CHEMISTRY

NCERT - FULL MARKS

CHEMISTRY(TAMIL)

TRANSITION AND INNER TRANSITION ELEMENTS

Evaluation Choose The Best Answer

1. Sc(Z=21) is a transition element but Zinc (z=30) is not because

A. both Sc^{3+} and Zn^{2+} ions are colourless and form white compounds.

B. in case of Sc, 3d orbital are partially filled but in Zn these are completely filled

C. last electron as assumed to be added to 4s level in case of zinc

D. both Sc and Zn do not exhibit variable oxidation states

Answer: B

View Text Solution

2. Which of the following d block element has half filled penultimate d sub shell as well as half filled valence sub shell?

A. Cr

B. Pd

C. Pt

D. none of these

Answer: A

View Text Solution

3. Among the transition metals of 3d series, the one that has highest negative $\left(M^2Ce/M\right)$ and its standard electrode potential is $5d^26s^2$. As we move from Cerium

to other elements the additional electrons are progressively filled in 4f orbitals as shown in the table.

A. Ti

B. Cu

C. Mn

D. Zn

Answer: A

View Text Solution

4. Which one of the following ions has the same number of unpaired electrons as present in V^{3+}?

A. Ti^{3+}

B. Fe^{3+}

C. Ni^{2+}

D. Cr^{3+}

Answer: C

View Text Solution

5. The magnetic moment of Mn^{2+} ion is

A. 5.92BM

B. 2.80BM

C. 8.95BM

D. 3.90BM

Answer: A

View Text Solution

6. Which of the following compounds is colourless?

A. Fe^{3+}

B. Ti^{4+}

C. Co^{2+}

D. Ni^{2+}

Answer: B

View Text Solution

7. the catalytic behaviour of transition metals and their compounds is ascribed mainly due to

A. their magnetic behaviour

B. their unfilled d orbitals

C. their ability to adopt variable oxidation states

D. their chemical reactivity

Answer: C

View Text Solution

8. The correct order of increasing oxidizing power in the series

A. $VO_2^+ < Cr_2O_7^{2-} < MnO_4^-$

B. $Cr_2O_7^{2-} < VO_2^+ < MnO_4^-$

C. $Cr_2O_7^{2-} < MnO_4^- < VO_2^+$

D. $MnO_4^- < Cr_2O_7^{2-} < VO_2^+$

Answer: A

View Text Solution

9. The alloy of copper that contain Zinc is

A. Monel metal

B. Bronze

C. bell metal

D. brass

Answer:

View Text Solution

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

A. $K_2Cr_2O_7$

B. $(NH_4)_2Cr_2O_7$

C. $KClO_3$

D. $Zn(ClO_3)_2$

Answer: B

View Text Solution

11. In acid medium, potassium permanganate oxidizes oxalic acid to

A. oxalate

B. Carbon dioxide

C. acetate

D. acetic acid

Answer: B

View Text Solution

12. Which of the following statements is not true?

A. on passing H_2S, through acidified $K_2Cr_2O_7$ solution, a milky colour is observed

B. $Na_2Cr_2O_2$ is preferred over $K_2Cr_2O_7$ in volumetric analysis

C. $K_2Cr_2O_7$ solution in acidic medium is orange in colour

D. $K_2Cr_2O_7$ solution becomes yellow on increasing the P^H beyond 7

Answer: B

View Text Solution

13. Permanganate ion changes to _____ in acidic medium

A. MnO_4^{2-}

B. Mn^{2+}

C. Mn^{3+}

D. MnO_2

Answer: B

View Text Solution

14. A white crystalline salt (A) react with dilute HCl to liberate a suffocating gas (B) and also forms a yellow precipitate . The gas (B) turns potassium dichromate acidified with dil

H_2SO_4 to a green coloured solution(C). A,B and C are respectively

A. $Na_2SO_3, SO_2, Cr_2(SO_4)_3$

B. $Na_2S_2O_3, SO_2, Cr_2(SO_4)_3$

C. $Na_2S, SO_2, Cr_2(SO_4)_3$

D. $Na_2SO_4, SO_2, Cr_2(SO_4)_3$

Answer: A

View Text Solution

15. MnO_4^- react with Br^- in alkaline P^H to give

A. BrO_3^- , MnO_2

B. Br_2, MnO_4^{2-}

C. Br_2, MnO_2

D. BrO^- , MnO_4^{2-}

Answer: A

View Text Solution

16. How many moles of I_2 are liberated when 1 mole of potassium dichromate react with potassium iodide?

A. 1

B. 2

C. 3

D. 4

Answer: C

View Text Solution

17. The number of moles of acidified $KMnO_4$ required to oxidize 1 mole of ferrous oxalate (FeC_2O_4) is

A. 5

B. 3

C. 0.6

D. 1.5

Answer: C

View Text Solution

18. When a brown compound of Mn (A) ids treated with HCl , it gives a gas (B) . The gas (B) taken in excess reacts with NH3 to give an explosive compound (C). The compound A, B and C are

A. MnO_2, Cl_2, NCl_3

B. MnO, Cl_2, NH_4Cl

C. Mn_3O_4, Cl_2, NCl_3

D. MnO_3, Cl_2, NCl_2

Answer: A

View Text Solution

19. Which one of the following statements related to lanthanons is incorrect?

A. Europium shows +2 oxidation state.

B. The basicity decreases as the ionic radius decreases from Pr to Lu.

C. All the lanthanons are much more reactive than aluminium.

D. Ce^{4+} solutions are widely used as oxidising agents in volumetric analysis.

Answer: C

View Text Solution

20. Which of the following lanthanoid ions is diamagnetic?

A. Fu^{2+}

B. Yb^{2+}

C. None of these

D. $6m^2$

Answer: B

View Text Solution

21. Which of the following oxidation states is most common among the lanthanoids?

A. 4

B. 2

C. 5

D. 3

Answer: D

View Text Solution

22. Assertion : Ce^{4+} is used as an oxidizing agent in volumetric analysis. Reason: Ce^{4+} has the tendency of attaining +3 oxidation state.

A. Both assertion and reason are true and reason is the correct explanation of assertion.

B. Both assertion and reason are true but reason is not the correct explanation of assertion.

C. Assertion is true but reason is false.

D. Both assertion and reason are false.

Answer: A

View Text Solution

23. The most common oxidation state of actinoids is

A. $+2$

B. $+3$

C. $+4$

D. $+6$

Answer: C

View Text Solution

24. The actinoid elements which show the highest oxidation state of +7 are

A. Np, Pu, Am

B. U, Fm, Th

C. U, Th, Md

D. Es, No, Lr

Answer: A

View Text Solution

25. Which one of the following is not correct?

A. $La(OH)_2$ is less basic than $Lu(OH)_3$

B. In lanthanoid series ionic radius of $\ln^{3+}$ ions decreases

C. La is actually an element of transition metal series rather than lanthanide series

D. Atomic radii of Zr and Hf are same because of lanthanide contraction

Answer: A

View Text Solution