



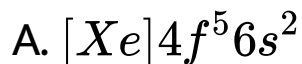
# CHEMISTRY

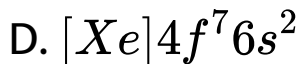
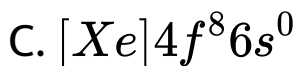
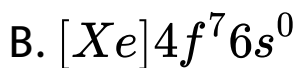
## BOOKS - ACCURATE PUBLICATION

### D & F BLOCK ELEMENTS

#### Multiple Choice Questions

1. The electronic configuration of sodium is





**Answer: B**



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2. Zinc and mercury don't show variable valence like d-block elements because

A. They are soft

B. Their d shells are complete

C. Their d shells are incomplete

D. They have only two electrons in  
outermost shell

**Answer: B**



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**3.** Which of the 3d-series of transition elements exhibits the largest number of oxidation states and why ?

A. Fe

B. Mn

C. Cr

D. Co

**Answer: B**



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4. There is slight increase in atomic radii Zn, Cd and Hg is due to

- A. Decrease electron-electron repulsion
- B. Decrease in nuclear charge
- C. Increased electron-electron repulsion
- D. Increase in shielding effect

**Answer: C**



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**5. Chromyl chloride is :**

- A. Chloride ion

B. Fluoride ion

C. Bromide ion

D. None of these

**Answer: A**



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**6.** Which metal in the first series of transition metals exhibits +1 oxidation state most frequently and why?

A. Nickel

B. Vanadium

C. Copper

D. Scandium

**Answer: C**



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7. Actinides have little higher tendency to form complex compounds than lanthanides because

A. actinides are radioactive elements

B. they are electropositive in nature

C. due to their smaller charge and large size

D. due to their higher charge and smaller size

**Answer: D**



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8. Which of the following lanthanide oxide is used for making coloured goggles ?

A. Gadolinium oxide

B. Cerium oxide

C. Neodymium oxide

D. none of these

**Answer: C**



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9. Zr and Hf have same atomic and ionic radii because

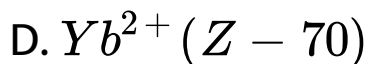
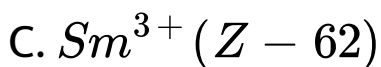
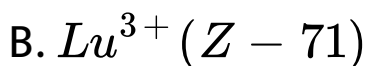
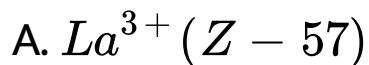
- A. both are in same group
- B. of diagonal relationship
- C. of lanthanides contraction
- D. they have similar chemical properties

**Answer: C**



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10. Which of the following ions is paramagnetic :



**Answer: C**



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11. How would you explain the fact that the first ionization enthalpy of sodium is lower than that of magnesium but its second ionization enthalpy is higher than that of magnesium ?

A.  $V > Mn > Cr > Ti$

B.  $Mn > Cr > Ti > V$

C.  $Ti > V > Cr > Mn$

D.  $Cr > Mn > V > Ti$

**Answer: D**





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**12.** Anomalous electronic configuration in the 3d series are of

A. Cr and Fe

B. Cu and Zn

C. Fe and Cu

D. Cr and Cu

**Answer: D**



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13. Which of the following is not a d-block element?

A. *Cu, Ag, Au*

B. *Zn, Cd, Hg*

C. *Fe, Co, Ni*

D. *Ru, Rh, Pd*

**Answer: B**



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**14.** Transition metals form alloys with other transition metals. Explain.

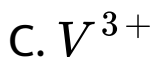
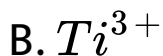
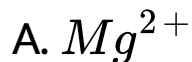
- A. Same atomic number
- B. Same electronic configuration
- C. Nearly same atomic size
- D. None of the above

**Answer: C**



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15. Which of the following has the maximum number of unpaired electrons?



**Answer: D**



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**16.** The property which is not characteristic of transition metals is

- A. variable oxidation states
- B. tendency to form complexes
- C. formation of coloured compounds
- D. natural radioactivity.

**Answer: D**



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17. Which one of the following characteristics of the transition metals is associated with higher catalytic activity ?

A. High enthalpy of atomisation

B. Paramagnetic behaviour

C. Colour of hydrate ions

D. Variable oxidation states

**Answer: D**



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18. In the synthesis of Ammonia, by Haber's process, which transition element is used as catalyst ?

A. *Fe*

B. *Ni*

C. *Pt*

D. *Pd*

**Answer: A**



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19.  $KMnO_4$  is not acidified by  $HCl$  instead of  $H_2SO_4$  because



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20. The bivalent metal ion having maximum paramagnetic behaviour is



D.  $Cr^{2+}$

**Answer: A**



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**21. Which metal is used in Wurtz reaction**

A.  $Mg$

B. K

C. 'Ca'

D. Na

**Answer: B**



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**22.** d-Block elements have tendency for complex formation because of

- A. Small size of metal ions
- B. High ionic charge
- C. Availability of vacant d orbitals
- D. All of the above

**Answer: D**



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**23.** The most common carrier of communicable diseases is:

A. ant

B. housefly

C. spider

D. none

**Answer: A**



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**24.** The last element in the actinoid series is :

A. Copper

B. Aluminium

C. Lawrencium

D. None

**Answer: C**





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25. Which of the following metals have high first ionisation enthalpy:

A. *Ti*

B. *Zn*

C. *Sc*

D. *Cr*

**Answer: B**



26. Misch metal alloy contains about 95 %  
metals?

A. lanthanides

B. Actinide

C. Both

D. None

**Answer: A**



27. One of the constituents of German silver is

:

A. *Ag*

B. *Cu*

C. *Mg*

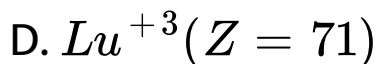
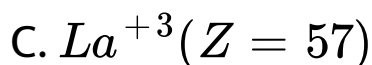
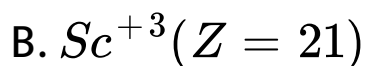
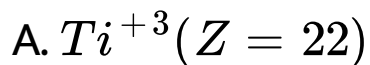
D. *Al*

**Answer: B**



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28. Which one of the following ions will exhibit colour in aqueous solutions

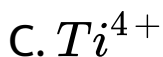


**Answer: A**



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29. Which one of the following ions exhibits colour in aqueous solution



**Answer: B**



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30. Which of the following is diamagnetic ?



**Answer: D**



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31. What is the maximum oxidation state shown by Manganese in its compounds ?

Name one such compound ?

A. +7

B. +6

C. +5

D. +8

**Answer: A**



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32. Which of the following group of transition metals is called coinage metals?

A. *Cu, Ag, Au*

B. *Ru, Rh, Pd*

C. *Fe, Co, Ni*

D. *Os, Ir, Pt*

**Answer: A**



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33. Transition metals are often paramagnetic owing to :



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34. Which of the following elements does not belong to first transition series?

A. *Fe*

B. *V*

C. *Ag*

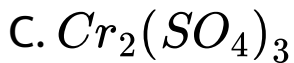
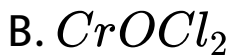
D. *Cu*

**Answer: C**



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**35. Chromyl chloride is :**



**Answer: A**



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**36.** Reason of lanthanoid contraction is :

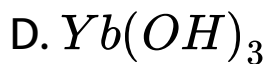
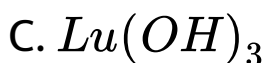
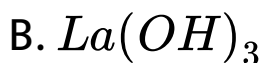
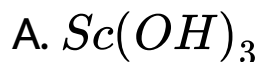
- A. Negligible screening effect of 'f' orbital
- B. Due to d-orbitals
- C. Decreasing nuclear charge
- D. Decreasing screening effect

**Answer: A**



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37. Which of the following is the strongest base ?



**Answer: B**



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38. The number of unpaired electrons in  $Ni^{2+}$  is :

A. Zero

B. 2

C. 4

D. 8

**Answer: B**



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**39.** The only radioactive element among the lanthanoids is

A. Gadolinium

B. holmium

C. Promethium

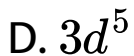
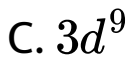
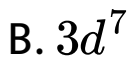
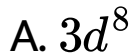
D. Neodymium

**Answer: C**



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40. The maximum magnetic moment is shown by the ion with electronic configuration of

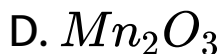
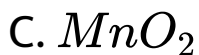
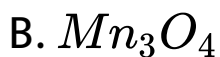
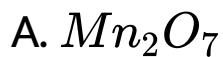


**Answer: D**



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41. Which of the following is an acidic oxide ?



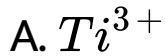
**Answer: A**



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42. Magnetic moment of 2.83 B.M. is given by which of the following ion



**Answer: B**



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**43.** The magnetic moment can be calculated from the relation :

A.  $\mu = \sqrt{(n + 3)B. M.}$

B.  $\mu = \sqrt{(n + 2)B. M}$

C.  $\mu = \sqrt{(n + 1)B. M}$

D. None of these.

**Answer: B**



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44. Which metal has lowest melting point? Cs

Hg Mn Cu

A. *Cs*

B. *Hg*

C. *Mn*

D. *Cu*

**Answer: B**



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45. Which of the following statements about interstitial compounds is incorrect ?

A. They retain metallic conductivity

B. They are much harder than pure metal

C. They have higher melting points than the pure metals.

D. None of these

**Answer: D**



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46. General electronic configurations of d-block are

A.  $(n - 1)d^{0-5}ns^1$

B.  $(n - 1)d^{0-5}ns^2$

C.  $(n - 1)d^{0-10}ns^0$

D.  $(n - 1)d^{1-10}ns^{1-2}$

**Answer: D**



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47. Give the general characteristics of d-block elements.

A.  $nd - (n + 1)s$  transition

B.  $nd - (n + 1)p$  transition

C.  $nd - nd$  transition

D.  $nd - (n + 1)d$  transition

**Answer: C**



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**48.** The highest oxidation state shown by chromium in the compound is :

A. +7

B. +6

C. +5

D. +8

**Answer: B**



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**49.** Calcium carbonate decompose on heating to form calcium oxide and carbon dioxide. when 10g of calcium carbonate is decomposed completely then 5.6g of calcium oxide is formed. calculate mass of carbon dioxide formed.



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**50.** Write the full form of IUPAC.



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51. Percentage of gold in 18 carat gold is:

A. 38.67 %

B. 75 %

C. 80 %

D. 20 %

**Answer: B**



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52. In a reaction, potassium manganate is converted into  $KMnO_4$ , the oxidation number of  $Mn$  in  $KMnO_4$  increases by

A. 0

B. +1

C. -1

D. +7

**Answer: B**



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**53.** Gun metal is an alloy of?

A. Cu and Al

B. Cu and Sn

C. Cu, Zn and Sn

D. Cu, Zn and Ni

**Answer: C**



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54. Out of the following which is not a transition element

A. *Ti*

B. *La*

C. *Cu*

D. *Zn*

**Answer: B**



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55. The equivalent weight of  $KMnO_4$  in neutral medium is equal to

A. *Mol. wt / 3*

B. *Mol. wt / 5*

C. *Mol. wt / 2*

D. *Mol. wt*

**Answer: A**



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56.  $Zn^{+2}$  salts are white because they do not have :



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57. The maximum oxidation state of Os is ?

A. +6

B. +7

C. +5

D. +8

**Answer: D**



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58. If 100 grams of pure water taken from different sources is illustrated by passing electricity, 11 grams of hydrogen and 89 grams of oxygen are obtained. Which law is illustrated by the statement.



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59. If 100 grams of calcium carbonate are decomposed completely, then 56 grams of calcium oxide and 44 grams of carbon dioxide are obtained. Which law is illustrated by the statement.



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60. In alkaline medium, equivalent weight of  $KMnO_4$  is ,

A. 31.6



B. 52.67

C. 79

D. 158

**Answer: D**



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**61.** In acidic medium the equivalent weight of

$K_2Cr_2O_7$ , is :

A.  $M$

B.  $M / 2$

C.  $M / 3$

D.  $M / 6$

**Answer: D**



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**62.** State whether the following statement is true or false. The symbol of element cobalt is CO



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63. To which block  $Zn$ ,  $Cd$ ,  $Hg$  belongs in the periodic table ?

A. s-block

B. p-block

C. d-block

D. f-block

**Answer: C**



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**64.** Name the last element of lanthanoids series

A. Rhodium

B. Lutetium

C. Cerium

D. Promethium

**Answer: B**



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65. The no of unpaired electrons in  $Co^{+2}$  are

A. 0

B. 2

C. 3

D. 7

**Answer: C**



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**66.** Which one is not actinoid

A. Thorium

B. Uranium

C. Curium

D. Cerium

**Answer: D**



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67. Name the first element of actinoids is

A. Actinium

B. Thorium

C. Protactinium

D. Uranium

**Answer: A**



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**68.** In which block the actinoids are placed ?

A. s-block

B. p-block

C. d-block

D. f-block

**Answer: D**



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**69.** Name the element which got his name on the name of the scientist.

A. Yttrium

B. Rutherfordium.

C. Rontgenium

D. Nihonium

**Answer: B**



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70.  $Sc^{3+}$  and  $Ti^{4+}$  metal ions are white because

- A. They have completely filled d-orbitals
- B. They have half-filled d-orbitals
- C. They have completely empty d-orbitals
- D. None of these

**Answer: C**



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71. The element of second transition series which shows maximum number of oxidation state is :

A. *Ru*

B. *Nb*

C. *Mo*

D. *Pd*

**Answer: A**



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72. The number of unpaired electrons in  $Fe^{3+}$  ion is:

A. 4

B. 5

C. 3

D. 8

**Answer: B**



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73. Which of the following has tendency to act as an oxidising agent



**Answer: A**



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74. Cooking of food is an example of \_\_\_\_\_ change.



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75. Blowing of balloon is an example of \_\_\_\_\_ change.



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76. Rusting of iron is an example of \_\_\_\_\_ change.



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77. What do you mean by physical change?  
Give an example.



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78. Which solution is used by traffic police to test that a person is drunk?

A. Acidified  $K_2Cr_2O_7$

B. Acidified  $KMnO_4$

C. Acidified  $K_2MnO_4$

D. None of these

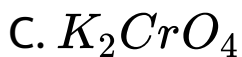
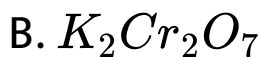
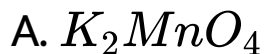
**Answer: A**



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79. Which solution is used as disinfectant and germicide ?



**Answer: D**



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**80.** Heating of sugar is an example of \_\_\_\_\_  
change.



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**81.** Curdling of milk is an example of \_\_\_\_\_  
change.



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82. Electronic configuration of a transition element X in +3

oxidation state is  $[Ar]3d^5$ . What is its atomic number? 25, 26, 27, 24.

A. 25

B. 26

C. 27

D. 24

**Answer: B**



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**83.** Fill in the blanks- The surrounding where animals live is called \_\_\_\_\_ .



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**84.** Which of following oxidation state is common for all lanthanide ?

A. + 2

B. + 3

C. +4

D. +5

**Answer: B**



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**85.** The oxidation state of chromium in dichromate ion ( $Cr_2O_7^{2-}$ ) and chromate ion ( $CrO_4^{2-}$ ) is

A. +4

B. + 7

C. + 5

D. + 6

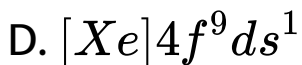
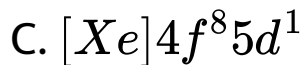
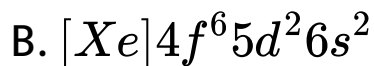
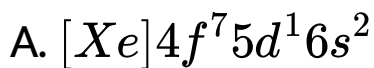
**Answer: D**



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**86.** Gadolinium belong to 4 f series ( $Z = 64$ ).

Which of the following is its correct electronic configuration ?



**Answer: A**



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**87.** Cactus perform photosynthesis through its

\_\_\_\_\_.



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**88.** Fill in the blanks- Soil, water and air are the \_\_\_\_\_ factors of the habitat.



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**89.** Cu does not replace hydrogen from acids.

It is because

A. Cu has positive electrode potential

B. Cu has negative electrode potential



C. Size of Cu is bigger than that of H

D. None of these.

**Answer: A**



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**90.** The number of unpaired electrons in

$Lu^{3+}$  ( $Z = 71$ ) is :

A. Zero

B. 2

C. 4

D. 8

**Answer: A**



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**91.** Which of the following ions of first transition series has smallest ionic radii ?

A.  $Mn^{2+}$

B.  $Ni^{2+}$

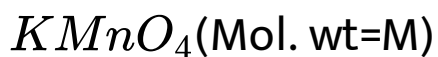


**Answer: B**



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**92.** In acidic medium the equivalent weight of



C.  $M/3$

D.  $M/5$

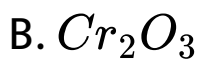
**Answer: D**



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**93.** Ammonium dichromate is used in fireworks. The green coloured powder blown in air is

A.  $CrO_3$



**Answer: B**



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**94.** At  $pH = 11$ ,  $Cr_2O_7$  changes to





**Answer: B**



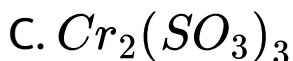
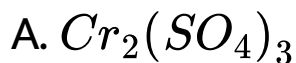
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**95.** Fill in the blanks- Changes in our surroundings that make us respond to them are called \_\_\_\_\_.



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96. Acidified  $K_2Cr_2O_7$  solution turns green when  $Na - 2SO_3$ , is added to it. This is due to the formation of



**Answer: A**



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97. Which of the following statement is not true

A. On passing  $H_2S$  through acidified  $K_2Cr_2O_7$  solution, milky coloured is observed

B.  $Na_2Cr_2O_7$ , is preferred over  $K_2Cr_2O_7$ , in volumetric analysis

C.  $K_2Cr_2O_7$  solution in acidic medium is orange



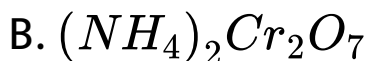
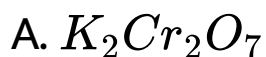
D.  $K_2Cr_2O_7$  solution becomes yellow on increasing the pH beyond 7.

**Answer: B**



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**98.** Which of the following does not give oxygen on heating ?





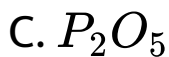
**Answer: B**



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**99.** Name the gas can readily de-colourise acidified  $KMnO_4$  solution





**Answer: A**



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**100.** oxidation number of Mn in permanganate ion.



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## 1 Or 2 Mark Questions

1. Name the elements which lie between s-and p-block in the long form of the periodic table ?



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2. What are transition elements ? Which of the d block elements are not regarded as transition elements and why ?



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3. Why transition elements are called d-block elements ?



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4. Fill in the blanks- \_\_\_\_\_ and \_\_\_\_\_ are the two characteristics of living organisms.



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5. Write the general electronic configuration of transition elements.



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6. Name any three elements of transition series which have abnormal electronic configurations?



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7. What is general electronic configuration difference between transition and inner-transition elements ?



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8. Which of the following are d-block elements but not regarded as transition elements ?



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**9.** Why do the transition metals compounds are coloured ?



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**10.** State the chemical symbols for the following elements : sodium , potassium , iron, copper , mercury , silver.



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**11.** Name any three coinage metals ? Are these transition metals ?



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**12.** Which of the following is not a d-block element?



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**13.** Zn and Cd are not normally considered as transition metals. Why ?



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**14.** Why do transition elements show similarities along the horizontal period ?



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**15.** Name a transition element which does not exhibit variable oxidation states.



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**16.** Write the highest oxidation state of elements with atomic number 23 ?



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**17.** Which electrons loose an iron atom in forming Fe (II) ions ?



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**18.** What is the maximum oxidation state shown by Manganese in its compounds ?  
Name one such compound ?



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19. What is the oxidation state of  $Cr$  in  $K_2Cr_2O_7$ ?



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20. Why +3 oxidation state of  $Fe$  ( $Z = 26$ ) is more stable than its +2 oxidation state ?



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21. How many are the number of unpaired electron in ferrous ion ?



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22. What is the cause of Paramagnetism of compounds of transition elements ?



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23. Name two alloys of copper?



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24. Why does Vanadium Pentaoxide act as a catalyst?



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25. Name the catalyst of Vanadium used for oxidation of  $SO_2$  to  $SO_3$  in contact process.



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**26.** Why Cr is used for electroplating iron ?



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**27.** Draw the structure of chromate ion.



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**28.** Write the general electronic configuration of lanthanoids.



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**29.** Do lanthanoid and actinoids belong to d-or f-block elements ?



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**30.** Write the general electronic configuration of f-block elements.



**Watch Video Solution**

**31.** What is the general electronic configuration of actinoids?



**Watch Video Solution**

**32.** Fill in the blanks with suitable words : In water , the proportion of oxygen and hydrogen is ..... by mass.



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**33.** What is the maximum oxidation state shown by actinoids?



**Watch Video Solution**

**34.** Why Zr and Hf show similar chemical properties ?



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**35.** How will each of the following respond to magnetic field and why ?  $Co^{2+}$ ,  $Sc^{3+}$ ,  $Cr^{3+}$  (At. N  $\odot$   $Co = 27$ ,  $Sc = 21$ ,  $Cr = 24$ )



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**36.** Out of  $Co^{2+}$ ,  $Zn^{2+}$  and  $Cu^{2+}$  which will give aqueous coloured solution ?



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**37.** Name a transition element which does not exhibit variable oxidation states.



**Watch Video Solution**

**38.** Write the formula of manganate ion and dichromate ion.



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**39.** What is Misch metal ?



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**40.** Fill in the blanks with suitable words : In a chemical reaction , the sum of masses of the reactants and products remains unchanged.

This is called .....



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**2 Or 5 Marks Questions**

1. What are transition elements ? Which of the d block elements are not regarded as transition elements and why ?



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2. What are the characteristics of the transition elements ?



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3. In what way is the electronic configuration of transition elements different from that of the non-transition elements ?



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4. Why is Copper considered as transition metal ?



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5. Scandium ( $z = 21$ ) is a transition element but zinc ( $z = 30$ ) is not. Explain.



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6. Silver atom has completely filled d-orbitals ( $4d^{10}$ ) in its ground state. How can you say that it is a transition element ?



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7.  $[Ti(H_2O)_6]^{3+}$  is coloured while  $[Sc(H_2O)_6]^{3+}$  is colourless. Explain.



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8. Explain why  $TiCl_3$  is coloured but  $TiCl_4$  is colourless ?



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9. Explain why  $[Ti(H_2O)_6]^{3+}$  is violet while  $[Ti(H_2O)_6]^{4+}$  is colourless.



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10. Why  $Cd^{2+}$  salts are white ? Cd=48



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11. Which of the two is paramagnetic V(IV) or V(V)

and why ?



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**12.** Why does  $\text{Mn(II)}$  shows maximum paramagnetic

character among the divalent ions of first transition series ?



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**13.** Name the elements represented by following symbols : Hg , Pb , Au , Ag, Sn



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**14.** What is atomicity ? Explain with two examples.



**Watch Video Solution**

**15.** What is the atomicity of the following :  
oxygen



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**16.** Explain why Cu(I) is diamagnetic while Cu(II) is paramagnetic in nature?



**Watch Video Solution**

**17.** Transition metals have high melting points and boiling points. Why?



**Watch Video Solution**

**18.** What is the atomicity of the following :  
ozone



**Watch Video Solution**

**19.** What is the atomicity of the following :

neon



**Watch Video Solution**

**20.** What is the atomicity of the following :

phosphorous



**Watch Video Solution**



**21.** What is the atomicity of the following :  
sulphur



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**22.** What is the atomicity of the following :  
sodium



**Watch Video Solution**

**23.** What are lanthanoids ?



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24. Why are Lanthanides called inner transition metals.



[Watch Video Solution](#)

25. What are different oxidation states exhibited by lanthanoids ?



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26. What is lanthanoid contraction ?



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27. Why is  $La(OH)_3$  more basic than  $Lu(OH)_3$  ?



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28. Why Zr and Hf exhibit similar properties ?





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**29.** Write the formulas of ammonia . Also name the elements presents in them.



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**30.** Write the formulas of methane . Also name the elements presents in them.



[Watch Video Solution](#)

**31.** Write the formula of sulphur dioxide . Also name the elements presents in them.



**Watch Video Solution**

**32.** Write the formula of ethanol . Also name the elements presents in them.



**Watch Video Solution**

**33.** Write the formula of calcium carbonate .  
Also name the elements presents in them.



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**34.** Transition metals form number of interstitial compounds. Explain.



[Watch Video Solution](#)

**35.** A transition metal easily form alloys with other transition metals. Explain why ?



[Watch Video Solution](#)

**36.** Transition elements and their compounds are found to be good catalysts. Give examples.



**Watch Video Solution**

**37.** Why transition element show coloured ions ? Explain.



**Watch Video Solution**

**38.** Give the preparation of Potassium dichromate,  $K_2Cr_2O_7$ .



**Watch Video Solution**

**39.** Write the formula of ammonium hydroxide. Also name the elements present in them.



**Watch Video Solution**



**40.** Write the formula of sodium sulphate .

Also name the elements presents in them.



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**41.** Write the formula of carbon tetrachloride .

Also name the elements presents in them.



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**42.** Define Lanthanoid Contraction and also explain cause of Lanthanoid contraction?



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**43.** Write the formula of potassium chloride .  
Also name the elements presents in them.



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**44.** Write the formula of calcium phosphate .

Also name the elements presents in them.



**Watch Video Solution**

**45.** Write the formula of glucose. Also name the elements presents in them.



**Watch Video Solution**

**46.** Write the formula of chloroform. Also name the elements presents in them.



**Watch Video Solution**

**47.** Write the formula of bromoform. Also name the elements presents in them.



**Watch Video Solution**

**48.** Write the formula of hydrogen sulphide.

Also name the elements presents in them.



**Watch Video Solution**

**49.** Write the formula ammonium sulphate .

Also name the elements presents in them.



**Watch Video Solution**

**50.** Write the formula lime stone . Also name the elements presents in them.



**Watch Video Solution**

**51.** Write the formula of magnesium chloride .  
Also name the elements presents in them.



**Watch Video Solution**

**52.** Write the formula of lithium hydroxide .

Also name the elements presents in them.



**Watch Video Solution**

**53.** The formula of water is  $H_2O$  . Calculate its molecular mass.



**Watch Video Solution**

**54.** write formula of sodium oxide and also write elements present in them.



**Watch Video Solution**

**55.** Chromium is a typical hard metal while Mercury is liquid. Explain.



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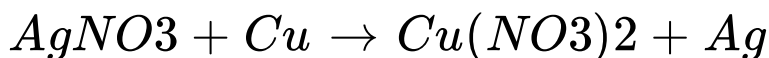


**56.** First Ionisation Potentials of Zinc, cadmium and mercury are high.



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**57.** Balance the following chemical equation:



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**58.** The formula of ammonia is  $\text{NH}_3$ . Calculate its molecular mass.



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**59.** Name the members of the lanthanoid series which exhibit +4 oxidation and those which exhibit +2 oxidation states. This type of behaviour with electronic configuration of these elements ?



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**60.** What are alloys? Name an important alloy which contains some of the lanthanoid metals. Mention its uses.



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**61.**  $E^\ominus$  of  $Cu$  is  $+0.34V$  while that of  $Zn$  is  $-0.76V$ . Explain.



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