



CHEMISTRY

BOOKS - MODERN PUBLICATION

PERIODIC CLASSIFICATION OF ELEMENTS

Exercise

1. Name two scientists who helped in development of periodic table.



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2. Name the terms used to express:

Vertical column in the periodic table.



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3. Name the terms used to express:

horizontal rows in the periodic table.



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4. Name the scientist who classified the elements in triads.



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5. Lithium, sodium and potassium is a Dobernenier triad. The atomic masses of Li and K are 7 and 39 respectively. What is the expected atomic mass of Na?



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6. Give an example of a pair of elements which are not correctly placed in the Mendeleev's periodic table according to their increasing atomic masses.



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7. The concept of triads was given by.....



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8. Sodium occurs at one of the.....in a Lothar Meyer curve.



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9. Name the terms used to express:
horizontal rows in the periodic table.



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10. Mendeleev's basis for the periodic table is..... .



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11. Give an example of the element which was discovered before Mendeleev's periodic table.



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12. Name the element discovered corresponding to eka-silicon predicted by Mendeleev.



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13. X, Y and Z are three members of a Dobereiner triad. The atomic mass of X is 7 and that of Y is 23. What is the atomic mass of Z?



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14. Which property of atoms formed the basis of Mendeleev's periodic classification?



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15. Justify that the discrepancy regarding position of isotopes in the Mendeleev's periodic table is automatically removed in the modern periodic table.



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16. Atomic number is equal to the number of.....in the nucleus of its atom or to the number ofin the atom.



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17. Sodium atoms has protons =11 and neutron=12, electron=11, what is the atomic number.



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18. State whether true or false : The basis of modern periodic law is atomic mass.



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19. Elements of group 0 are called noble gases.



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20. Groups are the horizontal rows of the elements.





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21. Modern periodic law was given by Newlands.



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22. Modern periodic table is based upon :



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23. Isotopes belong to same.....in the periodic table.



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24. How many periods are there in the periodic table?



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25. Name two transition elements.



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26. Name two coinage metals.



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27. In the modern periodic table, there are.....periods.



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28. Halogen belong.....group white alkaline earth metals belong to.....group.



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29. Elements of group 2 are calledmetals and elements of group 0 are called..... .



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30. The electronic configuration of Si is 2,8,4. It belongs to the group.....



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31. An atom of an element has the electronic configuration 2,8,2.
to which group does it belong?



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32. An atom of an element has the electronic configuration 2,8,2.

Give one name of this group.



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33. An atom of an element has the electronic configuration 2,8,2.

Give one example of an element belonging to this group.



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34. Write names of the following:

Halogen belonging to second period.



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35. Write names of the following:

Alkali metal belonging to fourth period.



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36. Write names of the following:

a noble gas having atomic number 18.



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37. Write names of the following:

an element having atomic number 8.



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38. Write names of the following:

an element whose atom has electronic configuration 2,8,2



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39. Give the groups and periods in the modern periodic table?



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40. In the following sets of elements, one element does not belong to the same set. Select the element and state the reasons why it does not belong to the set:

Boron, Oxygen, Carbon, Fluorine, sulphur.



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41. What is modern periodic law?



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42. Lithium, sodium and potassium belong to same..... .



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43. Which among the following pairs has:
higher metallic character: Na or Si.



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44. Metallic character.....down the group.





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45. Atomic size.....along the period.



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46. Electronegative character.....down the group.



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47. Consider the following part of third period:

Mg,Al,Si,P,S

which of these:

has smallest size?



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48. Give names of the following:

smallest element in first group.



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49. Give names of the following:

smallest element among noble gases.



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50. An element 'S' has two electrons in M shell

Identify the element.



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51. An element 'S' has two electrons in M shell

To which group and period does it belong?



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52. An element 'S' has two electrons in M shell

Write the formula of its chloride.



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53. An element 'S' has two electrons in M shell

What type of ion will it form?



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54. An element 'S' has two electrons in M shell

Is it's a metal or non-metal?



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55. Look at a part of periodic table given below:

Group/	1	2		13	14	15	16	17	18
Period									
1.	A								
2.		B		E		F	J	G	H
3.	C	D			K			I	

Which is the element with smallest size in second period?



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56. Look at a part of periodic table given below:

Group/	1	2		13	14	15	16	17	18
Period									
1.	A								
2.		B		E		F	J	G	H
3.	C	D			K			I	

Which of these elements has zero valency?



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57. Look at a part of periodic table given below:

Group/	1	2		13	14	15	16	17	18
Period									
1.	A								
2.		B		E		F	J	G	H
3.	C	D			K			I	

Which out of G and I has larger size?



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58. Look at a part of periodic table given below:

Group/	1	2		13	14	15	16	17	18
Period									
1.	A								
2.		B		E		F	J	G	H
3.	C	D			K			I	

Which of these shows valency of 4?



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59. The electronic distribution of eight elements are given below:

A: 2,8,1

B: 2,5

C:2,8,7

D:2,8,5

E: 2,8,8,2

F: 2,8

G: 2,8,4

H: 2,4

Which of these belong to same period?



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60. The electronic distribution of eight elements are given below:

A: 2,8,1

B: 2,5

C:2,8,7

D:2,8,5

E: 2,8,8,2

F: 2,8

G: 2,8,4

H: 2,4

Which of these belong to same group?



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61. The electronic distribution of eight elements are given below:

A: 2,8,1

B: 2,5

C:2,8,7

D:2,8,5

E: 2,8,8,2

F: 2,8

G: 2,8,4

H: 2,4

Which of these has valency equal to 3?



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62. Write the electronic configuration of:
third element of second period.



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63. Write the electronic configuration of:
atom of third period having largest size.



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64. Write the electronic configuration of:
noble gas of third period.



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65. Write the electronic configuration of:
third alkaline earth metal.



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66. Write the electronic configuration of:
second alkali metal.



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67. Write the electronic configuration of:
atom of third period with valency of 4.



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68. Name two metalloids.





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69. State modern periodic law.



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70. How many periods are present in Henry's periodic table.



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71. How many groups are present in Modern periodic table?



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72. What is the valency of aluminium?



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73. Non-metals are located on the right hand side of the periodic table. Is this statement

correct or wrong?



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74. What is chemical nature of Al_2O_3 ?



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75. Out of Li and Be, which one has larger atomic size?



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76. Out of N and O, which larger size?



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77. Name the most electronegative element in the periodic table.



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78. Which is the third alkaline earth metal?



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79. Which out of Li and K is more metallic?



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80. What is the number of elements in the third period?



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81. Who gave the law of octaves?



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82. Name the element present in group 13 and period 3.



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83. Which is least metallic out of Ca, Sr, Mg and Ba?



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84. How does atomic size of elements vary on moving from left to right in a period



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85. Name one element which belongs to group 18.



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86. Does metallic character vary in group, does it increase or decrease ?



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87. How metallic character vary on moving from left to right along a period?



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88. Mendeleev's basis for the periodic table is..... .



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89. Magnesium is more electropositive than sodium.



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90. The valency of the elements of the same group is same.



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91. Magnesium belongs to alkaline earth metals family.



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92. There are 18 elements in the third period of the periodic table.



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93. State whether True or False: The atomic radii increase along a period from left to right.



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94. State whether true or false: Metallic character increase down a group.



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95. State whether true or false: The concept of triads of elements was given by Dobereiner.



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96. In the third period, sodium has the maximum density.



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97. Na, Mg and Al belong to the same period.



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98. The elements with 8 electrons in the outer shell are called noble gases.



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99. Aluminium belongs to group 13 and has valency of 3.



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100. The oxides of metals are acidic in nature.



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101. The metallic character of the elements in a period decreases from left to the right , justify

.



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102. Atomic radius of B is less than that of N.



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103. Potassium and calcium belong to 4th period.



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104. All halogens have 7 electrons in the valence shell.



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105. The element eka-aluminium discovered later was named germanium.



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106. The example of Dobereiner's triad is Mg,Ca,Ba.



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107. In periodic table isotopes are not given separate places.



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Example

1. A part of the periodic table is show below:

Group	1	2	13	14	15	16	17	18
	Li	Be	B	C	N	O	F	Ne
	Na				P	S	Cl	Ar
	K						Br	

Which of these is/are noble gases?



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2. A part of the periodic table is show below:

Group	1	2	13	14	15	16	17	18
	Li	Be	B	C	N	O	F	Ne
	Na				P	S	Cl	Ar
	K						Br	

Which of these is/are have 3 valence electrons?



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3. A part of the periodic table is show below:

Group	1	2	13	14	15	16	17	18
	Li	Be	B	C	N	O	F	Ne
	Na				P	S	Cl	Ar
	K						Br	

Which of these is/are have strong tendency to lose one electron?



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4. A part of the periodic table is show below:

Group	1	2	13	14	15	16	17	18
	Li	Be	B	C	N	O	F	Ne
	Na				P	S	Cl	Ar
	K						Br	

Which of these is/are alkaline earth metals?



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5. Consider the group 1 of the periodic table and answer the following questions:

Name the elements present in it.



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6. Consider the group 1 of the periodic table and answer the following questions:

Write down the electronic configuraotn of the first three element of Group 1.



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7. Consider the group 1 of the periodic table and answer the following questions:

What similartiy do you find in the electronic configuration?



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8. Consider the group 1 of the periodic table and answer the following questions:

How many valence electrons are present in these three elements?



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9. Two elements X and Y have atomic number 6 and 17 respectively. To which period and group do these belong?



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10. The second period of the long time of periodic table contains the following elements:

Li	Be	B	C	N	O	F	Ne
----	----	---	---	---	---	---	----

(a) Write down their electronic configurations.

Write down their electronic configuratin.



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11. The second period of the long time of periodic table contains the following elements:

periodic table contains the following elements:
Li Be B C N O F Ne
(b) Write down their electronic configurations.

Do they contain the same number of shells?



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12. How were the positions of isotopes of various elements decided in the Modern periodic table?



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13. Is it possible to have an element with atomic number 1.5 placed between hydrogen and helium?



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14. Where do you think should hydrogen be placed in the Modern Periodic table?



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15. How do you calculate the valency of an element from its electronic configuration?



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16. What is the valency of magnesium with atomic number 12 and sulphur with atomic number 16?



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17. Find out the valencies of the first two elements.



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18. How does the valency vary in the period on going from left to right?



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19. How does the valency vary on going down a group?



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20. In a periodic table

How do you think the tendency to lose electrons will change in a group?



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21. In a periodic table

How would the tendency to gain electrons change as you go from left to right across a period?



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22. In a periodic table

How would the tendency to gain electrons change as you go down a group?



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23. An atom of an element has electronic configuration 2,8,7. To which group does it belong? Name the family name, if any.



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24. Which of the following belongs to same period

same group?

Element	Atomic no.
A	2
B	10
C	5



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25. The third period of the long form of periodic table contains the following elements:

Na	Mg	Al	Si	P	S	Cl	Ar
----	----	----	----	---	---	----	----

On which side of the periodic table do you find the metals?



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26. The third period of the long form of periodic table contains the following elements:

Na	Mg	Al	Si	P	S	Cl	Ar
----	----	----	----	---	---	----	----

On which side of the periodic table do you find the non-metals?



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27. Three elements X, Y and Z belong to groups 2, 15 and 17 respectively. Predict their number of valence electrons.



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28. Three elements X, Y and Z belong to groups 2, 15 and 17 respectively. Predict their valency.



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29. A part of the periodic table is given below.

The elements sodium, carbon, chlorine and argon have been placed in their correct positions. The positions of other elements are represented by hypothetical letters.

	1	2	13	14	15	16	17	18
Period 2	A	B		Carbon			F	G
Period 3	Sodium	H	C	I	D	E	Chlorine	Argon
Period 4	N			J			L	
Period 5	O			K			M	

With reference to the table answer the following

Which of these has electronic configuration

(2,8,4)?



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30. A part of the periodic table is given below.

The elements sodium, carbon, chlorine and argon have been placed in their correct positions. The positions of other elements are represented by hypothetical letters.

	1	2	13	14	15	16	17	18
Period 2	A	B	C	Carbon	D	E	F	G
Period 3	Sodium	H		I			Chlorine	Argon
Period 4	N			J			L	
Period 5	O			K			M	

With reference to the table answer the following

Which element has largest size in the second period?



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31. Did doberiner's triads also exist in the columns of newlands's octaves? Compare and find out.



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32. What were the limitations of deberiner's calssification?



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33. What were the limitations of newland's law of octaves?



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34. Besides gallium which other elements have since been discovered to fill the gaps left by mendeleev in his periodic table?



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35. What were the criteria used by Mendeleev in creating his periodic table?



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36. Why do you think the noble gases are placed in a separate group?



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37. How could modern periodic table remove various anomalies of Mendeleev periodic table/



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38. Name two elements you would expect to show chemical reactions similar to sodium. What is the basis for your choice?



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39. Name three elements that have only a single electron in their outermost shells



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40. Name two elements that have two electrons in their outermost shells



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41. Name: three elements with filled outermost shells



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42. Lithium, sodium, potassium are all metals that react with water to liberate hydrogen gas. Is there any similarity in the atoms of these elements ?



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43. Helium is an unreactive gas and neon is gas of extremely low reactivity

What if anything do their atmos have in common?



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44. In the modern periodic table which are the metals among the first ten elements?



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45. By considering their position in the periodic table, which one of the following elements would you expect to have the most metallic characteristics?

Ga Ge As Se Be.



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46. Which of the following statements is not a correct statement about the trends when going from left to right across the periods of periodic table.

A. The elements become less metallic in nature.

B. The number of valence electrons increases

C. The atoms lose their electrons more easily

D. The oxides become more acidic.

Answer:



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47. Which element has: Two shells both of which are completely filled with electrons?



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48. Which element has: The electronic configuration 2, 8, 2?



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49. Which element has: A total of three shells, with four electrons in its valence shell?



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50. Which element has: A total of two shells with three electrons in its valence shell?



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51. Which element has: Twice as many electrons in its second shell as in its first shell?



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52. What property do all elements in the same column of the periodic table as boron have in common?



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53. An atom has electronic configuration 2,8,7.

What is the atomic number of this elements?



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