



CHEMISTRY

BOOKS - KUMAR PRAKASHAN KENDRA CHEMISTRY (GUJRATI ENGLISH)

SAMPLE QUESTION PAPER

Part A

1. An Ionic Solid $A^+ B^-$ Crstalise like rock salt if all atoms along one body diagonal are removed then what is the formula of substance ?

A. $A_{12}B_{15}$

B. $A_{12}B_{17}$

C. $A_{13}B_{15}$

D. $A_{13}B_{14}$

Answer: A



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2. Which of the following defect is not exhibited by NaCl ?

A. Schottky defect

B. F Centre

C. Impurity defect

D. Frenkel defect

Answer: D



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3. In which of the following compounds crystal have axial distance relation is different from other ?

A. KNO_3

B. HgS

C. $\text{K}_2\text{Cr}_2\text{O}_2$

D. $\text{S}_8(m)$

Answer: B



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4. The correct order of E.P. of given solution is

(i) $0.1 \text{ M } \text{CH}_3\text{COOH}_{(aq)}$

(ii) $0.1 \text{ M } \text{CH}_3\text{COOH}(\text{C}_6\text{H}_6)$

(iii) $0.1 \text{ M } \text{CF}_3\text{COOH}_{(aq)}$

(iv) $0.1 \text{ M } \text{CH}_3\text{COONa}_{(aq)}$

A. $iv < iii < i < ii$

B. $iv > iii > i > ii$

C. $iii < iv < i < ii$

D. $iv < i < iii < ii$

Answer: A



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5. The %w/w of solvent in 40% NaOH solution is.,

A. 0.6

B. 0.666

C. 0.4

D. None

Answer: A



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6. Select correct option for True (T) and False (F)

(i) In the unit cell of NaCl there are $4Na^+ Cl^-$ units present.

(ii) At very high temperature paramagnetic substance changes to ferromagnetic substance.

(iii) $CrCO_2$ is ferromagnetic and has conductivity as that of metal.

(iv) Solid ammonia is molecular solid having low melting point.

A. TFFT

B. TTTT

C. FFFT

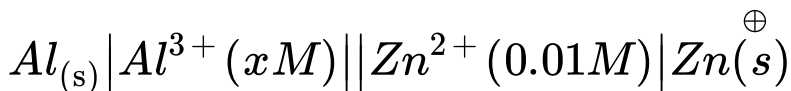
D. TFTF

Answer: A



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7. For given electrochemical cell if $E_{\text{cell}} = 0.90 \text{ V}$



$$x = \dots\dots\dots E_{\text{Al} | \text{Al}^{3+}}^{\circ} = 1.66\text{V}, E_{\text{Zn} | \text{Zn}^{2+}}^{\circ} = 0.76\text{V}$$

A. $10^{-3} M$

B. $10^{-6} M$

C. $10^{-2} M$

D. None

Answer: A



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8. Which of the following cell is working acidic medium ?

(i) Dry cell

(ii) Mercury cell

(iii) Lead Storage cell

(iv) Ni-cd cell

A. (i), (ii), (iv)

B. (i), (ii), (iii)

C. (i), (iii)

D. Only (i)

Answer: C



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9. If pentane is used as fuel cell then its Gibb's free energy change is expressed is
($E^\circ = 1.23V$)

A. $\Delta G^\circ = -32F(1.23)$

B. $\Delta G^\circ = -8F/1.23$

C. $\Delta G^\circ = -4F + 1.23$

D. $\Delta G^\circ = -8F(1.23)$

Answer: A



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10. When 1 mol of potassium succinate is electrolysed between Pt electrodes, number of moles of gaseous product obtained at cathode and anode are respectively.

A. 1, 2

B. 2, 3

C. 2, 2

D. 3, 2

Answer: A

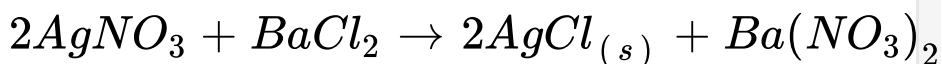


11. Select incorrect statement

A. The inversion of sugar is bimolecular reaction and kinetically Pseudo first order reaction.

B. The hydrolysis of ester in alkaline medium is 2nd order reaction.

C.



is fast.

D. Increase in temperature of reaction

increases rate due to decrease in E_{act} .

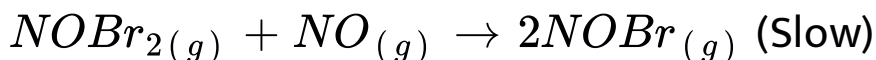
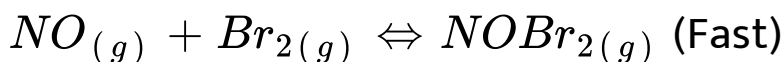
Answer: B



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12. The reaction between $NO_{(g)}$ and $Br_{2(g)}$

follows reaction mechanism as given below.



the order of reaction with respect to $NO_{(g)}$ is

A. 3

B. 2

C. 1

D. 0

Answer: B



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13. Which oxide cannot be reduced by C ?

A. Cu_2O

B. Fe_2O_3

C. ZnO

D. Al_2O_3

Answer: D



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14. Which of the following is not an oxide ore ?

A. Magnetite

B. Zincite

C. Cuprite

D. Siderite

Answer: D



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15. Which of the following is monod gas ?

A. CO

B. NO

C. I_2

D. NH_3

Answer: A



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16. Which of the following does not show tyndal effect ?

A. $CuSO_4(aq)$

B. Mist

C. Milk

D. Gum

Answer: A



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17. Which reaction involved in ostwald process ?

A. Oxidation of ammonia in presence of Pt catalyst.

B. Hydrogenation of vegetable oil in presence of Ni catalyst.

C. Oxidation of NO by O_2 in presence of NO catalyst.

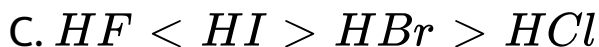
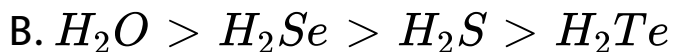
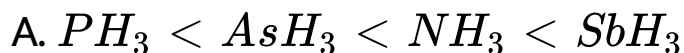
D. Oxidation of SO_2 by O_2 in presence of Pt catalyst.

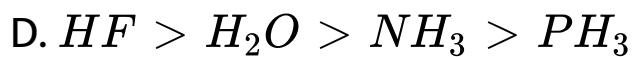
Answer: A



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18. The correct order of b.p. of hydride is



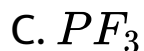
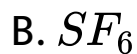


Answer: C



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19. Which of the following halide is hydrolysed ?

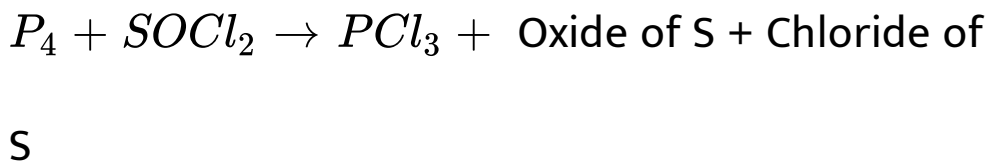


Answer: D



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20. For given reaction select incorrect option



A. Oxidation of S in both the product are + 4

and + 1 respectively.

B. 10 mol of P_4 gives 40 moles of oxide of S

and 20 moles of chloride of S.

C. Total moles of product obtained from 1 mol of P_4 is 10 mol.

D. In this reaction sulphur is disproportionated from + 4 to + 6 and -2.

Answer: D



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21. Select in correct statement.

A. Solid PCl_5 exist as $[PCl_4]^+ [PCl_6]^-$

B. Solid PBr_5 exist as $[PBr_4]^+ [Br]$

C. The anhydride of $HClO_4$ Cl_2O_7

D. NO_2 on cooling becomes paramagnetic.

Answer: D

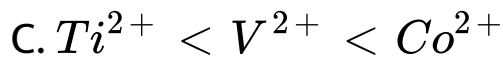


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22. The correct order of Paramagnetic moment is...

A. $Cr^{3+} < Mn^{3+} < Fe^{3+}$

B. $Cu^{2+} > Zn^{2+} < Co^{2+}$

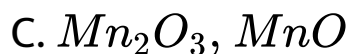
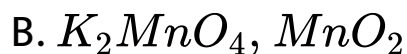
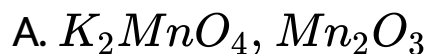


Answer: A



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23. Which product of Mn are obtained on heating $KMnO_4$ at 513K is



D. Mn_3O_4 , MnO_2

Answer: B



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24. Identify incorrect statement.

A. Lanthanoid contraction is the accumulation of successive shrinkages.

B. Due to Lanthanoid contraction atomic radii of Nb and Ta are same.

C. Shielding effect of $4f e^-$ is more than that of $5d e^-$

D. $Ce(OH)_3$ is most basic while $Lu(OH)_3$ is least basic among hydroxide of lanthanoids.

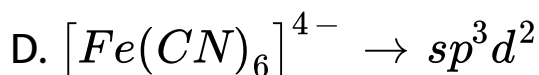
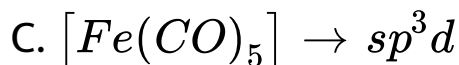
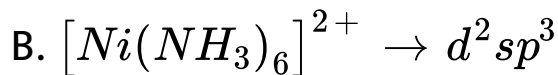
Answer: C



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25. The correct hybridization of transition metal ion/atom is



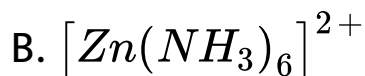


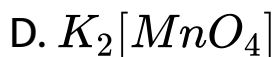
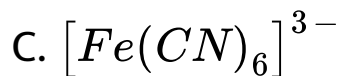
Answer: A



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26. Which complex is colourless ?





Answer: B



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27. The maximum stabilization energy is associated with



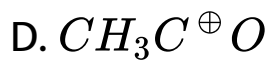
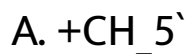
D. 

Answer: C



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28. Which of the following is not an electrophile ?

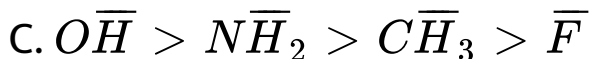
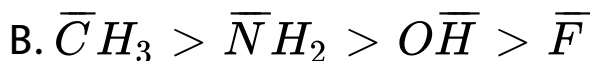
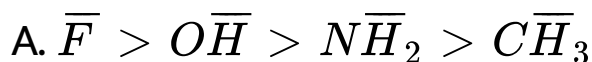


Answer: A



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29. The correct order of pK_b value of

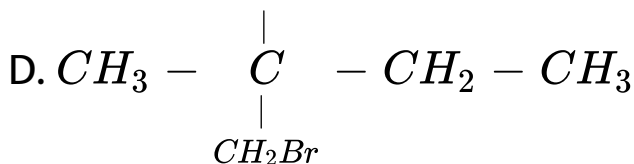
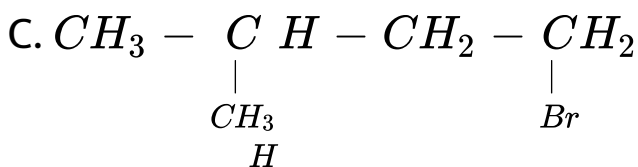
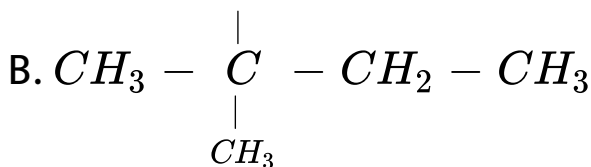
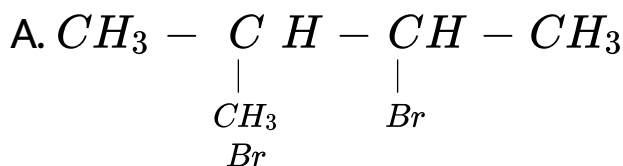
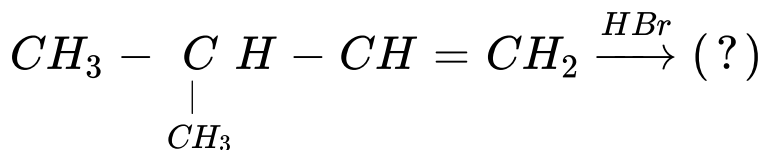


Answer: B



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30. The most stable product of following reaction is.....



Answer: B



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31. The number of possible aromatic ether for compound $C_8H_{10}O$ is

A. 4

B. 5

C. 6

D. 3

Answer: A



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32. In which reaction product is mentioned incorrectly ?

A. 

B. 

C. 

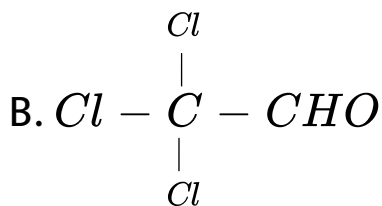
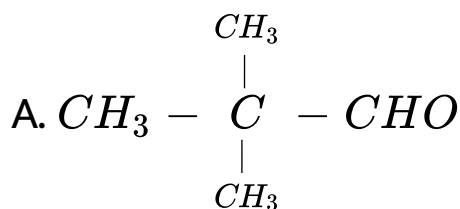
D. 

Answer: A



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33. Which of the following will not give Cannizaro reaction ?



C. 

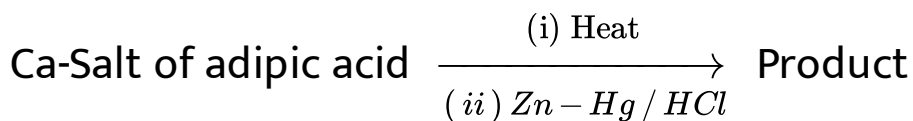
D. 

Answer: D



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34. Identify the final product in the given reaction below ...



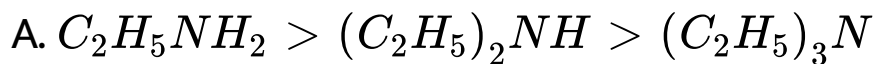
- A. n-Pentane
- B. Cyclopentene
- C. Cyclopentane
- D. n-Hexane

Answer: C

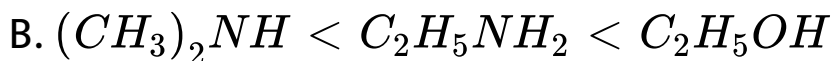


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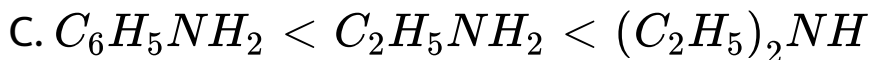
35. Identify correct order for given property.



(basic strength in gas phase)



(boiling point)



(Solubility in H_2O)



(Basic strength in H_2O)

Answer: A



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36. Which compound responds to carbylamine best ?

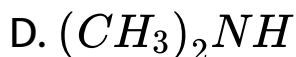
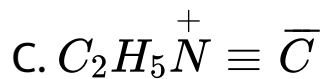
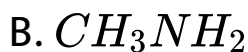
- A. p-mehtyl benzylamine
- B. N-mehtyl-O-methylamiline
- C. N-ethyl-N-methyl ethanamine
- D. N, N-dimethyl amino benzene

Answer: A



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37. Find the end product in the given reaction.



Answer: D



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38. Number of chiral C-atom in glucose are

A. 4

B. 5

C. 3

D. 6

Answer: A



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39. Which amino acid does not have primary amine

A. Proline

B. Glycine

C. Alanine

D. Glutamic acid

Answer: A



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40. Which hetero cyclic base is absent in DNA ?

A. Adanine

B. Guanine

C. Uracil

D. Thymine

Answer: C

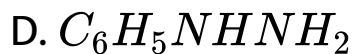


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41. Glucose does not react with

A. HCN

B. $NaHSO_3$



Answer: B



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42. The oxidant which is used as an antiseptic ?



B. Phenol



D. KNO_3

Answer: A



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43. Which of the following is not an addition homopolymer ?

A. SBR

B. Natural rubber

C. Toflon

D. PVC

Answer: A



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44. Correct pair of polymer and its monomer is.....

A. Nylon-6 → Caprolactum

B. Neoprene → Isoprene

C. Orlon $CH_2 = CH - CH = CH_2$

D. Bakelite → Chloroprene

Answer: A



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45. Which Polymer has PDI value is equal to 1 ?

A. Nylon-6 \rightarrow Caprolactum

B. Starch

C. Bakeline

D. Valcanized rubber

Answer: B



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Part B Section A

1. Certain order of reaction rate constant is at 500K and 700K temperature are $0.02S^{-1}$ and $0.07S^{-1}$ respectively. Calculate E_a and K of this reaction.



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Part B Section C

1. 0.6 ml acetic acid having the density 1.06 g mL^{-1} is dissolved in 1 litre water. It shows the depression in freezing point of 0.0205°C . Calculate van't Hoff factor and K_a of an acid.



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2. For acetic acid the graph of $\Lambda_m \rightarrow \sqrt{C}$ at infinite dilution is not useful for obtaining molar conductivity. Why? Λ°_m NaCl, HCl and NaAc are 126.4, 425.9 and $91.0 \text{ S cm}^2 \text{ mol}^{-1}$ and respectively calculate Λ°_m of HAc.

OR

Three electrolytic cells A, B, C with contain $ZnSO_4$, $AgNO_3$ and $CuSO_4$ respectively. They are connected in series. In cell B, 1.45 g of Ag is deposited on cathode when 1.5 amp current is passed. How lon current might have passed ?
What mass of Cu and Zn might have precipitated ?

($Ag = 108$, $Zn = 65.4$, $Cu = 63.5g/mol$)



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