



CHEMISTRY

BOOKS - MTG CHEMISTRY (BENGALI ENGLISH)

QUESTION PAPER 2007

Chemistry

1. For the reaction $2H_2(g) + O_2(g) = 2H_2O(g)$, which of the following fact holds good?

A. $K_p = K_c$

B. $K_p > K_c$

C. $K_p < K_c$

D. K_p and K_c cannot be correlated

Answer:

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2. Which of the following equation is not correct?

A. $\Delta G^\circ = -nFE^\circ$

B. $\Delta G^\circ = -RT \ln K$

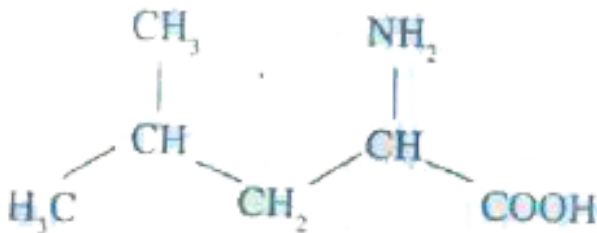
C. $E^\circ = \frac{RT}{nF} \log K$

D. $\Delta G = \Delta G^\circ + RT \ln Q_p$

Answer:

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3. IUPAC name of the following compound is



A. 1-amino-3-methyl pentanoic acid

B. 1-amono-3,3dimethyl butanoic acid

C. 2-amino-4-methyl pentanoic acid

D. 2-amino-3,3-dimethyl butanoic acid

Answer:

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4. IUPAC name of $[Cr(NH_3)_5CO_3]Cl$ is

- A. Penta ammine carbonato chromium (II) chloride
- B. Penta ammino carbonato chromium (III) chloride
- C. Penta ammine carbonato chromium (III) chloride
- D. Penta ammine carbonato chromium(II) chloride

Answer:

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5. Which of the following compounds is not dissolved in dil. HNO_3 ?

A. PbS

B. HgS

C. ZnS

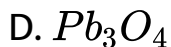
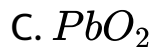
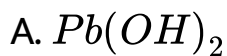
D. CdS

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6. Water transported through lead pipes becomes poisonous due to the formation of



Answer:



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7. Which of the following aqueous solution has the highest boiling point?



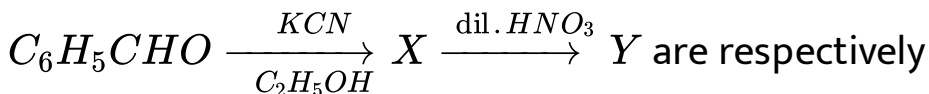
C. 0.015 M Urea

D. 0.01M KNO_3

Answer:

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8. The X and Y of the reaction scheme



A. $C_6H_5CHOHCOC_6H_5$ and $C_6H_5COCOC_6H_5$

B. $C_6H_5CHOHCOC_6H_5$ and C_6H_5COOH

C. $C_6H_5CH(OH)CN$ and C_6H_5COCN

D. $C_6H_5CH(OH)CN$ and $C_6H_5CH(OH)COOH$

Answer:



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9. Five most abundant element is the living cell are

A. C,H,O,N,Fe

B. C,H,O,N,P

C. C,H,N,Mg,Ca

D. C,H,Fe,Mg,Ca

Answer:



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10. Number of molecules in 7.0 gm of nitrogen gas is

A. 3.023×10^{23}

B. 3.012×10^{23}

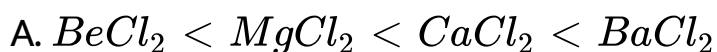
C. 1.506×10^{23}

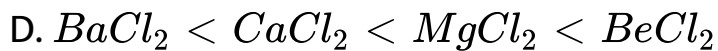
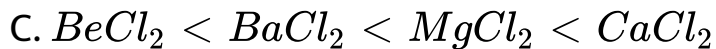
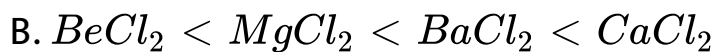
D. 4.518×10^{23}

Answer:

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11. Correct order of increasing ionic character is



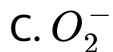
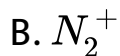


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12. Which of the following is not paramagnetic ?



Answer:

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13. Intense violet colouration was produced on addition of neutral ferric chloride solution to the alcoholic solution of an organic solid. The organic solid may be

- A. Benzoic acid
- B. Acetanilide
- C. Aniline hydrochloride
- D. Salicylic acid

Answer:



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14. In the reaction



The compound Z is

- A. Methanol
- B. Formaldehyde
- C. Formic Acid
- D. Acetone

Answer:



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15. Which of the following contains cobalt?

A. Vitamin B_{12}

B. Vitamin A

C. Vitamin C

D. Vitamin K

Answer:



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16. The compound that is most reactive towards electrophilic nitration is

A. Toluene

B. Benzene

C. Benzoic acid

D. Nitrobenzene

Answer:



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17. When phenol is treated with $CHCl_3$ and $NaOH$, the major product formed is

A. o-hydroxy benzaldehyde

B. p-hydroxy benzaldehyde

C. o-hydroxy benzoic acid

D. p-hydroxy benzoic acid

Answer:



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18. Rates of diffusion of H_2 , D_2 , HD and He gases will be in the order:

A. $He > H_2 > HD > D_2$

B. $HD > D_2 = He < H_2$

C. $D_2 > He = HD < H_2$

D. $H_2 > HD > D_2 = He$

Answer:

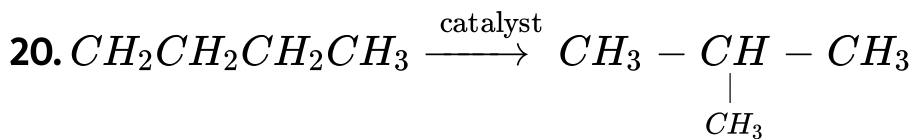
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19. Which of the following will have the highest coagulating power for As_2S_3 colloid?

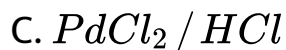
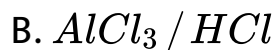
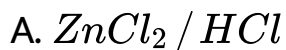


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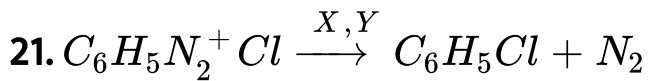
The catalyst used in the above conversion reaction is



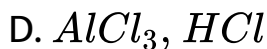
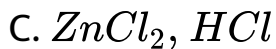
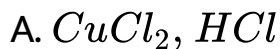
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X and Y in the above reactions are



Answer:

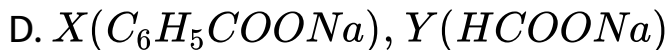


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22. In the reaction



The compounds X and Y may be



Answer:



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23. The polymeric material produced in the condensation reaction between $H_2N(CH_2)_6NH_2$ and $HOOC(CH_2)_4COOH$ is named as

A. Balelite

B. Nylon-66

C. Polythene

D. OVC

Answer:



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24. The half life of a given reaction is doubled as the initial concentration of a reactant is doubled. The order of the reaction will be

A. First

B. Second

C. Third

D. Zero

Answer:



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25. For a zero order reaction with specific rate constant k_0 , linear plot was obtained for $[A]$ vs t . The slope of the line is equal to

A. k_0

B. $-k_0$

C. $0.693 / k_0$

D. $-k_2 / 2.303$

Answer:



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26. The type of hybridisation in diborane is

A. Sp -hybridisation

B. Sp^2 - hybridisation

C. S^3 - hybridisation

D. Sp^3d^2 - hybridisation

Answer:



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27. Elemental chlorine consists of two isotopes, ^{37}Cl and ^{35}Cl . Atomic weight of chlorine is 35.5. The ratio of ^{37}Cl : ^{35}Cl in ordinary chlorine is

A. 4: 1

B. 1: 4

C. 1: 3

D. 3: 1

Answer:

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28. Correct order of electron affinity of the halogen atoms are

A. $F < Cl < Br > I$

B. $F < Cl \sim Br > I$

C. $F > Cl > Br > I$

D. $F < Cl > Br > I$

Answer:

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29. For a reversible reaction, if the concentration of the reactants are doubled, the equilibrium constant will be

A. halved

B. doubled

C. the same

D. one -fourth

Answer:



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30. Which of the following is most acidic in character?

A. Phenol

B. p-nitrophenol

C. p-methoxy phenol

D. o-hydroxy benzoic acid

Answer:



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31. In a reaction ${}_4\text{Be}^9 + \text{Projectile} \rightarrow {}_4\text{Be}^8 + {}_0n^1$, the projectile is

A. α -particle

B. β -particle

C. positron

D. γ - ray

Answer:

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32. Conversion of $RCOOH$ to RCH_2OH can be achieved by

A. $LAH(LiAlH_4)$

B. $NaBH_4$

C. Zn / HCl

D. Sn / HCl

Answer:

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33. The root mean square speed at sTP of molecules H_2 , N_2 , O_2 and HBr are in the order of

A. $N_2 > O_2 > HBr > H_2$

B. $O_2 > N_2 > H_2 > HBr$

C. $HBr > O_2 > N_2 > H_2$

D. $H_2 > N_2 > O_2 > HBr$

Answer:

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34. Which of the following compound forms two isomeric oxims on reacting with NH_2OH ?

A. $RCHO$

B. $RCOR$

C. $HCHO$

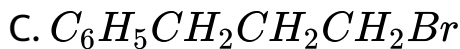
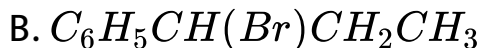
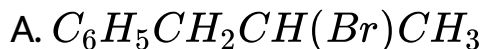
D. $PhCOPh$

Answer:



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35. 3-phenyl propene on reaction with HBr gives (as a major product)



Answer:



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36. $BaSO_4$ is water insoluble although it is an ionic compound because of

A. high lattice energy

B. high solvation energy

C. lattice energy is more than solvation energy

D. solvatio energy is more than lattice energy

Answer:



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37. The atmospheric gas which cannot produce greenhouse effect is

A. N_2

B. H_2O

C. CO_2

D. O_3

Answer:

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38. In acidic medium, the equivalent weight of $K_2Cr_2O_7$

(Mol. Wt. = M) is

A. M

B. $M/2$

C. $M/3$

D. $M/6$

Answer:

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39. The oxidation state of Fe in $[Fe(H_2O)_5NO]SO_4$ is

A. +1

B. +2

C. +3

D. +4

Answer:

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40. Number of σ - bond, π - bond and lone pair (lp) of electrons in acetic acid molecule are

A. $\sigma(8)$, $\pi(1)$, lp(8)

B. $\sigma(8)$, $\pi(1)$, lp(4)

C. $\sigma(7)$, $\pi(2)$, lp(4)

D. $\sigma(7)$, $\pi(1)$, lp(4)

Answer:



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41. Equivalent conductance of a weak acid at 0.1 M concentration is 100 times less than that at infinite

dilution. The degree of the acid is

A. 100

B. 10

C. 0.001

D. 0.01

Answer:



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42. Role of ATP in bioenergetics is

A. releasing energy

B. absorbing energy

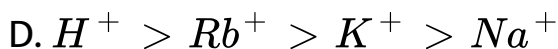
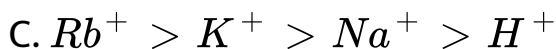
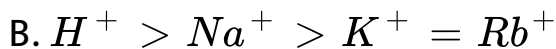
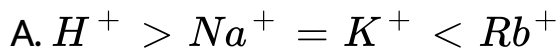
C. transporting energy

D. conserving energy

Answer:

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43. Molar conductivities of H^+ , Na^+ , K^+ and Rb^+ ions in aqueous solution are in the following order



Answer:

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44. Chloride of a metal (M) of specific heat 0-16 contains 63.96% of chlorine. The formula of the metal chloride is

A. MCl

B. MCl_2

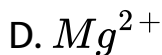
C. MCl_3

D. MCl_4

Answer:

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45. A solution of a metal salt gives a gelatinous white precipitate on treatment with aqueous ammonia in presence of ammonium chloride. The precipitate on treatment with strong NaOH solution, dissolves giving a colourless solution. The metal ion in the salt is



Answer:



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46. Cryolite is added to alumina in the electrolytic production of the aluminium for

A. cryolite serves as the electrolyte

B. cryolite does not react with the electrode materials

C. cryolite lowers the melting point of alumina by complex formation

D. cryolite lowers the melting point of alumina and increase electrical conductivity of the molten mixture

Answer:

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47. Which of the following characteristics will always lead to a spontaneous chemical reaction?

A. $\Delta H = +ve$, $\Delta S = +ve$

B. $\Delta H = +ve$, $\Delta S = -ve$

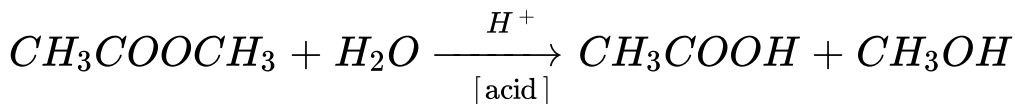
C. $\Delta H = -ve$, $\Delta S = -ve$

D. $\Delta H = -ve$, $\Delta S = +ve$

Answer:

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48. If the reaction



is carried out in (M/10) HCl and (M/10) H_2SO_4 , the rates of the reaction (R) will be related according to

A. $R_{HCl} \neq R_{H_2SO_4}$

B. $R_{HCl} > R_{H_2SO_4}$

C. $R_{HCl} = R_{H_2SO_4}$

D. $R_{HCl} < R_{H_2SO_4}$

Answer:



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49. The cell constant (k) for an electrical conductivity cell having two electrodes of area A placed at a distance of l is expressed by

A. $k = l / A$

B. $k = l^2 / A$

C. $k = a / l$

D. $k = 1/(Al)$

Answer:



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50. Among O_2 , NH_3 , CO and CH_4 the gas with highest root mean square velocity at a particular temperature is

A. CH_4

B. CO

C. O_2

D. NH_3

Answer:



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