



CHEMISTRY

BOOKS - JMD CHEMISTRY (PUNJABI ENGLISH)

d-And f-BLOCK ELEMENTS

Example

1. No. of unpaired electrons in Fe^{2+} ions is :

A. three

B. two

C. four

D. five

Answer: C



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2. Galvanisation of iron sheets is done by

A. Copper

B. Zine

C. Silver

D. Tin

Answer: B



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3. Which shows the maximum magnetic moment? V^{3+} Cr^{3+} Fe^{3+} Co^{2+}

A. V^{3+}



Answer: C



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4. Which does not belong to first transition series?



B. V

C. Ag

D. Cu

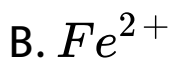
Answer: C



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5. Which has maximum number of unpaired electrons?

A. Zn^{2+}

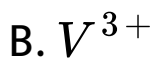
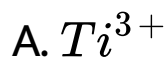


Answer: B



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6. Which is colourless in water (H_2O)?





Answer: D



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7. Essential constituent of an amalgam is

A. Iron

B. An alkali metal

C. Silver

D. Mercury

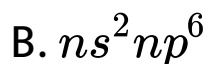
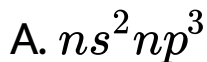
Answer: D

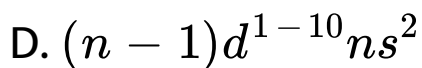
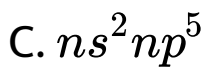


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8. The outermost electronic configuration of transition metal

is





Answer: D



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9. The metal which does not form colour compound is: Chromium, Iron, Zinc, Manganese.

A. Chromium

B. Iron

C. Zine

D. Manganese

Answer: C

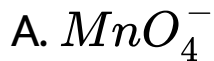


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10. When an acidified solution of ferrous ammonium sulphate is treated with potassium permanganate

solution, the ion

which is oxidized is



Answer: C



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11. Brass contains

A. (Cu+Sn)

B. (Cu+Ni)

C. (Cu+Zn)

D. (Mg+AL)

Answer: C



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

A. Hg

B. Po

C. Ni

D. W

Answer: B



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13. Which metal has lowest melting point? Cs

Hg Mn Cu

A. Cs

B. Hg

C. Mn

D. Cu

Answer: B



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

A. Zero

B. 2

C. 4

D. 8

Answer: B



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15. No. of unpaired electrons in Fe^{2+} ions is :

A. 2

B. 4

C. 6

D. 3

Answer: B



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16. The magnetic nature of elements depend on the presence of unpaired electrons. Identify the configuration of transition element, which shows highest magnetic moment.



Answer: B



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17. 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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18. With respect to aqueous solutions of copper salts, which of the following is correct?

- A. Cu(II) is more stable
- B. Cu(II) is less stable

C. Cu(I) and Cu(II) are equally stable

D. Cu(I) and Cu(II) are equally unstable

Answer: A



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19. Zn, Cd, Hg are sometimes not considered as transition elements. Comment.



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20. Out of Fe^{2+} and Fe^{3+} , Fe^{3+} has more number of unpaired electrons.



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21. Scandium ($Z = 21$) shows oxidation states of +1 and +3.



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22. Mn (Atomic No.25) metal is with maximum paramagnetic character. Explain with electronic configuration.



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23. In aqueous solutions Cu^+ is less stable than Cu^{2+}



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24. in 3d-series,zinc ($Z = 30$) has highest enthalpy of atomisation.



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25. In 3d-series,manganese shows maximum number of oxidation states.



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26. As Oxidation state of a transition metal increases, the base character of its oxide decreases.



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27. ZnO turns yellow on heating. Why?



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28. The O.S. of manganese in $KMnO_4$ is +7





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



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



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31. Give the general electronic configuration of d-block elements.



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



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33. 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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34. Zn salts are white, Ni^{++} salts are blue explain



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35. Account for : Zn^{2+} salts are white while Cu^{2+} salts are blue.



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36. Out of Fe^{2+} and Fe^{3+} which is more paramagnetic and why ?



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



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38. Which of the two is paramagnetic V(IV) or V(V) and why ?



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39. Ionisation energy of 5d-elements is more than 3d- and 4d-elements. Why ?





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40. Transition metals form number of interstitial compounds. Explain.



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41. Why do transition metals have high enthalpies of atomization ?



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42. Why do transition metals have high enthalpies of atomization ?



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



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44. Why Cr^{2+} is strongly reducing while Mn^{3+} is strongly oxidising ?



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45. Why Cr^{2+} is strongly reducing while Mn^{3+} is strongly oxidising ?



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46. The $E^\circ \left(M^2 \frac{+}{M} \right)$ value for copper is positive (+0.34

V). What is the possible reason for this ?

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47. Why does Mn(II) shows maximum paramagnetic character among the divalent ions of first transition series ?

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48. Why are Mn^{2+} compounds more stable than Fe^{2+} compounds towards oxidation to their +3 state ?



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49. Transition metals form mostly coloured compounds.Explain.



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50. Most of the compounds of transition elements are paramagnetic in nature. Explain.



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51. Explain :Transition elements exhibit variable oxidation states.



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52. Explain why Cu(I) is diamagnetic while Cu(II) is

paramagnetic.



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53. Why are halogens coloured ?



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54. Sc^{3+} ion is colourless while Cr^{3+} ion is coloured.

Explain.



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55. Transition metals form alloys with other transition metals. Explain.



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



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57. Transition metals form large number of complex compounds. Explain.



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58. Why is the highest oxidation state of a metal exhibited in its oxide or fluoride only ?



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59. Which is stronger reducing agent Cr^{2+} or Fe^{2+} and why?



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60. Why are $M \in^{2+}$ compounds more stable than Fe^{2+} towards oxidation to their +3 state?



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61. What is meant by 'disproportionation' of an oxidation state ? Give an example.



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62. Why Zn, Cd, Hg are soft and have low m.pt.



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63. The d^1 configuration is very unstable in transition

metal ions. Explain why ?



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64. Which does not belong to first transition series?



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65. In Alkaline solution we have chromates and in acidic solution, dichromates ? Explain.



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66. Write a short note on chromyl chloride test.



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67. Explain the structure of chromate and dichromate ions.



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68. Write reactions of $K_2Cr_2O_7$, in acidic medium with KI



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69. How acidified $K_2Cr_2O_7$ reacts with the following :



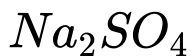
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70. Write reactions of $K_2Cr_2O_7$, in acidic medium with H_2S .



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71. How acidified $K_2Cr_2O_7$ reacts with the following :



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72. Give balanced equations for the reaction between Acidified Potassium dichromate and Sulphur dioxide (SO_2) gas.



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73. Give the preparation of $KMnO_4$ from pyrolusite ore.



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74. Draw the structure of permanganate ion.



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75. Write reactions of $KMnO_4$, in acidic medium with $FeSO_4$



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76. How acidified $KMnO_4$ solution reacts with the

following in acidic medium :

SO_2 .



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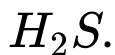
77. What happens when acidic $KMnO_4$ reacts with KI ?



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78. How acidified $KMnO_4$ solution reacts with the

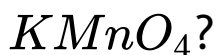
following in acidic medium :



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79. What is the action of heat on $K_2Cr_2O_7$

and



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80. What are lanthanoids ?



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81. Write the general electronic configuration of
of
f-block elements.



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82. Why are Lanthanides called inner transition metals.



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83. What are different oxidation states exhibited by lanthanoids ?



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84. Why do La, Gd and Lu exhibit only +3 oxidation state ?



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85. The +3 oxidation state of Lanthanum (Z=57). Gadolinium (Z=64) and Lutetium (Z=71) are especially stable, Why ?



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86. What is Lanthanide contraction ? What is the cause and consequences of Lanthanide contraction ?



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87. Why is separation of lanthanide elements difficult ?



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



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89. Why Zr and Hf exhibit similar properties ?



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90. The second and third members in a group of transition metals have similar atomic radii.

Why ?



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91. Compare the chemistry of actinides with that of

the lanthanoids with special reference to electronic Configuration.



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92. Compare the chemistry of actinides with that of the lanthanides with special reference to atomic and ionic sizes.



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93. Compare the chemistry of actinides with that of Lanthanides with special reference to oxidation state



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94. Compare the chemistry of actinides with that of the lanthanides with special reference to chemical reactivity.



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95. Give various uses of lanthanides and actinides.



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96. What are coinage metals ?



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