionisation potential of potassium is _____ that of sodium. ($>$ / $<$)

Watch Video Solution

21. Write the correct symbol: $>$ [greater than] or $<$ [less than] in the statements:

The electronegativity of iodine is _____ that of chlorine.

Watch Video Solution

22. If an element has a low ionisation energy, then it is likely to be _____. (metallic/ nonmetallic).

Watch Video Solution

23. If an element has seven electrons in its outermost shell then it is likely to have the ____ [largest/smallest] atomic size among all the elements in the same period.

Watch Video Solution

Questions For Practice Choose True And False Statements

1. Why atomic number is more fundamental than any other quantity ?

Watch Video Solution

2. Give reason

Atomic size decreases across a period but increases down a group of the periodic table

Watch Video Solution

3. Atomic radius of lithium is greater than the atomic radius of fluorine.Give reason

Watch Video Solution

4. State true or false: In a group, the valency of each element is the same.

Watch Video Solution

5. State true or false: The elements of group 17 of the periodic table are called halogens.

Watch Video Solution

6. The valency of helium is 2 because it is the second element of period 1.

Watch Video Solution

7. Lithium is more reactive than potassium.

Watch Video Solution

8. Ionisation energy increases on moving down a group in the periodic table.

Watch Video Solution

9. Electronegativity of fluorine is greater than that of chlorine.

Watch Video Solution

10. Electron affinity is reverse of ionisation energy.

Watch Video Solution

Questions For Practice Answer The Questions In One Word Or In One Sentence

1. How many groups are there in the modern periodic table?

Watch Video Solution

2. Name the first element of group 13.

Watch Video Solution

3. Potassium belongs to which period of the periodic table?

Watch Video Solution

Watch Video Solution

4. Calcium belongs to which group of the periodic table?

Watch Video Solution

5. How many electrons are present in the outermost orbit of helium?

Watch Video Solution

6. How many shells are there in an atom of silicon?

Watch Video Solution

7. Name the element which belongs to group 17 and period 2 of the modern periodic table.

Watch Video Solution

8. What is the common name of the elements of group 1?

Watch Video Solution

9. What is the general name of the elements of group 17?

Watch Video Solution

10. To which group of the modern periodic table do alkaline earth metals belong?

Watch Video Solution

11. Which one of Li and F has larger atomic radius?

Watch Video Solution

12. Which one of Li and K has larger atomic size?

Watch Video Solution

13. How does valency change within a group of the periodic table?

Watch Video Solution

14. Which one of F and Cl is more electronegative?

Watch Video Solution

15. Which one of F and Cl has larger electron affinity?

Watch Video Solution

16. What is the trend in the atomic size in a group, does it increase or decrease?

Watch Video Solution

17. State modern periodic law of classification of elements.

Watch Video Solution

18. Who proposed that atomic number is the fundamental property of an element?

Watch Video Solution

19. Which one of Mg and Ca is more metallic?

Watch Video Solution

20. From the electronic configurations N (2,5), O (2,6) and F (2,7), answer the following questions:

Which one of N, O and F is most electronegative?

Watch Video Solution

Questions For Practice Select The Correct Answer From The Given Choices A B C And D

1. Which one represents the elements of group 1?

A. Li, Be, B

B. Li, Na, K

C. O, F, Ne

D. H, He, Ne

Answer: B

Watch Video Solution

2. What is the basis of the long form of the periodic table?

A. Atomic mass

B. Atomic number

C. Atomic size

D. Metallic and nonmetallic character

Answer: B

Watch Video Solution

3. What is the valency of halogens?

A. 7

B. 3

C. 1

D. 4

Answer: C

Watch Video Solution

4. In the modern periodic table, which one is most correct about a period?

A. The first element is an alkali metal, and the last element is a halogen.

B. The first element is a noble gas, and the last one is an alkali metal.

C. The first element is an alkali metal, and the last element is a noble gas.

D. Each element is a nonmetal.

Answer: C

Watch Video Solution

5. Name an element that has two shells each one of which is completely filled with electrons.

A. Na

B. Al

C. F

D. Ne

Answer: D

Watch Video Solution

6. Name an element which has a total of three shells and there are four electrons in its valence shell.

A. P

B. O

C. Si

D. S

Answer: C

Watch Video Solution

7. Which one of the following has the largest atomic radius?

A. Li

B. F

C. K

D. Br

Answer: C

Watch Video Solution

8. Name an element which has a total of two shells and there are three electrons in its valence shell.

A. Be

B. B

C. Al

D. Mg

Answer: B

Watch Video Solution

9. Which one of the following has the smallest atomic radius?

A. Li

B. F

C. K

D. Br

Answer: B

Watch Video Solution

10. Name or state with reference to the elements of the modern periodic table.

The formula of the hydroxide of the element having electronic configuration 2, 8, 2.

A. Na

B. Al

C. Mg

D. Ne

Answer: C

Watch Video Solution

11. Which element has twice as many electrons in its second shell as in the first shell?

A. Be

B. B

C. C

D. N

Answer: C

Watch Video Solution

12. Which one of the following is most reactive? Li Na K Rb

A. Li

B. Na

C. K

D. Rb

Answer: D

Watch Video Solution

13. Which one of the following is most metallic? Na Mg Al Si

A. Na

B. Mg

C. Al

D. Si

Answer: A

Watch Video Solution

14. Which one of the following is least reactive element? F

Cl Br I

A. F

B. Cl

C. Br

D. I

Answer: D

Watch Video Solution

15. Which one of the following is most electronegative? F Cl Br I

A. F

B. Cl

C. Br

D. I

Answer: A

Watch Video Solution

16. Which one of the following is an oxide of an alkali metal?

A. Na_2O

B. MgO

C. SiO_2

D. Al_2O_3

Answer: A

Watch Video Solution

17. Atomic number is the fundamental property of an element'. Write the name of the scientist who proved it by an X-ray experiment.

A. a)Bohr

B. b)Newlands

C. c)Mendeleev

D. d)Moseley

Answer: D

Watch Video Solution

18. What is the atomic number of an element of period 2 and group 17 of the periodic table?

A. 10

B. 9

C. 17

D. 19

Answer: B

Watch Video Solution

19. Which of the following pairs of elements are members of the same group? K and Sr Ar and Cl Si and Ca O and S

A. K and Sr

B. Ar and Cl

C. Si and Ca

D. O and S

Answer: D

Watch Video Solution

20. Which one of the following has the largest ionisation energy? Ar Cl K Al

A. Ar

B. Cl

C. K

D. Al

Answer: A

Watch Video Solution

21. Which one of the following is an alkali metal?

A. a)Mg

B. b)Al

C. c)K

D. d)Kr

Answer: C

Watch Video Solution

22. Which one of the following is a member of halogen family?

A. Cu

B. Cr

C. Cl

D. Ca

Answer: C

Watch Video Solution

23. The total number of elements in period 3 of the periodic table is:

A. a)2

B. b)8

C. c)18

D. d)32

Answer: B

Watch Video Solution

24. Which electronic configuration corresponds to a noble gas?

A. 2, 2

B. 2, 8, 2

C. 2, 8,5

D. 2, 8, 8

Answer: D

Watch Video Solution

25. Which electronic configuration corresponds to an alkali metal?

A. a)2, 2

B. b)2, 8, 2

C. c)$2, 8, 1$

D. d)$2, 8, 8$

Answer: C

Watch Video Solution

26. Which electronic configuration corresponds to a halogen?

A. 2, 2

B. $2, 8, 2$

C. $2, 8, 1$

D. $2, 8, 7$

Answer: D

Watch Video Solution

27. Which one is an oxide of group 2 metal?

A. MgO

B. K_2O

C. Na_2O

D. `Al_2O_3

Answer: A

Watch Video Solution

28. Among the elements given below the element with highest electronegativity is

A. a)lithium

B. b)carbon

C. c)boron

D. d)fluorine

Answer: B

Watch Video Solution

29. Ionisation potential increases in a period from left to right because

A. atomic radius increases and nuclear charge increases.

B. atomic radius decreases and nuclear charge decreases.

C. atomic radius increases and nuclear charge decreases.

D. atomic radius decreases and nuclear charge increases.

Answer: D

Watch Video Solution

30. If an element A belongs to period 3 and group 2, then it will have

A. 3 shells and 2 valence electrons

B. 2 shells and 3 valence electrons

C. 3 shells and 3 valence electrons

D. 2 shells and 2 valence electrons

Answer: A

Watch Video Solution

Questions For Practice On Examination Pattern Section I Select The Correct Answers From The Given Choices A B C D Write Down Only The Letter Corresponding To The Correct Answer

1. With reference to the variation of properties in the periodic table, which of the following is true?

A. Atomic size increases from left to right across a period.

B. Ionisation potential increases from left to right across a period.

C. Electron affinity increases on going down a group.

D. Electronegativity increases on going down a group.

Answer: B

Watch Video Solution

2. With reference to the variation of properties in the periodic table, which of the following is true?

A. Atomic size decreases from left to right across a period.

B. Ionisation energy decreases from left to right across a period.

C. Electron affinity increases on going down a group.

D. Electronegativity decreases from left to right across a period.

Answer: A

Watch Video Solution

3. Which of the following is true in the periodic table?

A. Atomic size increases from left to right across a period.

B. Electron affinity decreases on going down a group.

C. Metallic character decreases from left to right across a period.

D. Electronegativity increases on going down a group.

Answer: C

Watch Video Solution

4. Which of the following is generally true. A: Atomic size increases from left to right across a period. B: Ionization potential increases from left to right across a period. C: Electron affinity increases on going down a group. D: Electronegativity increases on going down a group.

A. Atomic size decreases from left to right across a period.

B. Electron affinity decreases on going down a group.

C. Metallic character decreases from left to right across a period.

D. Electronegativity increases on going down a group.

Answer: D

Watch Video Solution

5. Which electronic configuration corresponds to an alkali metal? 2, 2 2, 8,2 2, 8,1 2,8,8

A. 2, 2

B. 2, 8,2

C. 2, 8,1

D. 2, 8, 8

Answer: C

Watch Video Solution

6. Name an element that has two shells each one of which is completely filled with electrons.

A. a)Sodium

B. b)Aluminium

C. c)Fluorine

D. d)Neon

Answer: D

Watch Video Solution

7. Name an element which has a total of three shells and there are four electrons in its valence shell.

A. a)Fluorine

B. b)Oxygen

C. c)Silicon

D. d)Sulphur

Answer: C

Watch Video Solution

8. Which one of the following has the largest atomic radius? a) lithium b) sodium c) potassium d) chlorine

A. a)Lithium

B. b)Sodium

C. c)Potassium

D. d)Chlorine

Answer: C

Watch Video Solution

9. Which element has a total of two shells and there are three electrons in its valence shell?

A. Beryllium

B. Boron

C. Aluminium

D. Magnesium

Answer: B

Watch Video Solution

10. Which one of the following has the smallest atomic radius?

A. Lithium

B. Fluorine

C. Potassium

D. Chlorine

Answer: B

Watch Video Solution

11. An element in period 3 whose electron affinity is zero.

A. Neon

B. Sulphur

C. Sodium

D. Argon

Answer: D

Watch Video Solution

12. Choose the correct answer

An alkaline earth metal .

A. Potassium

B. Calcium

C. Lead

D. Copper

Answer: B

Watch Video Solution

13. Select odd one from the following and justify your answer.

F, Cl, Br, O

Watch Video Solution

14. Select odd one from the following and justify your answer.

H, Na, Li, N

Watch Video Solution

15. Select odd one from the following and justify your answer.

Li, Na, Mg, K

Watch Video Solution

Questions For Practice On Examination Pattern Section I

1. Match (A) ionisation energy, (B) atomic size, (C) electron affinity, (D) electronegativity, (E) ionisation potential with its correct definition given in (i) – (v) below.

(i) The work done in removing an electron from the outermost orbit of a gaseous atom.

(ii) The energy change when an atom accepts an electron in its outermost shell

(iii) The energy required in removing an electron from the outermost shell of a gaseous atom

(iv) The distance of the electron in the outermost orbit of an atom from its nucleus.

(v) The power of the atom to attract electron or electrons in a chemical bond.

 Watch Video Solution

2. Select odd one from the following and justify your answer.

Li, Be, B, Na

Watch Video Solution

Questions For Practice On Examination Pattern Section Ii

1. Name the first and last element in period 2

Watch Video Solution

2. The following questions refer to the periodic table. Answer them carefully.

What happens to the atomic size of elements moving from top to bottom of a group?

Watch Video Solution

3. The following questions refer to the Periodic Table :

Which of the elements has the greatest electron affinity among the halogens ?

Watch Video Solution

4. What is the common feature of the electronic configurations of the elements in group 17[VIIA]

Watch Video Solution

5. If an element has a low ionization energy then it is likely to be _____ [`"metallic"// "non-metallic"]

Watch Video Solution

6. If an element has seven electrons in its outermost shell then it is likely to have the ____ [largest/smallest] atomic size among all the elements in the same period.

Watch Video Solution

7. The metals of group-2 from top to bottom are Be, Mg, Ca, Sr, Ba. Which of these metals will form ions most readily and why?

Watch Video Solution

8. What property of an element is measured by electronegativity.

Watch Video Solution

9. Look at the atomic radii of some elements of the second period and answer the questions.

Are these elements arranged on the pattern of a period of the periodic table?

Watch Video Solution

10. Look at the atomic radii of some elements of the second period and answer the questions.

Arrange these elements in the decreasing order of their atomic radii.

Watch Video Solution

11. Look at the atomic radii of some elements of the second period and answer the questions.

Which element has the largest atomic radius and which one has the smallest?

Watch Video Solution

12. Name one other element for each which is in the same group as

(i) carbon (ii) fluorine (iii) sodium

Watch Video Solution

13. If the element with atomic number 18 is a noble gas, to which group do you expect the elements with atomic numbers 17 and 19 belong?

Watch Video Solution

14. The atomic number of helium is 2 and the atomic number of lithium is 3. Is it possible to have an element

with atomic number 2.5?

Watch Video Solution

15. From the electronic configurations Na (2, 8, 1), Mg (2, 8, 2) and Al (2, 8, 3), answer the following questions:

What is the number of valence electrons in each element?

Watch Video Solution

16. From the electronic configurations Na (2, 8, 1), Mg (2, 8, 2) and Al (2, 8, 3), answer the following questions:

Assign the periods to each element in the periodic table.

Watch Video Solution

17. From the electronic configurations Na (2, 8, 1), Mg (2, 8, 2) and Al (2, 8, 3), answer the following questions:

Which element is the most reactive?

Watch Video Solution

18. From the electronic configurations Na (2, 8, 1), Mg (2, 8, 2) and Al (2, 8, 3), answer the following questions:

Which element is the least reactive?

Watch Video Solution

19. From the electronic configurations Na (2, 8, 1), Mg (2, 8, 2) and Al (2, 8, 3), answer the following questions:

Which element has the largest atomic radius?

Watch Video Solution

20. An element belongs to group 17 and period 3 of the periodic table. Write the following:

The number of valence electrons in its atom.

Watch Video Solution

21. An element belongs to group 17 and period 3 of the periodic table. Write the following:

Its valency.

Watch Video Solution

22. An element belongs to group 17 and period 3 of the periodic table. Write the following:

Its metallic and nonmetallic nature

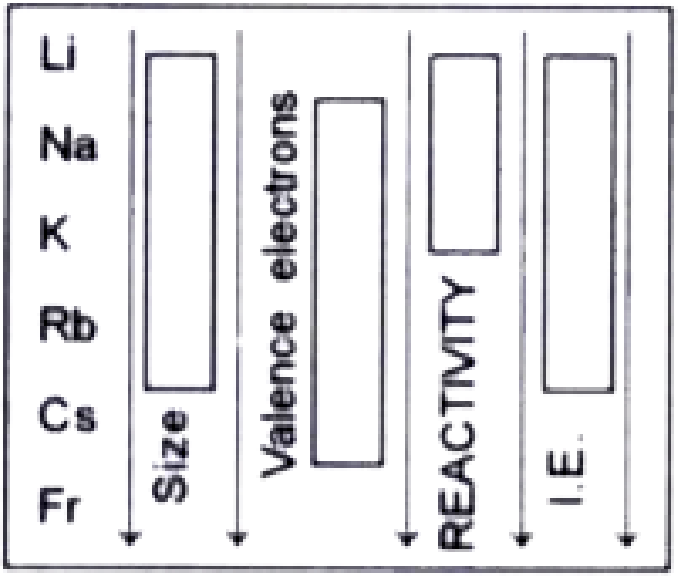
Watch Video Solution

23. An element belongs to group 17 and period 3 of the periodic table. Write the following:

Its electronic configuration.

Watch Video Solution

24. Complete the given table :



Watch Video Solution

25. An element X of group 15 and period 2 exists as diatomic molecule. It combines with hydrogen and forms ammonia in the presence of a suitable catalyst.

Identify the element X.

Watch Video Solution

26. An element X of group 15 and period 2 exists as diatomic molecule. It combines with hydrogen and forms ammonia in the presence of a suitable catalyst.

Write the electronic configuration of X and count the number of valence electrons.

Watch Video Solution

27. An element X of group 15 and period 2 exists as diatomic molecule. It combines with hydrogen and forms ammonia in the presence of a suitable catalyst.

Draw the electron dot structure of the diatomic molecule, and identify and name the type of bond formed.

Watch Video Solution

28. An element X of group 15 and period 2 exists as diatomic molecule. It combines with hydrogen and forms ammonia in the presence of a suitable catalyst.

Draw the electron dot structure of ammonia.

Watch Video Solution

29. What is the total number of covalent bonds in a molecule of ammonia?

Watch Video Solution

30. In group 1 of the periodic table three elements X, Y and Z have atomic radii 133 pm, 95 pm and 65 pm respectively. Giving a reason, arrange them in the order of increasing atomic number in the group.

Watch Video Solution

31. From each of the following sets, name the element with characteristics specified below:

Watch Video Solution

32. From the electronic configurations Li (2, 1), Na (2, 8, 1) and K (2, 8, 8, 1), answer the following questions:

What is the valence shell of element K?

Watch Video Solution

33. From the electronic configurations Li (2, 1), Na (2, 8, 1) and K (2, 8, 8, 1), answer the following questions:

What is the period of Na in the periodic table?

Watch Video Solution

34. From the electronic configurations Li (2, 1), Na (2, 8, 1) and K (2, 8, 8, 1), answer the following questions:

Which of these elements has the largest atomic radius?

Watch Video Solution

35. From the electronic configurations Li (2, 1), Na (2, 8, 1) and K (2, 8, 8, 1), answer the following questions:

Which one is the most reactive?

Watch Video Solution

36. From the electronic configurations Li (2, 1), Na (2, 8, 1) and K (2, 8, 8, 1), answer the following questions:

Formula of sodium sulphate is Na_2SO_4. Write the formula of potassium sulphate.

Watch Video Solution

37. State the following:

How do the atomic radii change in a period with increasing atomic number?

Watch Video Solution

38. State the following:

How does metallic character change in a period on moving from left to right?

Watch Video Solution

39. From the electronic configurations N (2,5), O (2,6) and F (2,7), answer the following questions:

Which one of N, O and F is most electronegative?

Watch Video Solution

40. From the electronic configurations N (2,5), O (2,6) and F (2,7), answer the following questions:

What is the number of valence electrons of F?

Watch Video Solution

41. From the electronic configurations N (2,5), O (2,6) and F (2,7), answer the following questions:

What is the period number of O in the periodic table?

Watch Video Solution

42. From the electronic configurations N (2,5), O (2,6) and F (2,7), answer the following questions:

What is the valency of each one of N, O and F?

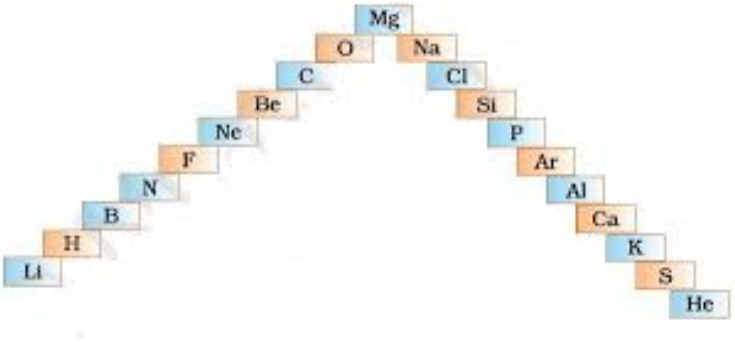
Watch Video Solution

43. From the electronic configurations N (2,5), O (2,6) and F (2,7), answer the following questions:

Which one has the largest atomic radius?

Watch Video Solution

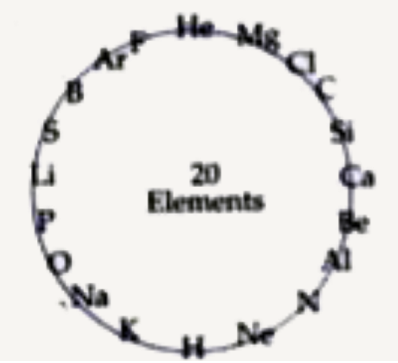
44. Atomic symbols of the first 20 elements of the periodic table are jumbled.



Rearrange these elements in the increasing order of their Elements atomic numbers

Watch Video Solution

45. Atomic symbols of the first 20 elements of the periodic table are jumbled up in a circle.



Arrange these elements in their correct periods.

Watch Video Solution

46. Atomic symbols of the first 20 elements of the periodic table are jumbled up in a circle.

View Text Solution

47. In a period if the atomic radius of the first element is 152 pm, what is the atomic radius of the third element-

more than or less than 152 pm?

Watch Video Solution

48. In a period if the atomic radius of the first element is 152 pm, what is the atomic radius of the third element- more than or less than 152 pm?

Watch Video Solution

49. Which one of the figures I and II represents the correct measure of atomic radius (r)?

Watch Video Solution

50. Consider the section of the periodic table given below.

Group numbers	IA	IIA	IIIA	IVA	VA	VI A	VIIA	0
	1	2	13	14	15	16	17	18
	Li		F			O	J	Ne
	A	Mg	E	Si		H	K	
	B	C		F	G			L

Note : In this table B does not represent boron

C does not represent carbon

F does not represent fluorine

H does not represent hydrogen

K does not represent potassium

You must see the position of the element in the periodic table.

Some elements are given in their own symbol and position in the periodic table, while others are shown with a letter.

With reference to the table:

Which is the most electronegative ?

Watch Video Solution

51. Consider the section of the periodic table given below.

Note: In this table, B does not represent boron

C does not represent carbon

F does not represent fluorine

H does not represent hydrogen

K does not represent potassium

You must see the position of the element in the periodic table.

Some elements are given in their own symbol and position

in the periodic table, while others are shown with a letter.

With reference to the table:

How many valence electrons are present in G?

Watch Video Solution

52. Consider the section of the periodic table given below.

Group numbers	IA 1	II A 2	III A 13	IV A 14	V A 15	VI A 16	VII A 17	0 18
	Li		D			O	J	Ne
	A	Mg	E	Si		H	K	
	B	C		F	G			L

Note: In this table, B does not represent boron

C does not represent carbon

F does not represent fluorine

H does not represent hydrogen

K does not represent potassium

You must see the position of the element in the periodic table.

Some elements are given in their own symbol and position in the periodic table, while others are shown with a letter.

With reference to the table:

Write the formula of the compound between B and H.

Watch Video Solution

53. Consider the section of the periodic table given below.

Group numbers	IA 1	II A 2	III A 13	IV A 14	V A 15	VI A 16	VII A 17	0 18
	Li		D			O	J	Ne
	A	Mg	E	Si		H	K	
	B	C		F	G			L

Note: In this table, B does not represent boron

C does not represent carbon

F does not represent fluorine

H does not represent hydrogen

K does not represent potassium

You must see the position of the element in the periodic table.

Some elements are given in their own symbol and position in the periodic table, while others are shown with a letter.

With reference to the table:

In the compound between F and J, what type of bond will be formed?

Watch Video Solution

54. Consider the section of the periodic table given below.

Note: In this table, B does not represent boron

C does not represent carbon

F does not represent fluorine

H does not represent hydrogen

K does not represent potassium

You must see the position of the element in the periodic table.

Some elements are given in their own symbol and position in the periodic table, while others are shown with a letter.

With reference to the table:

Draw the electron dot structure for the compound formed between C and K.

Watch Video Solution

55. The elements of one short period of the periodic table are given below in order from left to right:

Li Be B C O F Ne

Which one of the above elements belongs to the halogen series?

Watch Video Solution

56. The elements of one short period of the Periodic Table are given below in the order from left to right:

Li Be B C O F Ne

One element of this period is missing. Which is the missing element and where should it be placed ?

Watch Video Solution

57. The elements of one short period of the periodic table are given below in order from left to right:

Li Be B C O F Ne

Which one of the elements in this period shows the property of catenation?

Watch Video Solution

58. The elements of one short period of the periodic table are given below in order from left to right:

Li Be B C O F Ne

Place the three elements fluorine, beryllium and nitrogen in the order of increasing electronegativity.

Watch Video Solution

Watch Video Solution

59. The elements of one short period of the periodic table are given below in order from left to right:

Li Be B C O F Ne

Which one of the above elements belongs to the halogen series?

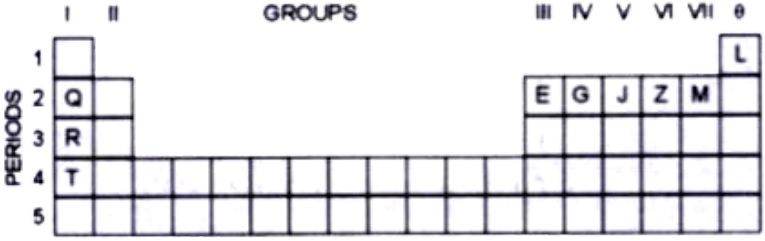
Watch Video Solution

60. Use the letters only written in the periodic table given below to answer the questions that follow.

State the number of valence electrons in the atom of element J.

Watch Video Solution

61. Use the letters only written in the Periodic Table given below to answer the questions that follow :



Which element shown forms ions with a single negative charge ?

Watch Video Solution

62. Use the letters only written in the periodic table given below to answer the questions that follow.

Which metallic element is more reactive than element R?

Watch Video Solution

63. Use the letters only written in the periodic table given below to answer the questions that follow.

Which element has its electrons arranged in four shells?

Watch Video Solution

64. Consider a part of the periodic table of elements

• In this table H does not represent hydrogen.

• Some elements are given in their own symbol and position in the periodic table while others are shown by letters. With reference to the table answer the following questions.

Identify the most electronegative element.

Watch Video Solution

65. Consider a part of the periodic table of elements

• In this table H does not represent hydrogen.

• Some elements are given in their own symbol and position in the periodic table while others are shown by letters. With reference to the table answer the following

questions.

Identify the most electronegative element.

Watch Video Solution

66. Consider a part of the periodic table of elements

• In this table H does not represent hydrogen.

• Some elements are given in their own symbol and position in the periodic table while others are shown by letters. With reference to the table answer the following questions.

Identify the element of period 3 with least atomic size.

Watch Video Solution

67.

Group	IA	IIA	IIIA	IVA	VA	VIA	VIIA	0
number	1	2	13	14	15	16	17	18
2nd period	Li		D			O	J	Ne
	A	Mg	E	Si		H	M	
	R	T	I		Q	u		y

• In this table H does not represent hydrogen.

• Some elements are given in their own symbol and position in the periodic table.

• While others are shown with a letter.

With reference to the table answer the following questions :

Which element from group 2 would have the least ionization energy?

Watch Video Solution

68. Consider a part of the periodic table of elements

• In this table H does not represent hydrogen.

• Some elements are given in their own symbol and position in the periodic table while others are shown by letters. With reference to the table answer the following questions.

How many valence electrons are present in Q?

Watch Video Solution

69.

Group	IA	IIA	IIIA	IVA	VA	VIA	VIIA	0
number	1	2	13	14	15	16	17	18
2nd period	Li		D			O	J	Ne
	A	Mg	E	Si		H	M	
	R	T	I		Q	u		y

• In this table H does not represent hydrogen.

• Some elements are given in their own symbol and position in the periodic table.

• While others are shown with a letter.

With reference to the table answer the following questions :

Identify the noble gas of the fourth period.

Watch Video Solution

70.

Group	IA	IIA	IIIA	IVA	VA	VIA	VIIA	0
number	1	2	13	14	15	16	17	18
2nd period	Li		D			O	J	Ne
	A	Mg	E	Si		H	M	
	R	T	I		Q	u		y

• In this table H does not represent hydrogen.

• Some elements are given in their own symbol and position in the periodic table.

• While others are shown with a letter.

With reference to the table answer the following questions :

In the compound between A and H what type of bond would be formed and give the molecular formula for the same.

Watch Video Solution