CHEMISTRY

JEE MAIN AND ADVANCED

MOCK TEST 14

Exercise

1. When ClO_3^- , changes toCI^-

A. It gains six electrons

B. It gains four electrons

C. It loses six electrons

D. It gains three electrons

Answer: A

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2. A reducing agent is a substance which can

A. Accept electron

B. Donate electron

C. Reduce itself

D. Oxidises another species

Answer: B

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3. For the redox reaction: $Fe^{2+} + Cr_2O_7^{2-} + H^+ \rightarrow Fe^{3+} + Cr^{3+} + H_2O$ The correct coefficients of the reactants for the balanced reaction are

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4. Which among the following will not act as a reducing agent?

A. KNO_2

B. KI

C. $NaNO_3$

D. H_2S

Answer: C

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5. in which of the following reactions,H_2O_2 is acting as a reducing agent?

A. $PbS + 4H_2O_2 \rightarrow PbSO_4 + 4H_2O$

B. $Cl_2 + H_2O, \rightarrow 2HCI + O_2$

C. $2Fe^2 + H_2O_2 \rightarrow 2Fe^{3+} + 2OH$

D. $H_2SO_4 + H_2O_2 \rightarrow H_2SO_4 + H_2O$

Answer: B

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6. In the given reaction:

$P_4 + NaOH + H_2O \rightarrow PH_3 + NaH_2PO_2$

A. P is reduced only

B. P undergoes disproportionation reaction

C. P is oxidised only

D. O is reduced

Answer: B

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7. In the conversion of $I_2 \rightarrow IO_3^-$ the oxidation state of iodine changes from

A. 0 to +6

B. 0 to +5

C. 0 to -1

D. 0 to -3

Answer: B

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8. The oxidation state of Mn in MnO_4^{2-} is

A. $+8$

B. $+6$

C. $+7$

D. $+5$

Answer: B

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9. The oxidation state of phosphorous in various compounds vary between

A. (-3) to +5

B. (-1) to +3

C. (-3) to +3

D. (-5) to +5

Answer: A

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10. The average oxidation state of sulphur atom in $S_4O_6^{2-}$ ion is

A. $+2$

B. $+5$

C. 0

D. $+2.5$

Answer: D

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11. Which is not an example of disproportionation reaction?

A. $Cl_2(g) + 2OH_{aq} \rightarrow CIO^-(aq) + CI^-\_(aq) + H_2O(I)$

B. $4CIO_3^{-(aq)} \rightarrow 3CIO_4(aq) + 2CI^{-(aq)}$

C. $2F_2(g) + 2OH(aq) \rightarrow 2F^{-(aq)} + OF_2(g) + H_2O(I)$

D.

$$S_8(s) + 12O'H(aq) \rightarrow 4S^{2-}(aq) + 2S_2O_3^{2-}(aq) + 6H_2O(I)$$

Answer: C

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12. For the redox reaction: $MnO_4 + C_2O_4^{2-} + H^+ \rightarrow Mn^{2+} + CO_2 + H_2O$ The number of mole of permanganate ion required per mole of oxalate ion for completion of the reaction is

A. $\frac{1}{5}$

B. $\frac{2}{5}$

C. $\frac{5}{2}$

D. $\frac{3}{5}$

Answer: B

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13. The equivalent weight of $MnCl_2$, is half of its molecular weight when it is converted to

A. MnO_4^-

B. Mn_2O_3

C. MnO_2

D. MnO_4^{2-}

Answer: C

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14. The value of n in the following half equation is

$MnO_4^- + 2H_2O + \neq \rightarrow MnO_2 + 4OH^-$

A. 3

B. 5

C. 4

D. 6

Answer: A

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15. The oxidation state of Cr in CrO_5 is:

A. $+4$

B. $+6$

C. $+8$

D. $+10$

Answer: B

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16. For the galvanic cell: $Zn(s)\left|Zn^{2+}(aq)(1.0M)\right|\left|Ni^{2+}(aq)(1.0M)\right|Ni(s)$, E_cell^o will be [Given $E^0_{\frac{Zn^{2+}}{Zn}} = -0.76V$, $\left[E^0_{\frac{Ni^{2+}}{Ni}} = -0.25V\right]$

A. $-0.51V$

B. $-1.01V$

C. $0.51V$

D. $1.01V$

Answer: C

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17. Which of the following metals will not react dilute hydrochloric acid?

A. Cu

B. Zn

C. Fe

D. Ca

Answer: A

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18. Syngas is a mixture of

A. $CO_2 + H_2$

B. $CO_2 + N_2$

C. $H_2 + O_2$

D. $CO + H_2$

Answer: D

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19. $Zn(s) + Cu^{2+}(aq) \rightarrow Zn^{2+}(aq) + Cu(s)$ The cell representation for the above redox reaction is

A. $Cu(s)\left|Cu^{2+}(aq)\right|\left|Zn^{2+}(aq)\right|Zn(s)$

B. $Zn(s)\left|Zn^{2+}(aq)\right|\left|Cu^{2+}(aq)\right|Cu(s)$

C. $Cu(s)\left|Cu^{2+}(aq)\right|\left|Zn(s)\right|Zn^{2+}(aq)$

D. $Zn(s)\left|Zn^{2+}(aq)\right|\left|Cu(s)\right|Cu^{2+}(aq)$

Answer: B

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20. In which of the compounds the oxidation state of hydrogen is -1?

A. H_2O

B. CaH_2

C. HBr

D. H_2S

Answer: B

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21. In iodometric titration which indicator is used to detect end point of titration reaction?

A. Diphenylamine

B. Starch

C. $MnO_4^{\ominus}$

D. Methyl orange

Answer: B

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22. If a small Cu rod is placed in an aqueous solution of ferrous salt, then which of the following will be observed? ($E^0_{\frac{Cu^{2-}}{Cu}} = -0.34V, E^0_{\frac{Fe^{2+}}{Fe}} = -0.44V$)

A. Copper will be oxidised

B. Fe^{2+} will be reduced

C. No reaction will take place

D. Fe^{2+} will be oxidised

Answer: C

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23. The standard reduction potential of zinc and silver at 298 K are $(\forall K_M CP_{14} \_ N \exists T_C HE_E 14_{023} \_ Q01)$ Which of the following reactions actually takes place in a cell reaction?

A. $Zn^{2+}(aq) + 2Ag^{2+}(aq) \rightarrow Zn(s) + 2Ag(s)$

B. $Zn(s) + 2Ag^{+}(aq) \rightarrow zn^{2+}(aq) + 2Ag(s)$

C. $Zn^{2+}(aq) + 2Ag(s) \rightarrow 2Ag^{+}(aq) + Zn(s)$

D. $Zn(s) + 2Ag(s) \rightarrow Zn^{2+}(aq) + 2Ag^{+}$

Answer: B

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24. Four metals A, B, C and D are having standard reduction potential as -3.06, -1.66, -0.40 and 0.80 volt respectively. The most reactive metal is

A. D

B. A

C. C

D. B

Answer: B

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25. In faintly alkaline solution, 4 moles of permanganate anion quantitatively oxidize thiosulphate anions to produce X moles of sulphate anion. The value of X

A. 8

B. 6

C. 4

D. 3

Answer: D

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