CHEMISTRY

BOOKS - P BAHADUR CHEMISTRY (HINGLISH)

MOCK TEST PAPER

Exercise

1. In a set of reactions acetic acid yields a product $[D]$ The structures of $[D]$ would be:

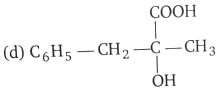
$$CH_3COOH \xrightarrow{SOCl_2} [A] \xrightarrow[Anhy.\,AlCl_3]{C_6H_5} [B]$$

$$\xrightarrow{HCN} [C] \xrightarrow{HOH} [D]$$

A. $C_6H_5CH_2 - \underset{\displaystyle CN}{\overset{\displaystyle OH}{\overset{|}{\underset{|}{C}}}} - CH_3$

B. $C_6H_5 - \underset{\displaystyle OH}{\overset{\displaystyle CN}{\overset{|}{\underset{|}{C}}}} - CH_3$

C. $C_6H_5 - \underset{\displaystyle CH_3}{\overset{\displaystyle OH}{\overset{|}{\underset{|}{C}}}} - COOH$

D. 

Answer:

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2. The continuous chain hydrocarbon isomeric with 2-methyl-3-ethyl hexane is:

A. nonane

B. 2-methyle octane

C. $2, 3$-dimethylel heptane

D. $2, 2, 3$-trimethyle hexane

Answer:

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3. In solid ammonia, each NH_3 molecule has six other NH_3 molecules as nearest neighbours. ΔH sublimation of NH_3 at the melting point is $30.8kJmol^{-1}$, and the estimated ΔH sublimation in the absence of hydrogen bonding is $14.4kJmol^{-1}$. the strength of a hydrogen bond is NH_3 is

A. $5.5kJmol^{-1}$

B. $98.4kJmol^{-1}$

C. $2.73kJmol^{-1}$

D. $8.2kJmol^{-1}$

Answer:

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4. Which statement is not correct about the given nuclear reaction.

$$._{37}^{81}Rb + ._{-1}e^{0} \rightarrow ._{36}^{81}Kr$$

A. The process is called Kelectron capture

B. The process gives out radiations called γ

-rays

C. The process gives out radiations called X-rays

D. Rb nucleaus accepts of the $1s$-electron and one proton to give rise to the formation of one neutron

Answer:

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5. The correct statement are:

1. for an elementary reaction order and molecularity are same

2. Reactions having order and molecularity < 3 are rate

3. Rate of reaction is decided by slowest step of mechanism

4. for a reaction $t_{1/2}$ does not depend upon temperature

5. energy of activation for free radical combination is zero.

A. $1, 2, 3, 4$

B. $1, 2, 3, 5$

C. $2, 3, 4, 5$

D. $4, 5$

Answer:

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6. An aqueous solution of urea has a freezing point of $-0.52^{\circ}C$. Assuming molarity same for the solution, the osmotic pressure of

solution at $37^{\circ}C$ would be : $\left(K_f\right.$ of $H_2O = 1.86K$ molarity. $^{-1}$)

A. $7.9atm$

B. 7.1 atm

C. $6.9atm$

D. $10.2atm$

Answer:

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7. The potential of a silver/ silver chloride electrode measured with respect to a saturated calomel electrode $\left(E_{OP}^{\circ} = 0.244V\right)$ is $0.022V$. The standard reduction potential of silver/silver chloride electrode is:

A. $0.222V$

B. $0.266V$

C. $-0.222V$

D. $-0.266V$

Answer:

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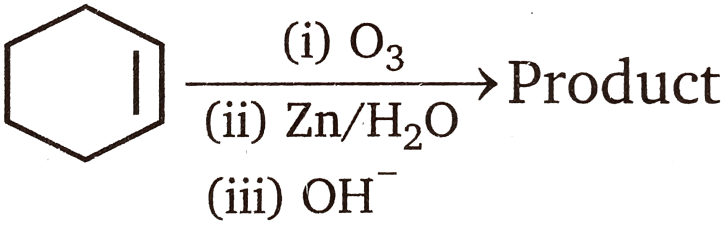
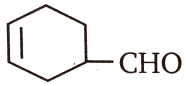
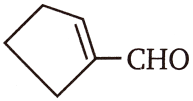
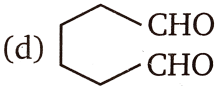
8. The possible product in the reaction given below is:



A. (a) 

B. (b) 

C. (c) 

D. (d) 

Answer:

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9. The set of molecule having two different bond angles is

1. Cl_3, 2. XeF_6, 3. $XeOF_4$, 4. PCl_5, 5. BF_3

A. 1, 2, 3, 4

B. 1, 2, 3, 5

C. $3, 4$

D. $2, 3, 4$

Answer:

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10. Statement-1 Diamond is tetrahedral, graphite is planar and C_{60} has bucky ball structures.

Statement-2 Carbon in diamond, graphite and C_{60} is sp^3, sp^2 and sp hybridised respectively.

A. If both the statement are TRUE and Statement -2 is the correct explanation of Statement-1:

B. If both the statement are TRUE but Statement-2 is not the correct explanation of Statement-1

C. If statement-1 is TRUE and Statement-2 is FALSE

D. If statement -1 is FALSE and Statement-2 is TRUE

Answer:

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11. Statement-1L The bond angles in molecules depneds upon hybridization electronagativity of central atom, no. of lone pair, odd electron and multiplicity of bond.

Statement-2 NO_2 and NO_2^- have angles 134° and 115° respectively.

A. If both the statement are TRUE and Statement -2 is the correct explanation of Statement-1:

B. If both the statement are TRUE but Statement-2 is not the correct explanation of Statement-1

C. If statement-1 is TRUE and Statement-2 is FALSE

D. If statement -1 is FALSE and Statement-2 is TRUE

Answer:

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12. Statement-1 The ratio of σ-bonds and π-bonds in tetra-cynomethane is 1.

Statement-2 Tetra-cyanomethane has 8π and 8σbonds.

A. If both the statement are TRUE and Statement -2 is the correct explanation of Statement-1:

B. If both the statement are TRUE but Statement-2 is not the correct explanation of Statement-1

C. If statement-1 is TRUE and Statement-2 is FALSE

D. If statement -1 is FALSE and Statement-2 is TRUE

Answer: A

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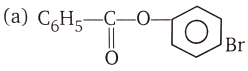
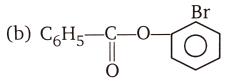
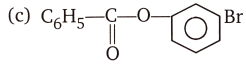
13. The compounds 1,2,3,4 given below are allowed in undergo electrophilic substitution by bromonium ions assuming only monobromo substitution the substitutes products are A, B, C, D respectively.

The diamonds A is:

A. 

B. 

C. 

D. both (a) and (b)

Answer:

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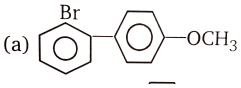
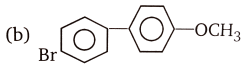
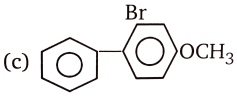
14. The compounds 1,2,3,4 given below are allowed in undergo electrophilic substitution by bromonium ions assuming only monobromo substitution the substitutes products are A, B, C, D respectively.

The compound B is :

A. 

B. 

C. 

D. both (a) and (b)

Answer:

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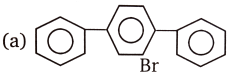
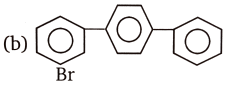
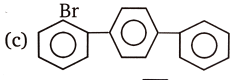
15. The compounds 1,2,3,4 given below are allowed in undergo electrophilic substitution by bromonium ions assuming only

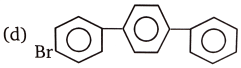
monobromo substitution the substitutes products are A, B, C, D respectively.

The compound C is:

A. 

B. 

C. 

D. 

Answer:

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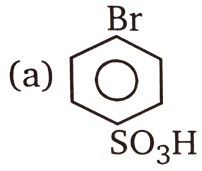
16. The compounds 1,2,3,4 given below are allowed in undergo electrophilic substitution by bromonium ions assuming only monobromo substitution the substitutes products are A, B, C, D respectively.

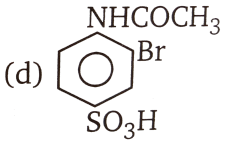
The compound D is:

A.



B.

C. 

D. 

Answer:

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17. Which of the following is correct order for basic nature?

A. $CH_3F > CH_3OH > CH_3NH_2$

B. $CH_3F > CH_3NH_2 > CH_3OH$

C. $CH_3NH_2 > CH_3F > CH_3OH$

D. $CH_3NH_2 > CH_3OH > CH_3F$

Answer:

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18. Which set represents interamolecular redox changes?

1. $2KClO_3 \rightarrow 2KCl + 3O_2$

2. $(NH_4)_2Cr_2O_7 \rightarrow N_2 + Cr_2O_3 + 4H_2O$

3. $Cl_2 + OH^- \rightarrow ClO^- + Cl^- + H^+$

4. $Mn_2O_7 \rightarrow 2MnO_2 + 3/2O_2$

A. 1, 2, 4

B. 1, 2, 3

C. 3, 4

D. 2, 3

Answer:

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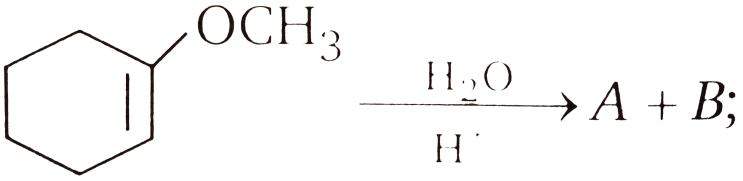
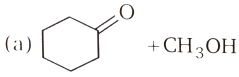
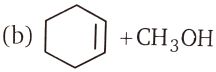
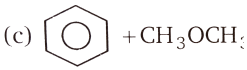
19. In the reaction,

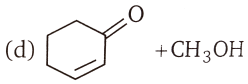


A and B are:

A. 

B. 

C. 

D. 

Answer:

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20. Alkyl halides reacts with dialkyl copper reagents to give (A). The reaction is called B, (A) and (B) are :

A. alkenes, corey house synthesis

B. alkanes, corey house synthesis

C. alkanes, Rosenmund's synthesis

D. aleknyl halides, elemination reaction

Answer:

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21. The density of crystalline $CsCl$ is $3.988g/cm^3$. The volume effectively occupied by a single $CsCl$ ion pairs in the crystals is : (Given $CsCl$ has mol. Mass 168.4)

A. $7.014 \times 10^{-23} cm^3$

B. $7.014 \times 10^{-20} cm^3$

C. $5.023 \times 10^{-23} cm^3$

D. $5.023 \times 10^{-20} cm^3$

Answer:

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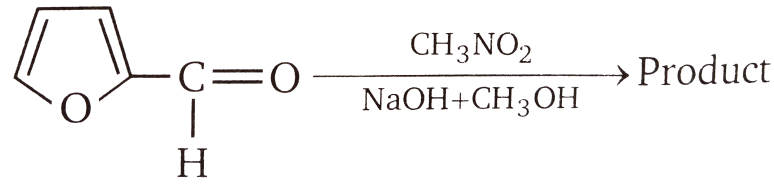
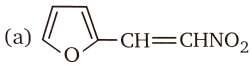
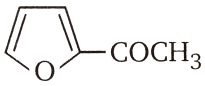
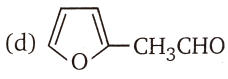
22. The possible product in the reaction given below is:



A. (a) 

B. (b) 

C. (c) 

D. (d) 

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23. Which indicator should be used for the titration of $0.10MKH_2BO_3$ with $0.10MHCl(K_a)$ for H_3BO_3 is 7.3×10^{-10})

A. Phenol red: $6.8 - 8.6$

B. Methyl red : $3.8 - 6.1$

C. Methyl orange: $2.8 - 3.8$

D. Phenolphthlein: $8.0 - 9.6$

Answer:

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24. A reaction between two reactants A and B shows II order. Which of the following differential rate expression might possibly not valid?

A. Rate $=K[A][B]$

B. Rate $=K[2A]^2$

C. Rate$=K[A]^2$

D. Rate $=K[B]^2$

Answer:

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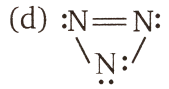
25. Which is not possible resonance form for N_3^- ?

A. $: \ddot{N} = N = \ddot{N}:$

B. $: N \equiv N - \underset{\cdot\cdot}{\ddot{N}}:$

C. $: N \equiv N - \underset{\cdot\cdot}{\ddot{N}}:$

D. 

Answer:

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26. Statement-1: Addition of bromine on trans -2 butene yeilds meso $-2,3$-dibromo butane.

Statement-2: The addition of Br_2 on double bond is anti-addition.

A. If both the statement are TRUE and Statement -2 is the correct explanation of Statement-1:

B. If both the statement are TRUE but Statement-2 is not the correct explanation of Statement-1

C. If statement-1 is TRUE and Statement-2 is FALSE

D. If statement -1 is FALSE and Statement-2 is TRUE

Answer:

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27. Statement 1:

$$R-CH=CH_2 \xrightarrow[\text{Peroxide}]{CCl_3Br} R\overset{\overset{Br}{|}}{C}H-CH_2CCl_3$$

Statement-2: The addition obey free radical addition on alkenes in presence of peroxide.

A. If both the statement are TRUE and Statement -2 is the correct explanation of Statement-1:

B. If both the statement are TRUE but Statement-2 is not the correct explanation of Statement-1

C. If statement-1 is TRUE and Statement-2 is FALSE

D. If statement -1 is FALSE and Statement-2 is TRUE

Answer:

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28. Statement-1: Reaction of t-butyl chloride on Wurtz reaction gives alkene.

Statement-2: t-butyl chloride on Wurtz reaction gives alkene.

A. If both the statement are TRUE and Statement -2 is the correct explanation of Statement-1:

B. If both the statement are TRUE but Statement-2 is not the correct explanation of Statement-1

C. If statement-1 is TRUE and Statement-2 is FALSE

D. If statement -1 is FALSE and Statement-2 is TRUE

Answer:

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29. Statement-1: Sb_2S_3 is not soluble in yellow ammonium sulphide.

Statement-2: the common ion effect due to S^{2-} ions reduces the solubility of SbS_3.

A. If both the statement are TRUE and Statement -2 is the correct explanation of Statement-1:

B. If both the statement are TRUE but Statement-2 is not the correct explanation of Statement-1

C. If statement-1 is TRUE and Statement-2 is FALSE

D. If statement -1 is FALSE and Statement-2 is TRUE

Answer:

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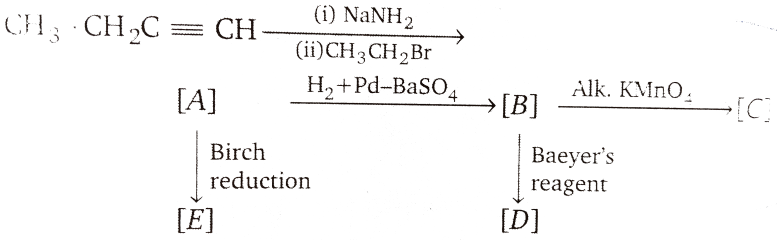
30. Follow the given sequence of reaction :



The compound $[A]$ is

A. hex-3-yne

B. hex$-$2-yne

C. pent-2-yne

D. pent-1-yne

Answer:

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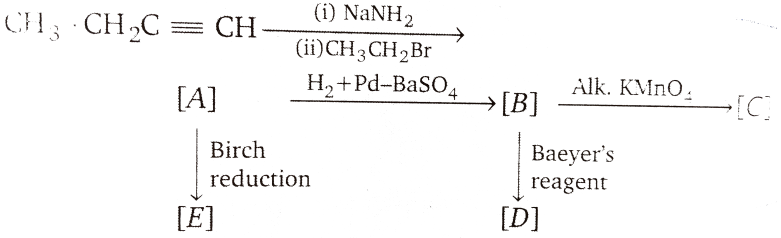
31. Follow the given sequence of reaction :



The compound $[B]$ is:

A. cis-hex-3-ene

B. trans-hex-3-ene

C. cis-pent-2-ene

D. trans-pent-2-ene

Answer:

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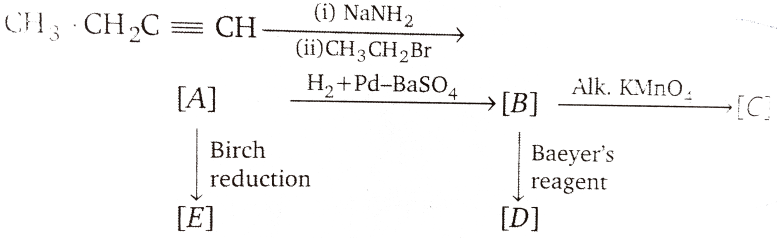
32. Follow the given sequence of reaction :



The compound $[E]$ is

A. cis-hex-3-ene

B. trans-hex-3-ene

C. cis-pent-2-ene

D. trans-pent-2-ene

Answer:

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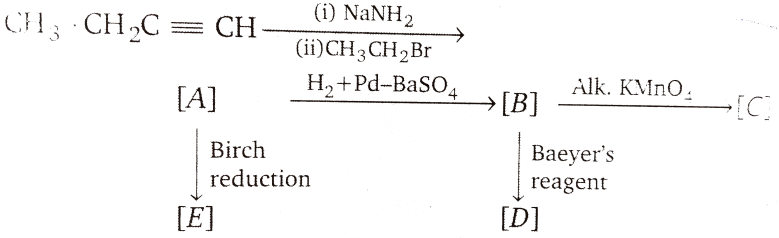
33. Follow the given sequence of reaction :



The compound $[D]$ shows:

A. geometrical isomerism

B. optical isomerism

C. no isomerism

D. keto-enolisomerism

Answer:

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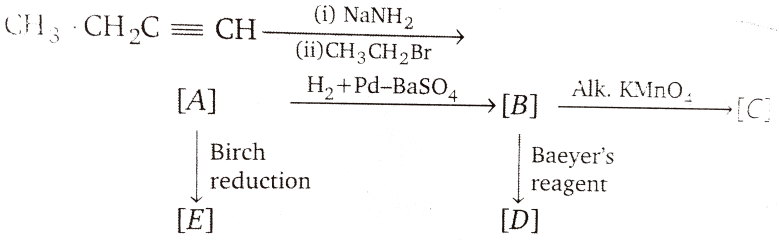
34. Follow the given sequence of reaction :



The compound $[D]$ is:

A. hexane -3, 4-diol

B. hexane-3, 4-ene

C. hexane-1, 2-diol

D. hexane-2, 3-diol

Answer:

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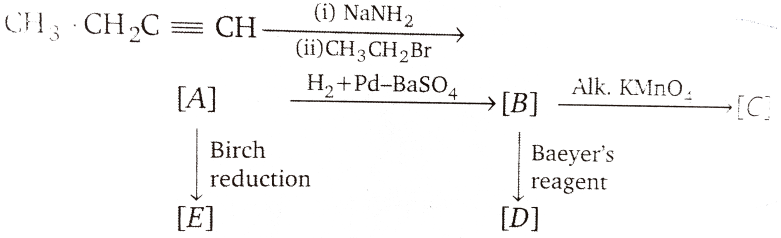
35. Follow the given sequence of reaction :



The possible isomers of the compound $[D]$ are:

A. two enantiomers, one meso and one recemic

B. four enantiomers,one meso and one racemic

C. four enantiomers, two meso and one racemic

D. four enantiomers,one meso and one racemin

Answer:

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36. $1g$ pure iron is dissolved in excess of H_2SO_4. The clear filtrate is made up $100mL$. $10mL$ of this solution is treated with $0.1MKMnO_4$ solution till whole of the Fe^{2+} ions are oxidised to Fe^{3+} ions. Now $0.2gFe_2(SO_4)_3$ is dissolved in it. the solution is now treated with Zn and H_2SO_4.

The volume of $KMnO_4$ needed to convert Fe^{2+} ions to Fe^{3+} ions in $100mL$ original solution is:

A. $71mL$

B. $142mL$

C. $35.7mL$

D. $80mL$

Answer:

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37. $1g$ pure iron is dissolved in excess of H_2SO_4. The clear filtrate is made up $100mL$. $10mL$ of this solution is treated with $0.1MKMnO_4$ solution till whole of the Fe^{2+}

ions are oxidised to Fe^{3+} ions. Now $0.2gFe_2(SO_4)_3$ is dissolved in it. the solution is now treated with Zn and H_2SO_4.

The amount of $K_2Cr_2O_7$ to be dissolved to prepare VmL of $K_2Cr_2O_7$, which is just sufficient to completely oxidised $10mL$ of above $FeSO_4$ solution ?

A. $0.0875g$

B. $0.875g$

C. $8.75g$

D. $0.0087g$

Answer:

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38. $1g$ pure iron is dissolved in excess of H_2SO_4. The clear filtrate is made up $100mL$. $10mL$ of this solution is treated with $0.1MKMnO_4$ solution till whole of the Fe^{2+} ions are oxidised to Fe^{3+} ions. Now $0.2gFe_2(SO_4)_3$ is dissolved in it. the solution is now treated with Zn and H_2SO_4.

Select the correct statement.

1. The Fe^{3+} ions present in solution are reduced by Zn and H_2SO_4

2. H_2 gas formed by the action of Zn and H_2SO_4 is reducing agent.

3. Atomic form of H formed by the action of Zn and H_2SO_4 is reducing agent

4. Nascent form of H formed by the action of Zn and H_2SO_4 is reducing agent

A. $1, 2$

B. $1, 3$

C. $1, 4$

D. 1, 2, 3

Answer:

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39. $1g$ pure iron is dissolved in excess of H_2SO_4. The clear filtrate is made up $100mL$. $10mL$ of this solution is treated with $0.1MKMnO_4$ solution till whole of the Fe^{2+} ions are oxidised to Fe^{3+} ions. Now $0.2gFe_2(SO_4)_3$ is dissolved in it. the solution

is now treated with Zn and H_2SO_4.

The volume of $0.1MKMnO_4$ used after reducing the solution mixture with $Zn + H_2SO_4$ is:

A. $5.572mL$

B. $3.572mL$

C. $4.572mL$

D. $6.572mL$

Answer:

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40. $1g$ pure iron is dissolved in excess of H_2SO_4. The clear filtrate is made up $100mL$. $10mL$ of this solution is treated with $0.1MKMnO_4$ solution till whole of the Fe^{2+} ions are oxidised to Fe^{3+} ions. Now $0.2gFe_2(SO_4)_3$ is dissolved in it. the solution is now treated with Zn and H_2SO_4.

The volume of $0.1MK_2Cr_2O_7$ used after reducing the solution mixture with $Zn + H_2SO_4$ is :

A. $4.64mL$

B. $5.46mL$

C. $3.46mL$

D. $2.64mL$

Answer:

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41. $1g$ pure iron is dissolved in excess of H_2SO_4. The clear filtrate is made up $100mL$. $10mL$ of this solution is treated with $0.1MKMnO_4$ solution till whole of the Fe^{2+}

ions are oxidised to Fe^{3+} ions. Now $0.2gFe_2(SO_4)_3$ is dissolved in it. the solution is now treated with Zn and H_2SO_4.

The ratio of equivalent of $KMnO_4$ and $K_2Cr_2O_7$ used for reducing the solution is:

A. $5/6$

B. $6/5$

C. 1

D. 2

Answer:

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42. Van't Hoff factor, (i) for $100\,\%$ ionised K_2HgI_4 solution in water is:

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43. Number of Na^+ and Cl^- ions associated with each a unit cell of $NaCl$ is:

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44. Number of $B-O$ bonds in diborate ion $[B_2O_5]^{4-}$ is

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45. Find the number of waves in an orbit of H-atom having radius equal to $8.464 \times 10^{-10} m$.

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46. As per cooled water freezes spontaneously, its temperature rises to $0^\circ C$. ΔH for the spontaneous process.

$H_2O_{(l)}(-10^\circ C) \rightarrow H_2O_{(s)}(0^\circ C)$ is :

A. zero

B. $+ve$

C. $-ve$

D. either of these

Answer: A

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47. o-hydroxy benzaldehyde (salicylaldehyde) shows intermolecular H-bonding. The number of atoms present in the additional formed is:

A. 2

B. 4

C. 6

D. 8

Answer:

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48. Inorganic graphite is:

A. BN

B. B_4C_3

C. CaC_2

D. $B_3N_3H_6$

Answer:

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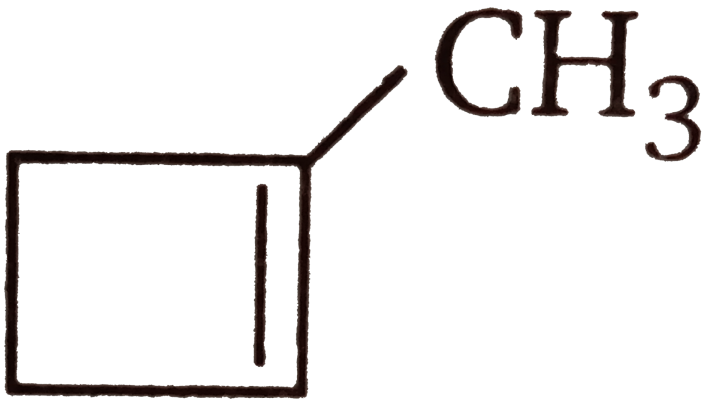
49. Oxidation of



by $KMnO_4$ yields:

A. $CH_3COCH_2CH_2COOH$

B. $CH_3CH_2CH_2CH_2COOH$

C. $CH_3CHO + CH_3CH_2CHO$

D. $CH_3CH_2CHO_CH_3COCH_3$

Answer:

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50. The oxidation state of chromium ion and iodine in the final products formed by the reaction between KI and acidified $K_2Cr_2O_7$ respectively are:

A. $+4, 0$

B. $+6, \ +3$

C. $+3, 0$

D. $+3, \ +3$

Answer:

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51. The simplest chiral alkane, alkene, alkene and alkyne posses carbon atoms respectively.

A. $7, 6, 6$

B. $6, 6, 6$

C. $5, 5, 5$

D. $6, 5, 5$

Answer:

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52. Which set of molecule is polar?

A. p-dimethyloxy bezene and p-dinitro benzene

B. BF_3 and Icl_3

C. SF_4 and SiF_4

D. p-dimethoxy benzene and trans-1 dinitro chloropene

Answer:

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53. An acidic buffer's solution is made up of:

A. a strong acid + its salt of weak base

B. a weak acid+its conjugate base

C. a strong acid +its conjugate base

D. either of these

Answer:

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54. Corundum and carbonundum are respectively.:

A. Al_2O_3, SiC

B. SiC, Al_2O_3

C. Mg_3B_2, Al_2O_3

D. Mg_2B_2SiC

Answer:

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55. Statement-1:Compounds having $-NR_3^+$, $-SR_3^+$ etc. as leaving groups give Hofmann product in E_2 elimination.

Statement-2: E_2 elimination is a single step reaction.

A. If both the statement are TRUE and Statement -2 is the correct explanation of Statement-1:

B. If both the statement are TRUE but Statement-2 is not the correct explanation of Statement-1

C. If statement-1 is TRUE and Statement-2 is FALSE

D. If statement -1 is FALSE and Statement-2 is TRUE

Answer:

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56. Statement-1: $CF_3 - CHCl_2$ when treated with C_2H_5OD, the major product formed is $CF_3 - CDCl_2$ rather than $CF_2 = CCl_2$

Statement-2: $C_2H_5O^-$ is a poor base.

A. If both the statement are TRUE and Statement -2 is the correct explanation of Statement-1:

B. If both the statement are TRUE but Statement-2 is not the correct explanation of Statement-1

C. If statement-1 is TRUE and Statement-2 is FALSE

D. If statement -1 is FALSE and Statement-2 is TRUE

Answer:

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57. (i) An aqueous solution of a white coloured compound (A) on reaction with HCl gives a white precipitate of compound (B).

(ii) (B) becomes soluble in chlorine water with the formation of (C)

(iii) (C) reacts with KI to give a precipitate which becomes solube in excess of it forming a compount (D). the compound (D) is used for detecting ammonium salts.

(iv) (B) and (C) both, on treatement with $SnCl_2$ give a grey precipitate of (E).

(v) When conc. H_2SO_4 is added slowly into a

mixture of cold solutions of (A) and $FeSO_4$ is added slowly into a mixture of cold solutions of (A) and $FeSO_4$, a brown ring of compound (F) is formed.

Compound (A) contains ... ions.

A. Pb^{2+}, NO_3^-

B. $Hg^{2+}m, NO_3^-$

C. Hg_2^{2+}, NO_3^-

D. Hg^{2+}, Cl^-

Answer:

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58. (i) An aqueous solution of a white coloured compound (A) on reaction with HCl gives a white precipitate of compound (B).

(ii) (B) becomes soluble in chlorine water with the formation of (C)

(iii) (C) reacts with KI to give a precipitate which becomes solube in excess of it forming a compount (D). the compound (D) is used for detecting ammonium salts.

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$SnCl_2$ give a grey precipitate of (E).

(v) When conc. H_2SO_4 is added slowly into a mixture of cold solutions of (A) and $FeSO_4$ is added slowly into a mixture of cold solutions of (A) and $FeSO_4$, a brown ring of compound (F) is formed.

Compound (B) is

A. $PbCl_2$

B. $HgCl_2$

C. Hg_2Cl_2

D. $PbCl_4$

Answer:

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59. (i) An aqueous solution of a white coloured compound (A) on reaction with HCl gives a white precipitate of compound (B).

(ii) (B) becomes soluble in chlorine water with the formation of (C)

(iii) (C) reacts with KI to give a precipitate which becomes solube in excess of it forming a compount (D). the compound (D) is used

for detecting ammonium salts.

(iv) (B) and (C) both, on treatement with $SnCl_2$ give a grey precipitate of (E).

(v) When conc. H_2SO_4 is added slowly into a mixture of cold solutions of (A) and $FeSO_4$ is added slowly into a mixture of cold solutions of (A) and $FeSO_4$, a brown ring of compound (F) is formed.

Compound (D) is

A. Hg_2Cl_2

B. $PbCl_2$

C. $HgCl_2$

D. $PbCl_4$

Answer:

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60. (i) An aqueous solution of a white coloured compound (A) on reaction with HCl gives a white precipitate of compound (B).

(ii) (B) becomes soluble in chlorine water with the formation of (C)

(iii) (C) reacts with KI to give a precipitate

which becomes solube in excess of it forming a compount (D). the compound (D) is used for detecting ammonium salts.

(iv) (B) and (C) both, on treatement with $SnCl_2$ give a grey precipitate of (E).

(v) When conc. H_2SO_4 is added slowly into a mixture of cold solutions of (A) and $FeSO_4$ is added slowly into a mixture of cold solutions of (A) and $FeSO_4$, a brown ring of compound (F) is formed.

Compound (D) is

A. anionic complex

B. Nessler's reagent

C. ionic compound

D. either of these

Answer:

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61. (i) An aqueous solution of a white coloured compound (A) on reaction with HCl gives a white precipitate of compound (B).

(ii) (B) becomes soluble in chlorine water with

the formation of (C)

(iii) (C) reacts with KI to give a precipitate which becomes solube in excess of it forming a compount (D). the compound (D) is used for detecting ammonium salts.

(iv) (B) and (C) both, on treatement with $SnCl_2$ give a grey precipitate of (E).

(v) When conc. H_2SO_4 is added slowly into a mixture of cold solutions of (A) and $FeSO_4$ is added slowly into a mixture of cold solutions of (A) and $FeSO_4$, a brown ring of compound (F) is formed.

The oxidation number of FE in compound (F) is:

A. $+1$

B. $+2$

C. $+3$

D. zero

Answer:

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62. (i) An aqueous solution of a white coloured compound (A) on reaction with HCl gives a white precipitate of compound (B).

(ii) (B) becomes soluble in chlorine water with the formation of (C)

(iii) (C) reacts with KI to give a precipitate which becomes solube in excess of it forming a compount (D). the compound (D) is used for detecting ammonium salts.

(iv) (B) and (C) both, on treatement with $SnCl_2$ give a grey precipitate of (E).

(v) When conc. H_2SO_4 is added slowly into a

mixture of cold solutions of (A) and $FeSO_4$ is added slowly into a mixture of cold solutions of (A) and $FeSO_4$, a brown ring of compound (F) is formed.

Grey precipitate of (E) is :

A. Hg_2Cl_2

B. Hg_2

C. $HgCl_2$

D. K_2HgI_4

Answer:

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63. (i) An aqueous solution of a white coloured compound (A) on reaction with HCl gives a white precipitate of compound (B).

(ii) (B) becomes soluble in chlorine water with the formation of (C)

(iii) (C) reacts with KI to give a precipitate which becomes solube in excess of it forming a compount (D). the compound (D) is used for detecting ammonium salts.

(iv) (B) and (C) both, on treatement with

$SnCl_2$ give a grey precipitate of (E).

(v) When conc. H_2SO_4 is added slowly into a mixture of cold solutions of (A) and $FeSO_4$ is added slowly into a mixture of cold solutions of (A) and $FeSO_4$, a brown ring of compound (F) is formed.

(A) on dissociation in H_2SO_4 gives:

A. Hg_2SO_4

B. $HgSO_4$

C. $HgHSO_4$

D. $FeSO_4$

Answer:

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64. The cell designed as $Pt_{H_2}|HCl_{aq}||Hg_2Cl_2, 0.01NKCl|Hg$ has emf of $0.271V$ at $298K$ and 0.2669 at $308K$. The $E_{H_2^{2+}/Hg}$ is $0.260V$

The change in free energy (ΔG) during cell reaction is:

A. $-52.3kJ$

B. $+52.3kJ$

C. $-26.15kJ$

D. $+26.15kJ$

Answer:

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65. The cell designed as $Pt_{H_2}|HCl_{aq}||Hg_2Cl_2, 0.01NKCl|Hg$ has emf of $0.271V$ at $298K$ and 0.2669 at $308K$. The

$E_{H_2^{2+}/Hg}$ is $0.260V$

The heat of reaction for redox change is:

A. $+79.2kJ$

B. $-75.9kJ$

C. $+75.9kJ$

D. $-79.2kJ$

Answer:

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66. The cell designed as $Pt_{H_2}|HCl_{aq}||Hg_2Cl_2, 0.01NKCl|Hg$ has emf of $0.271V$ at $298K$ and 0.2669 at $308K$. The $E_{H_2^{2+}/Hg}$ is $0.260V$

The temperature coefficient of cell is :

A. 4.1×10^{-4}

B. -4.1×10^{-4}

C. -4.1×10^{-3}

D. 4.1×10^{-3}

Answer:

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67. The cell designed as $Pt_{H_2}|HCl_{aq}||Hg_2Cl_2, 0.01NKCl|Hg$ has emf of $0.271V$ at $298K$ and 0.2669 at $308K$. The $E_{H_2^{2+}/Hg}$ is $0.260V$

The change in free entropy during cell reaction is :

A. $+79.2kJ$

B. $-75.9kJ$

C. $+75.9kJ$

D. $-79.2kJ$

Answer:

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68. The cell designed as $Pt_{H_2}|HCl_{aq}||Hg_2Cl_2, 0.01NKCl|Hg$ has emf of $0.271V$ at $298K$ and 0.2669 at $308K$. The $E_{H_2^{2+}/Hg}$ is $0.260V$

The E° for oxidation electrode at $298K$ is:

A. $0.011V$

B. $-0.011V$

C. $-0.022V$

D. $+0.022V$

Answer:

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69. The cell designed as $Pt_{H_2}|HCl_{aq}||Hg_2Cl_2, 0.01NKCl|Hg$ has emf of $0.271V$ at $298K$ and 0.2669 at $308K$. The $E_{H_2^{2+}/Hg}$ is $0.260V$

If pressure of H_2 is 2 atm, then pH of solution on negative electrode is :

A. 0.036

B. 1.026

C. 2.096

D. 3.124

Answer:

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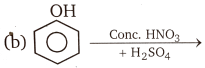
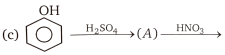
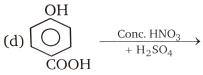
70. Which of the following reaction will not give picric acid?

A. 

B. 

C. 

D. 

Answer:

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71. In $CH_3 - \underset{\cdot\cdot}{O} - CH_3$, oxygen atom has p^3 hybridisation with two lone pair of electron. $C - O - C$ bond angle is:

A. 110°

B. $109^\circ 28'$

C. $106^\circ 51'$

D. $104^\circ, 31'$

Answer:

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72. Which of the following process may be reversible?

A. Transfer of heat by radiation

B. Transfer of heat by conduction

C. Electrical heating of a nichrome wire

D. Isothermal compression

Answer:

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73. Which statement is correct ?

A. H_3PO_3 is stronger acid than H_3PO_4

B. $HClO_4$ is weaker acid then $HCIO_3$

C. HF is stronger acid than HCl

D. $HOCl$ is weaker acid than $HOBr$

Answer:

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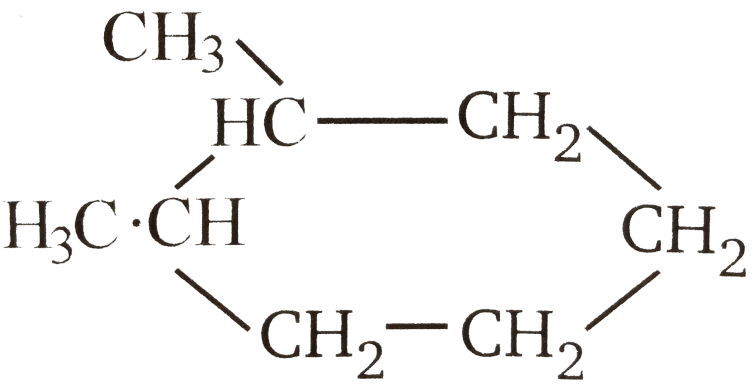
74. The molecule



has:

A. one asymmetric carbon and one meso form and two optically active isomers.

B. two asymmetric carbon and one meso form and two optically active isomers.

C. no asymmetric carbon and no meso form and no optically active isomers

D. one asymmetric caron and two optically active isomers with no meso form

Answer:

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75. Which of the following substance would be drawn most strongly into a magnetic field?

A. $TiCl$

B. VCl_3

C. $FeCl_2$

D. $CuCl_2$

Answer:

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76. Which one is called quantum mechanical liquid?

A. $He(I)$

B. $He(II)$

C. Xe

D. H_2

Answer:

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77. For solid $\Leftrightarrow$ liquid equilibrium, the correct statements, when forward reaction predominates is :

1. Increase in pressure if solid is ice

2. Decrease in pressure if solid is ice

3. Decrease in pressure if solid is other than ice

4. Increase in temperature if solid is ice

5. Decrease in temperature if solid is ice

A. $1, 2, 3$

B. $1, 3, 4$

C. $2, 3, 4$

D. $2, 3, 5$

Answer:

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78. Boling point of a liquid is defined temperature when vapour pressure of liquid becomes.

A. $=$ atomspheric pressure

B. $>$ atmospheric pressure

C. $<$ atmospheric pressure

D. one atm or $76cm$ of Hg

Answer:

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79. Statement-1: First step is always the rate determine step in the path of the reaction.

Statement-2: Study of kinetics of a reaction can report events only up to the rate determining step, not beyond that.

A. If both the statement are TRUE and Statement -2 is the correct explanation of Statement-1:

B. If both the statement are TRUE but Statement-2 is not the correct explanation of Statement-1

C. If statement-1 is TRUE and Statement-2 is FALSE

D. If statement -1 is FALSE and Statement-2 is TRUE

Answer:

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80. Statement-1: Low activation energy means the reaction will be faster.

Statement-2 A thermodynamically stable product is always formed easily.

A. If both the statement are TRUE and Statement -2 is the correct explanation of Statement-1:

B. If both the statement are TRUE but Statement-2 is not the correct explanation of Statement-1

C. If statement-1 is TRUE and Statement-2 is FALSE

D. If statement -1 is FALSE and Statement-2 is TRUE

Answer:

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81. The reaction of dimerisation of NO_2 in N_2O_4 is $2NO_2 \Leftrightarrow N_2O_4$. The reaction is carried out by taking 1 mole each of NO_2 and

N_2O_4 in a closed vessel of 1 litre at $400K$. The equilibrium pressure was found to be $77atm$. Which statements is correct for given values of teh reactions.?

A. Dissociation of N_2O_4 occurs with degree of dissociation of $N_2O_40.35$

B. Formation of NO_2 occurs and total moles of NO_2 at equilibrium 1.35

C. Dissociation of N_2O_4 occurs leaving 0.35 moles at equilibrium

D. Formation of NO_2 occurs with total moles at equilibrium 2.70

Answer:

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82. The reaction of dimerisation of NO_2 in N_2O_4 is $2NO_2 \Leftrightarrow N_2O_4$. The reaction is carried out by taking 1 mole each of NO_2 and N_2O_4 in a closed vessel of 1 litre at $400K$. The equilibrium pressure was found to be $77atm$.

The numerical value of K_c and K_p the reaction actually taking place in container is :

A. $4.44, 145.8$

B. $0.23, 7.56$

C. $146.13, 4.8 \times 10^3$

D. $6.8 \times 10^{-3}, 6$

Answer:

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83. The reaction of dimerisation of NO_2 in N_2O_4 is $2NO_2 \Leftrightarrow N_2O_4$. The reaction is carried out by taking 1 mole each of NO_2 and N_2O_4 in a closed vessel of 1 litre at $400K$. The equilibrium pressure was found to be $77atm$. The ratio of moles of N_2O_4 and NO_2 at equilibrium is :

A. 2.62

B. 0.38`

C. 3.62

D. 0.28

Answer:

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84. The reaction of dimerisation of NO_2 in N_2O_4 is $2NO_2 \Leftrightarrow N_2O_4$. The reaction is carried out by taking 1 mole each of NO_2 and N_2O_4 in a closed vessel of 1 litre at $400K$. The equilibrium pressure was found to be $77atm$.

The ratio of partial pressures of NO_2 and N_2O_4 at equilibrium is:

A. 2.62

B. 0.38

C. 3.62

D. 0.28

Answer:

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85. The reaction of dimerisation of NO_2 in N_2O_4 is $2NO_2 \Leftrightarrow N_2O_4$. The reaction is carried out by taking 1 mole each of NO_2 and N_2O_4 in a closed vessel of 1 litre at $400K$. The equilibrium pressure was found to be $77atm$. The equilibrium pressure at which dissociation of N_2O_4 will show degree of dissociation of N_2O_4 to be 0.50 in the above case:

A. $82.1atm$

B. $65.7atm$

C. $72.0atm$

D. $70.0atm$

Answer:

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86. The reaction of dimerisation of NO_2 in N_2O_4 is $2NO_2 \Leftrightarrow N_2O_4$. The reaction is carried out by taking 1 mole each of NO_2 and N_2O_4 in a closed vessel of 1 litre at $400K$. The equilibrium pressure was found to be $77atm$. The molecular weight of N_2O_4 in equilibrium

mixture, when equilibrium pressure in 77 atm is:

A. 58.72

B. 76.5

C. 62.2

D. 82.4

Answer:

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87. The reaction of dimerisation of NO_2 in N_2O_4 is $2NO_2 \Leftrightarrow N_2O_4$. The reaction is carried out by taking 1 mole each of NO_2 and N_2O_4 in a closed vessel of 1 litre at $400K$. The equilibrium pressure was found to be $77atm$. Addition of one mole of an inert gas to the above equilibrium shows that degree of dissociation and equilibrium pressure of N_2O_4 is

A. $\propto$ decrease, $P = 77atm$

B. $\propto$ increase, $P = 77atm$

C. $\propto$ does not change, $P = 110.0atm$

D. $\propto$ decreases, $P = 110.0atm$

Answer:

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88. The reaction of dimerisation of NO_2 in N_2O_4 is $2NO_2 \Leftrightarrow N_2O_4$. The reaction is carried out by taking 1 mole each of NO_2 and N_2O_4 in a closed vessel of 1 litre at $400K$. The equilibrium pressure was found to be $77atm$.

After attaining the equilibrium, 1 mole of N_2O_4 is added in the quilibrium mixture.The total pressure at equilibrium would be:

A. $65.2atm$

B. $121.5atm$

C. $140.0atm$

D. $128.2atm$

Answer:

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89. Numerical value of Δn in the change:

$2KClO_3 \Leftrightarrow 2KCl + 3O_2$

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90. The moles of CO_2 produced an electrolysing 1 litre solution of $32.8g$ solution acetate in $100mL$ solution

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91. Number of carbonyl units co-ordinated to iron metal in its carbonyl is:

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92. Molecular weight of sample of ozonised oxygen has the value 33.28. Find the percentage of O_3 in sample.

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