



CHEMISTRY

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PEPIODIC TABLE AND ELECTRONIC CONFIGURATION



1. What is the basis of classification of elements in the

periodic table?

2. Atomic number of sodium is 11 Electronic configuration -2, 8, 1 Group Number -.....
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3. Atomic number of sodium is 11 Electronic configuration -2, 8, 1 Period number -.....

4. Is the group 1 element a metal or a non metal?

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5. Write the electronic configuration of sodium and

argon and complete the Table.

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6. How many electrons are present in the M shell, the

outermost shell of argon?

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7. What is the maximum number of electrons that can

be accommodated in the M Shell?





8. The 'K' shell, which is the first shell, has 1 sinshell. The next 'L' shell has 2, and so on. What will be the number of subshells in the 'M' shell and 'N'. M=.....N=......

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9. Which sbshell is common to all shells?

10. What is the maximum number of electrons that

can be accommodated in the *s* subshell?



11. What is the maximum number of electrons that can

be accommodated in the p subshell?



12. How many electrons are present in the M-shell of

an element with atomic number 20?

B) 6

C) 18

D) 2

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13. How many electrons are present in helium $(_2He)$?

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14. Complete the subshell electronic configuration of

He?

15. Write the electronic configuration of Lithium $(_3Li)$

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16. Complete the electronic configuration of beryllium?
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17. Write the electronic configuration of Borom.
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18. Write the electronic configuration of Carbon.



argon and complete the Table.



20. How was the shell wise electronic configu-ration of

potassium written?



21. Compare the energies of 1 s and 2 s subshells.

Which one has lower energy?



22. Among the 3s & 3p subshells which has higher

energy?

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23. Among the 3d & 4s sushells which has higher energy?

24. Write down the subshells in the increasing order

of their energies.

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25. Write the subshell wise electronic configu-ration of

potassium

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26. The electronic configuration of scandium $({}_{21}Sc)$ is



27. Write the electronic configuration of 22TI, 23V,

the two elements after Sc.

• Watch Video Solution 28. Which is the nobel gas preceding sodium (11*Na*)/ • Watch Video Solution

29. Write its subshell electronic configuration. (nobel

gas preceding sodium)

30. Subshell electronic configuration of sodium?

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31. Using the symbol of neon, write the subshell

electronic configuration of sodium?

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32. Which element has a valency 1?

33. Which element shows metallic character?

Elements : X, Y

Atomic number: 12, 17 respectively.

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34. Which element has the highest ionisation energy?



35. Write the chemcial formula of compound formed by the combination of X and Y and label the oxidation states?



36. Where is the position of d block elements in the

periodic table?

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37. From which period onward does the d block begin?

38. Complete the table 1.16

Compound	Oxidation state of Fe	Symbol of Fe ions
FeCl ₂		
FeCl ₃		



39. How does Fe change to Fe^{2+} ?



40. Write down the subshell electronic config-uration

of Fe^{2+} .



43. Write the subshell electronic configuration of Manganese(Mn).



44. Complete the table 1.17

Compound	Oxidation state of Mn	Subshell electronic configuration of Mn ions
MnCl ₂		
MnO ₂		• • • •
Mn ₂ O ₃		3
Mn ₂ O ₇		



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45. Examine these compounds available. Find more

coloured compounds and extend the list.

46. Which elements shows +2 oxidaion state?

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47.	Which	elements	contains	5	electrons	in	the
out	ermost s	shell?					
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48. Which is the element that has 5 p electrons in the

outermost shell?

49. Which are the elements in which the last electron

enters the d subshell?



50. Which element has the highest ionisation energy?



51. Which is the highly reactive non metal?

52. Which elements shows -2 oxidaion state?

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53. [Ar] 3d5 4s2 is the sub shell elect	ronic				
configuration of an element.					
Which is the element?					
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54. [Ar] 3d5 4s2 is the sub shell electronic

configuration of an element.

Write down the complete subshell electronic

configuration?

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55. [Ar] 3d5 4s2 is the sub shell electronic configuration of an element.

Write any two characteristics of this element?

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56. When the last electron of an atom was filled in the 3d subshell, the subshell electronic configuration was recorded as $3d^8$. Answer the questions related to this

atom. Complete subshell electronic config-uration,

Atomic number, Block, Period number, Group number.

Watch Video Solution 57. Pick out the wrong ones from the subshell electronic configuration given below: $1s^22s^22p^7$ Watch Video Solution

58. Pick out the wrong ones from the subshell electronic configuration given below: $1s^22s^22p^2$

59. Pick out the wrong ones from the subshell electronic configuration given below: $1s^22s^22p^53s^1$



60. Pick out the wrong ones from the subshell electronic configuration given below: $1s^22s^22p^63s^23p^63d^24s^1$

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61. Pick out the wrong ones from the subshell electronic configuration given below:



63. The element X in group 17 has 3 shells. If so: Write

the period number.

64. The element X in group 17 has 3 shells. If so: What will be the chemical formula of the compound formed if the element X reacts with element Y of the third period which contains one electron in the p subshell?

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65. The element Cu with atomic number 29 undergoes chemcial reaction to formation with oxidation number +2: write down the subshell electronic con-figuration of the ion.



66. The element Cu with atomic number 29 undergoeschemcial reaction to formation with oxidation number+2: Can this element show variable valency? Why?



67. The element Cu with atomic number 29 undergoes chemcial reaction to formation with oxidation number +2: Write downthe chemical formula of one compound formed when this element re-acts with chlorine (17CI).



68. Certain subshells of an atom are given below. 2s,2d,3f,3d,5s,3p: Which are the subshells that are not possible? Give the reason.

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69. Certain subshells of an atom are given below. 2s,3d,3f,4d,5s,3p: Which are the subshells that are not possible? Give the reason.



70. Prepare the comprehensive table which indicates the name, symbol, electron configuration, subshell configuration of elements having atomic number 1 to 36?



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71. Some information related to the elements of the pblock in the 17th group of the periodic table are givenin the table below. Complete the able and analyse thefollowing questions.a) What is the family name of element belonging to

17th group?

b) what is their common valency?

c) Which element has the highest electronegativity?

d) Which element has highest ionisation energy?

e) List out the name and chemical formula of the compounds formed by this elements with s block elements.

'(##VPU_TTT_CHE_X_P01_C01_E02_002_Q01##)'

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72. What is the family names of elements be-longing

to the 17 th group?



73. What is the common valency of elements belonging to the 17 th group?



74. Which element has the highest electronega-tivity

in 17th group?

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75. Which element has the highest ionisation energy?

76. List out the name and chemcial formula of the compound formed by this elements Halogen Family with s block elements?

• Watch Video Solution 77. What are shells and subshells. • Watch Video Solution

78. No of electrons in KLMN shell.

79. No of electrons present in in the 3rd shell.

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80. Which sbshell is common to all shells?
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81. Write names of subshells in accordance with increasing energy level.

82. Identify the incorrect subshell electronic configuration.

A. $-1s^2$ B. $-1s^22p^6$ C. $-1s^22s^22p^6$ D. $-1s^22s^22p^63s^23p^2$

Answer:



83. Atomic number of iron is 26. It exhibits Fe^{2+} , Fe^{3+} oxidation state. Write the subshell elec-tronic configuration.

84. Magnanese, a d-block elements exhibits different

oxidation state.Why?

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85. Write the oxidation number and subshell electronic configuration K, CI and O.



86. Find out atomic number, group, block period using

subshell electronic configuration and then complete

the table.

Subshell electronic configuration	Atomic number	Group	Block	Period
1s2 2s2 2p6				
1s ² 2s ² 2p ⁶ 3s ¹	• ,			
1s ² 2s ² 2p ⁶ 3s ² 3p ² 3d ⁵ 4s ¹				
	25			
	28			
	26			

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87. Write down the characteristics of s,d,p,f block elements.



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89. How many 's' subshell electrons are present in $1s^2, 2s^2, 2p^6, 3s^2, 3p^2$
90. 11,17,10 are the atomic number of elements X,Y and

Z: Write down their subshell electronic configuration, group, block, period.

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91. 11,17,10 are the atomic number of elements X,Y and Z: Write the molecular formulac of the compound formed when any two of the above elements are combined.



92. 11,17,10 are the atomic number of elements X,Y and Z: Write down the oxidation numbers of the elements in the compound formed by any two of the element. Write the subshell electronic configuration of both ions.

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93. Element 'X' is having atomic number 28, it gives two electrons to element 'Y': Write down the electronic configuration of 'X' and its ion.

94. Element 'X' is having atomic number 28, it gives two electrons to element 'Y': In which block 'X' belongs?

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95. Element 'X' is having atomic number 28, it gives two electrons to element 'Y': Write down the characteristics of that block.



96.

Write down the group and period of each element.

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97.

What are

the use of writing electronic configuration this fashion?





98. $_{24}Cr-[Ar]3d^54s^1$ Why chromium exhibits such

electronic configuration?

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99. $_{29}Cu - [Ar]3d^{10}4s^1$ Why chromium and copper

exhibits such electronic configuration?

100. The electronic configuration of the elements are given below. A- $1s^22s^22p^63s^23p^4$ B- $1s^22s^22p^63s^2$ C- $1s^22s^22p^63s^23p^5$ D- $1s^22s^22p^63s^1$ Which of these elements show +2

oxida-tion state?

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101. The electronic configuration of the elements, are

given below.

 $\mathsf{A}\text{-}1s^22s^22p^63s^23p^4$

 $\mathsf{B}\text{-}1s^22s^22p^63s^2$

 ${\rm C}\text{-}1s^22s^22p^63s^23p^5$

D- $1s^2 2s^2 2p^6 3s^1$ Which metal belongs to 17^{th} group?



102. The electronic configuration of the elements are given below.

A-1 $s^2 2s^2 2p^6 3s^2 3p^4$

 $\mathsf{B}\text{-}1s^22s^22p^63s^2$

 $ext{C-1}s^22s^22p^63s^23p^5$

D- $1s^2 2s^2 2p^6 3s^1$ Which is the period number of the

elem-ent A? What is the basis of your find-ings?

103. The electronic configuration of the eleme-nts, A,B,C,D are given below. $1s^22s^22p^63s^23p^4, 1s^22s^22p^63s^2$, $1s^22s^22p^63s^23p^5, 1s^22s^22p^63s^1$ Which of these elements can form basic oxides?

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104. Two compounds of iron are given below. $FeSO_4$ $Fe_2(SO_4)_3$ (The oxidation state of sulphate radical is -2): Which of the these compounds show +2 ox-idation state of Fe?



105. Two compounds of iron are given below. $FeSO_4$ $Fe_2(SO_4)_3$ (The oxidation state of sulphate radical is -2): Which compounds has Fe^{3+} ions?

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106. Two compounds of iron are given below. $FeSO_4$ $Fe_2(SO_4)_3$ (The oxidation state of sulphate radical is -2): Write the subshell electronic confi-gruration of Fe^{3+} ion.

107. Two compounds of iron are given below. $FeSO_4$ $Fe_2(SO_4)_3$ (The oxidation state of sulphate radical is -2): Why do transition elements show vari-able oxidation states?

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108. Identify the incorrect eletronic configur-ations and correct them. $1s^22s^22p^3$



109. Identify the incorrect eletronic configur-ations and correct them. $1s^22s^22p^63s^1$



correct them. $1s^22s^22p^62d^7$



111. Identify the incorrect eletronic configur-ations and

correct them. $1s^22s^22p^63s^23p^63d^4$



112. Completethetable.

Outermost electronic configuration	Group Number	Oxidation state
3s² 3p4	16	<u>a</u>
3s ¹	b.	+1
2s ² 2p ⁵	<u></u>	d
3d ¹⁰ 4s ²	c.	f

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113. Two compounds XY_2, XZ_4 are given. The oxidation state of Z is 1. What will be the oxidation state of Y?

114. Two compounds XY_2 , XZ_4 are given. The oxidation state of Z is 1. Write the molecular formula of the compound formed by Y when it combines with aluminum (AI) having oxidation state +3.



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115. Pick out the statements which suits to f block elements. a. All of them are naturally occurring elements. b. Uranium and Thorium are f block elements. c. Last electrons is filled in the shell preceding the outermost shell. d. last electrons are filled up in the antepenultimate shell. e. Includes some radioactive elements. f. Some of them are used as

catalyst in petroleum industry.

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116. The atomic number of four elements are given below.

(TI	hes	symb	ols a	are no	tr	eal)
A	-	8		в	-	10
С	-	12		D	-	18

Write the sub-shell electronic configu-rationof the elements.



117. The atomic number of four elements are given below.

(The symbols are not real) A - 8 B - 10 C - 12 D - 18

Which of them are inert gases ?



118. The atomic number of four elements are given below.

Write the chemical formula of the compound formed

by two elements other than inert gases.





119. The subshell electronic configuration of two elementsends asfollows.(Symbols are not real) $P - 3s^2$ $Q - 3p^4$: Write the complete subshell electronic configuration.



120. The subshell electronic configuration of two elementsends asfollows.(Symbols are not real) $P - 3s^2 Q - 3p^4$: Find out the oxidation state of each element. **121.** The subshell electronic configuration of two elementsends asfollows.(Symbols are not real) $P - 3s^2$ $Q - 3p^4$: The chemical formula of the compound formed by these elements is PQ.Is this statement correct? Justify your answer.



122. Match the following.

Block	Outer most electronic configuration	Characteristics
s	3p ³	Most of the compo- unds are coloured.
p	3d44s2	Includes Lanthanoids (6 th period)
d	4f ¹ 5d ¹ 6s ²	Highest atomic radius in the respective period.
f	3s'	Highelectro negativity



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123. The atomic number of two elements are given below. $Si-14\;Ni-28$: Write the subshell electronic

configu-I ration of these elements.



124. The atomic number of two elements are given below. Si - 14 Ni - 28: Find out the group and period of each I element.



125. The element 'X' has 4 shells, and its3d sub-shell has6 electrons.(Symbol is not real): Write the complete electronic configuration of the element

126. The element'X' has 4 shells, and its3d sub-shell has6 electrons.(Symbol is not real): What is its group number? Which is the block?



127. The element'X' has 4 shells, and its3d sub-shell has6 electrons.(Symbol is not real): Write any two characteristics of the bl-ock to which element X belongs to.

128. The element'X' has 4 shells, and its3d sub-shell has6 electrons.(Symbol is not real): From which subshell the electrons are lost when the element X shows +2 oxi-dationstate



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129. The outermost electronic configuration of the element A is $2s^22p^2$. (Symbolis not real) c. Writ: Find

out the group number and block of the element.

130. The outermost electronic configuration of the element A is $2s^22p^2$. (Symbolis not real) c. Writ: Write the chemical formula of the com-pound formed by A when it combines with chlorine.



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131. The outermost electronic configuration of the element A is $2s^22p^2$. (Symbolis not real) c. Writ: Write the complete electronic configura-tion of the element just below 'A' in the periodic table.



132. The figure of an incomplete periodic table is given

below.



Which one of these elements show -2 oxidation state?



133. The figure of an incomplete periodic table is given

below.



Which of these elements have 3 electrons in their

outermost p subshell ?

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134. The figure of an incomplete periodic table is given below.

Which element has the highest atomic radius ? Which

one has the least ?

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135. The figure of an incomplete periodic table is given

below.

Which of these elements show variable oxidation

state?



136. The figure of an incomplete periodic table is given below.

Which of these element has the highest ionization

energy?



137. Examine the given electronic configurations.

A- $1s^22s^22p^63s^23p^63d^{10}4s^2$

B- $1s^2 2s^2 2p^6 3s^1$ C- $1s^2 2s^2 2p^6 3s^2 3p^6$ D- $1s^2 2s^2 2p^6 3s^2 3p^6 4s^1$: Which of these elements belongs to 4^{th} period ?

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138. Examine the given electronic configurations.

A- $1s^2 2s^2 2p^6 3s^2 3p^6 3d^{10} 4s^2$

B- $1s^2 2s^2 2p^6 3s^1$

 $\mathsf{C}\text{-}1s^22s^22p^63s^23p^6$

D- $1s^22s^22p^63s^23p^64s^1$: Which elements belongs to

the same group?

139. Examine the given electronic configurations. A- $1s^22s^22p^63s^23p^63d^{10}4s^2$ B- $1s^22s^22p^63s^1$ C- $1s^22s^22p^63s^23p^6$ D- $1s^22s^22p^63s^23p^64s^1$: Which element doesn't participate in che-mical reactions generally ?

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140. Examine the given electronic configurations.

 $\mathsf{A}\text{-}1s^22s^22p^63s^23p^63d^{10}4s^2$

 $\mathsf{B}\text{-}1s^22s^22p^63s^1$

 ${\rm C}\text{-}1s^22s^22p^63s^23p^6$

 $D-1s^22s^22p^63s^23p^64s^1$: Which element has highest

metallic ch-aracter?



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141. The atomic number of the elements X and Y are 20, 26 respectively. When these ele-ments combines with chlorine, three com-pounds XCI_2, YCI_2, YCI_3 areformed: What is the speciality of the oxidation number of Y, compared to that of X?



142. The atomic number of the elements X and Y are 20, 26 respectively. When these elements combines with chlorine, three com-pounds XCI_2 , YCI_2 , YCI_3 areformed: Explain the reasonfor this,on the basis of the subshellbased electronic configu-ration.

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143. Arrange the following sub-shells in the in-creasing

order of energy 5p, 2s, 4f, 3s, 4s, 3d, 6s.

144. Last electron in f-block elements goes to: Which shell? Outer shell/Penultimate shell /Antepenultimate shell



145. Last electron in f-block elements goes to: Which sub-shell? Outer f-subshell Penultimate f-

subshell/Anitepenulti mate f-subskell.



146. Sub-shell electronic configuration of X is given below. $1s^2$, $2s^2$, $2p^5$: The element Y is coming just below the element in same group. Then write the subshell electronic configuration of Y.



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147. Sub-shell electronic configuration of X is given below. $1s^2$, $2s^2$, $2p^5$: Write the sub-shell electronic configuration of the element next to X in same period.

148. A compound of vanadium pentoxide (V_2O_5) is used as catalyst: What is the oxidation state of vanadium in this compound?

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149. A compound of vanadium pentoxide (V_2O_5) is

used as catalyst: How vanadium ion is represented?

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150. A compound of vanadium pentoxide (V_2O_5) is used as catalyst: Write thesub-shell electronic



152. Find the wrong electronic configurations fromthefollowing. What is wrong in these? $1s^1$

153. Find the wrong electronic configurations from the following. What is wrong in these? $1s^2$, $2s^1$, $2p^6$. **Watch Video Solution**





155. Group and period number of two elements are given. P-group17,period-3, Q-group2,period-3: Write the

sub-shell electronic configu-ration of each.



156. Group and period number of two elements are given. P-group17,period-3, Q-group2,period-3: Write the chemical formula of the co- I mpound formed by their combination.

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157. Write the reason for the statement given below:

d-block elements in the same period shows similarity.

158. Write the reason for the statement given below:

Transition elements shows variable oxidation state.

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159. Write the sub-shell electronic configuration of following elements. Predict the block, groupand period. (Symbolsare not real): M-27


160. Write the sub-shell electronic configuration of following elements. Predict the block, groupand period. (Symbolsare not real): N-19

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161. Write the sub-shell electronic configuration of following elements. Predict the block, groupand period. (Symbolsare not real): P-15



162. Which element is having 5 electrons in valence shell?

A. N

B.O

C. F

D. C

Answer:



163. Which elements are having 2electrons in valencesub-shell?

A. N

B.C

C. F

D. 0

Answer:



164. Which element is having last electron in 3p?

A. Na

B. Al

C. Mg

D. F

Answer:

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165. Atomic number of someelementsaregiven.

A-15, B-8, C-11, D-18, E-20, F-34, G-10

: Which are the elements in same period?

166. Atomic number of someelementsaregiven.

A-15, B-8, C-11, D-18, E-20, F-34, G-10

: Which are the elements in same group?

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167. Electronic configuration of some elements are given. Write answers to the following questions. $[Ne]3s^1$, $[Ar]3d^2$, $4s^2$, $[Xe]6s^1$, $[Ne]3s^2$: Which metal is having high reactivity ?

168. Pick thewrongstatement from the follow-ing:

Elements with atomic number 5 belong to group 15.



170. Pick thewrongstatement from the follow-ing: d-

block elements are known as transi-tion elements.



171. Pick thewrongstatement from the follow-ing: All s-

blockelementsaremetals.



172. Write the electronic configuraiton of Mg 2+ ion

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173. Fill in the blanks: the maximum number of electrons that can be accomondated in the L shell



175. The oxidation state of Cromium in the compound

 Cr_2O_3 is +3: What is the oxidation state of Cromium

in the compound CrO_3 ?

176. The oxidation state of Cromium in the compound Cr_2O_3 is +3: Write the subshell electronic configuration fo Cromium in Cr_2O_3 and CrO_3 . (Atomic numbr of `Cr-24).



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177. The Atomic number of Copper is 29: Write the

subshell electronic configuration of copper.



178. The Atomic number of Copper is 29: Cu_2O and `CuO are 2 compounds of copper. Find the oxidation state of copper in there compounds.

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179. The Atomic number of Copper is 29: Write down the subshell configuration of copper ions in there compounds.

180. The atom of a compound in the 4^{th} period has 3 electrons in the d subshell just inside the outer most shell: Write down the complete electronic configuration of this compound.



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181. The atom of a compound in the 4^{th} period has 3 electrons in the d subshell just inside the outer most shell: To which group does this compound belong?

