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## CHEMISTRY

## BOOKS - CHHAYA CHEMISTRY (BENGALI <br> ENGLISH)

## PREVIOUS YEARS QUESTION PAPER 2016

Wbchse 2016

1. Two solutions are isotonic, what is meant by the statement?
2. When a little amount of common salt is dissolved in water, the boiling point increases. Explain why .

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3. Write two differences between physisorption and chemisorption.

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4. Explain why the solid catalyst is used in a finely divided
from in case of heterogneous catalysis.
5. First ionisation enthalpies of group-15 elements are, in general , greater than those of group-16 elementsexplain.

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6. State with balanced chemical equation what happens
when sulphur trioxide gas is passed through conc.

Sulphuric acid.

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7. An aqueous solution of a complex compound of formula $\mathrm{Co}\left(\mathrm{NH}_{3}\right)_{5} \mathrm{Br}\left(\mathrm{SO}_{4}\right)$ reacts readily with aqueous $\mathrm{AgNO}_{3}$ to give a yellowish white precipitate . Write down the structural formula of the complex and mention the reaction involved.

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8. Identify the two monomers in the following polymer:


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9. Silver crystallises in face centered cubic lattice. If edge length of the unit cell is $4.07 \times 10^{-8} \mathrm{~cm}$ and density of silver is $10.48 \mathrm{gcm}^{-3}$, determine the relative atomic mass of silver.

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10. What is Schottky defect ? Find out the packing effciency in a simple cubic lattice ?

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11. What is meant by the molarity of a solution ? What would be the osmotic pressure of a 0.02 molar aqueous
solution of urea at $27^{\circ} \mathrm{C} \quad$ ? $(\mathrm{R}=$ 0.082L. atm. $\mathrm{K}^{-1} . \mathrm{Mol}^{-1}$ )

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12. Arrange the following solution in order of decreasing specific conductance :
(i) 0.01 M NaCl
(ii) 0.05 M NaCl
(iii) 0.1 M NaCl
(iv) 0.5 M NaCl

Resistance of a conductivity cell filled with 0.1 M KCl solution is 80 ohm. The conductivity cell has a cell constant of $1.0 \mathrm{~cm}^{-1}$. Find out the molar conductance of the KCl solution.
13. Determine $\Delta G^{\circ}$ and the value of the equilibrium constant for the following reaction occuring in an electrochemical cell at $25^{\circ} \mathrm{C}$ :
$C u_{(s)}+2 \mathrm{Ag}^{+}(a q) \rightarrow \mathrm{Cu}^{2+}(a q)+2 \mathrm{Ag}(s)$
Given that, $E_{C u^{2+} / C u}^{0}=0.34 V \& E_{A g+\mid A g}^{0}=0.80 V$.

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14. What is Malachite ? Write down its formula .
15. State what happens when a solid mixture of KCl and $\mathrm{K}_{2} \mathrm{Cr}_{2} \mathrm{O}_{7}$ is heated with conc. Sulphuric acid. Give balanced chemical equation.

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16. Write the number of unpaired electron(s) present in
$\mathrm{Na} a_{2}\left[\mathrm{FeO}_{4}\right]$. [Atomic number of Fe is 26 ]

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17. Explain the cause of chemical similarity between the compounds of Nb and Ta .
18. What will happen when bromomethane reacts with an aqueous solution of sodium hydroxide ? Write the mechanism of the reaction.

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19. Write the organic products in the reaction:
$R C N \xrightarrow{\mathrm{LiAlH}_{4}}$
Dry ether/Heat

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20. Give examples of the following reactions:
(m) Gattermann-Koch reaction
(n) Koble-Schmidt reaction.
(o) Wolff-Kishner reduction

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21. How would you convert ?
$\mathrm{CH}_{3} \mathrm{CHO} \rightarrow \mathrm{CH}_{3} \mathrm{CH}=\mathrm{CHCHO}$

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22. Distinguish between formic acid and acetaldehyde by
a suitable chemical test.
23. Which one is the SI unit of molar conductivity ?
A. S. $m^{2} . M o l^{-1}$
B. s. $m^{-1}$
C. $S . \mathrm{cm}^{2} . \mathrm{mol}^{-1}$
D. S. cm. $\mathrm{mol}^{-1}$

## Answer: A

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24. Which of the following gases has odour but no colour?
A. $\mathrm{NO}_{2}$
B. $\mathrm{SO}_{2}$
C. $N_{2}$
D. $C l_{2}$

Answer: B

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25. What is the state of hybridisation of Fe in $\left[\mathrm{FeF}_{6}\right]^{3-}$ ion?
A. $d^{2} s p^{3}$
B. $d s p^{3}$
C. $s p^{3} d^{2}$
D. $s p^{3} d$

## Answer: C

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26. Which of the following compounds will respond to iodoform test ?
A. $\mathrm{CH}_{3} \mathrm{CH}_{2} \mathrm{CH}_{2} \mathrm{OH}$
B. $\mathrm{CH}_{3} \mathrm{C} \mathrm{CHCH}_{3}$
C. $\mathrm{CH}_{3} \mathrm{OCH}_{2} \mathrm{CH}_{3}$
D. $\mathrm{CH}_{3} \mathrm{OH}$

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27. Which of the following compounds will be formed when aniline reacts with $\mathrm{H}_{2} \mathrm{SO}_{5}$ ?
A. 8
B.
C.
D. $\Delta$

## Answer: C

28. Which of the following is a neutral polymer ?
A. Polyethylene
B. Nylon
C. Protein
D. Terylene

## Answer: C

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29. Which of the following is a constitutent of soap ?
A. Sodium sterate
B. Sodium salicylate
C. Sodium butyrate
D. Sodium benzenesulphonate

Answer: A

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30. What is the total number of atoms per unit cell in a
face centred cubic (fcc) structure?
A. 1
B. 2
C. 3
D. 4

## Answer: D

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31. Which of the following colloidal systems does correctly represent fog ?
A. Gas dispersed in a liquid
B. Gas dispersed in a gas
C. Solid dispersed in a gas
D. Liquid dispersed in a gas

Answer: D

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32. Which of the following free gaseous ions of 3d elements has the highest paramagnetic moment? (The atomic numbers of $\mathrm{Mn}, \mathrm{Fe}, \mathrm{Ni}$, and Cu are 25, 26 ,28 and 29 respectively )
A. $N i^{2+}$
B. $M n^{2+}$
C. $\mathrm{Fe}^{2+}$
D. $\mathrm{Cu}^{2+}$

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33. Which of the following is an example of freon ?
A. $\mathrm{BrCH} \mathrm{CH}_{2} \mathrm{Cl}$
B. $\mathrm{CCl}_{2} F_{2}$
C. $\mathrm{CCl}_{2} \mathrm{Br}_{2}$
D. $\mathrm{ICH}_{2} \mathrm{CH}_{2} \mathrm{~F}$

Answer: B

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34. Which of the following compounds is obtained when calcium acetate is dry distilled ?
A. Formic acid
B. Formandehyde
C. Acetone
D. Butanone

## Answer: C

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35. Which of the following bases is not present in DNA ?
A. Uracil
B. Thymine
C. Guanine
D. Cytosine

Answer: A

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36. Which of the following is an antibiotic?
A. Aspirin
B. Chloramphenicol
C. Veronal

D. Foristal

## Answer: B

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37. Between Eu and Ce which one exhibits +2 oxidation
state?

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38. Namea transition metal which is used as catalyst.
39. Write down the relation between the emf of a galvanic cell and the Gibbs energy change for the chemical reaction occuring in the cell.

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40. By what type of reaction do the common antacids destroy the excess acid of the stomach ?

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## Jee Main 2016

1. Galvanisation is applying a coating of -
A. Zn
B. Pb
C. Cr
D. Cu

Answer: A

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2. Which one of the following complexes shows optical
isomerism-
(en = ethylenediamine)
A. $\left[\mathrm{Co}\left(\mathrm{NH}_{3}\right) \mathrm{Cl}_{2}\right] \mathrm{Cl}$
B. $\left[\mathrm{Co}\left(\mathrm{NH}_{3}\right)_{3} \mathrm{Cl}_{3}\right]$
C. cis $\left[\mathrm{Co}(e n)_{2} \mathrm{Cl}_{2}\right] \mathrm{Cl}$
D. trans $\left[\mathrm{Co}(e n)_{2} \mathrm{Cl}_{2}\right] \mathrm{Cl}$

## Answer: C

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3. Decomposition of $\mathrm{H}_{2} \mathrm{O}_{2}$ follows a first order reaction.

In fifty minutes the concentration of $\mathrm{H}_{2} \mathrm{O}_{2}$ decreases
from 0.5 to 0.125 M in one such decomposition. When
the concentration of $\mathrm{H}_{2} \mathrm{O}_{2}$ reaches 0.05 M , the rate of
formation of $O_{2}$ will be-
A. $1.34 \times 10^{-2} \mathrm{~mol} . \mathrm{min}^{-1}$
B. $6.93 \times 10^{-2} \mathrm{~mol} . \mathrm{min}^{-1}$
C. $6.93 \times 10^{-4}$ mol.. $\mathrm{min}^{-1}$
D. $2.66 L . \mathrm{min}^{-1}$ at STP

## Answer: C

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4. The pair having the same magnetic moment is -
[At. No. : $\mathrm{Cr}=24, \mathrm{Mn}=25, \mathrm{Fe}=26, \mathrm{Co}=27]$
A. $\left[\mathrm{CoCl}_{4}\right]^{2-}$ and $\left[\mathrm{Fe}\left(\mathrm{H}_{2} \mathrm{O}_{6}\right)\right]^{2+}$
B. $\left[\mathrm{Cr}\left(\mathrm{H}_{2} \mathrm{O}_{6}\right)\right]^{2+}$ and $\left[\mathrm{CoCl}_{4}\right)^{2-}$
C. $\left[\mathrm{Cr}\left(\mathrm{H}_{2} \mathrm{O}\right)\right]^{2+}$ and $\left[\mathrm{Fe}\left(\mathrm{H}_{2} \mathrm{O}_{6}\right)\right]^{2+}$
D. $\left[\mathrm{Mn}\left(\mathrm{H}_{2} \mathrm{O}_{6}\right)\right]^{2+}$ and $\left[\mathrm{Cr}\left(\mathrm{H}_{2} \mathrm{O}\right)_{6}\right]^{2+}$

## Answer: C

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5. Thiol group is present in -
A. Methionine
B. Cytosine
C. Crstine
D. Cysteine

Answer: D
6. The pair in which phosphorus atoms have a formal oxidation state of +3 is-
A. Pyrophosphorus and pyrophosphoric acids
B. Orthophosphorous and pyrophosphorous acids
C. Pyrophosphorous and hypophosphoric acids
D. Orthophosphorous and hypophosphoric acids

Answer: B
7. Which one of the following ores is best concentrated bu froth floatation method /
A. Malachite
B. Magnetic
C. Siderite
D. Galena

## Answer: D

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8. In the Hofmann bromamide degradation reaction, the number of moles of NaOH and $\mathrm{Br}_{2}$ used for mole of
amine produced are-
A. Four moles of NaOH and one mole of $\mathrm{Br}_{2}$
B. One mole of NaOH and one mole of $\mathrm{Br} r_{2}$
C. Four moles of NaOH and two moles of $\mathrm{Br} r_{2}$
D. Two moles of NaOH and two moles of $\mathrm{Br}_{2}$

## Answer: A

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9. Which of the following compounds is metallic and ferromagnetic ?
A. $\mathrm{MnO}_{2}$
B. $\mathrm{TiO}_{2}$
C. $\mathrm{CrO}_{2}$
D. $V O_{2}$

## Answer: C

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10. Which of the following statements about low density polythene is FALSE /
A. It is used in the manufacture of buckets, dust-bins etc.
B. Its synthesis requires high pressure
C. It is a poor conductor of electricity
D. Its synthesis requires dioxygen or a peroxide initiator as a catalyst.

## Answer: A

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11. 18g glucose ( $\mathrm{C}_{6} \mathrm{H}_{12} \mathrm{O}_{6}$ ) is added to 178.2 g water. The vapour pressure of water (in torr) for this aqueous solution is -
A. 759
B. 7.6
C. 76
D. 752.4

## Answer: D

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12. The reaction of zinc with dilute and concentrated nitric acid, respectively produces -
A. $\mathrm{NO}_{2}$ and $\mathrm{N}_{2} \mathrm{O}$
B. $\mathrm{N}_{2} \mathrm{O}$ and $\mathrm{NO}_{2}$
C. $\mathrm{NO}_{2}$ and NO
D. NO and $\mathrm{N}_{2} \mathrm{O}$

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13. Which of the following is an anionic detergent
A. Glyceryl oleate
B. Sodium stearate
C. Sodium lauryl sulphate
D. Cetyl trimethyl ammonium bromide

## Answer: C

14. The reaction of propene with $\mathrm{HOCl}\left(\mathrm{Cl}_{2}+\mathrm{H}_{2} \mathrm{O}\right)$ proceeds through the intermediate-
A. $\mathrm{CH}_{3}-\mathrm{CHCl}-\mathrm{CH}_{2}^{+}$
B. $\mathrm{CH}_{3}-\mathrm{CH}^{+}-\mathrm{CH}_{2}-\mathrm{OH}$
C. $\mathrm{CH}_{3}-\mathrm{CH}^{+}-\mathrm{CH}_{2}-\mathrm{Cl}$
D. $\mathrm{CH}_{3}-\mathrm{CH}(\mathrm{OH})-\mathrm{CH}_{2}^{+}$

## Answer: C

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15. For a linear plot of $\log \left(\frac{x}{m}\right)$ versus logp in a Freundlich adsorption isotherm, which of the following
statements is correct ? ( K and n are constants)-
A. $\log \left(\frac{1}{n}\right)$ appears as the intercept
B. Both K and $\frac{1}{n}$ appear in the slope term
C. $\frac{1}{n}$ appears as the intercept
D. only $\frac{1}{n}$ appears as the shape

## Answer: D

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16. The absolute configuration of -
A. (2R, 3R)
B. $(2 R, 3 S)$
C. $(2 S, 3 R)$
D. $2 \mathrm{~S}, 3 \mathrm{~S}$ )

## Answer: C

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## Neet 2016 Phase I

1. Among the following , the correct order of acidity is -
A. $\mathrm{HClO}_{3}<\mathrm{HClO}_{4}<\mathrm{HClO}_{2}<\mathrm{HCIO}$
B. $\mathrm{HCIO}<\mathrm{HCIO}_{2}<\mathrm{HCIO}_{3}<\mathrm{HCIO}_{4}$
C. $\mathrm{HCIO}_{2}<\mathrm{HCIO}<\mathrm{HCIO}_{3}<\mathrm{HCIO}_{4}$
D. $\mathrm{HCIO}_{4}<\mathrm{HCIO}_{2}<\mathrm{HCIO}_{3}$

## Answer: C

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2. The rate of a first order reaction is $004 \mathrm{~mol} L^{-1} s^{-1}$
at 10 seconds and $003 \mathrm{~mol} L^{-1} \mathrm{~s}^{-1}$ at 20 seconds after initiation of the reaction. The half life period of the reaction is
A. 24.1 s
B. 34.1 s
C. 44.1 s
D. 54.1 s

Answer: A

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3. Which one of the following characteristics is associated with adsorption?
A. $\Delta G$ is negative but $\Delta H$ and $\Delta S$ are positive
B. $\Delta G, \Delta H$ and $\Delta S$ all are negative
C. $\Delta G$ and $\Delta H$ are negative but $\Delta S$ is positive
D. $\Delta G$ and $\Delta S$ are negative but $\Delta H$ is positive
4. In a protein molecule various amino acids are linked together by-
A. $\alpha$-glycosidic bond
B. $\beta$-glycosidic acid
C. peptide bond
D. dative bond

Answer: C

## 5. Natural rubber has -

A. All cis-configuration
B. All trans- configuration
C. Alternate cis- and trans- configuration
D. Random cis- and trans-configuration

## Answer: A

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6. Which one of the following statements is correct when
$\mathrm{SO}_{2}$ is passed through acidified $\mathrm{K}_{2} \mathrm{Cr}_{2} \mathrm{O}_{7}$ solution ?
A. The solution turns blue
B. The solution is decolourised
C. $\mathrm{SO}_{2}$ is reduced
D. Green $\mathrm{Cr}_{2}\left(\mathrm{SO}_{4}\right)_{3}$ is formed

## Answer: D

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7. When copper is heated with conc. $\mathrm{HNO}_{3}$, it produces-
A. $\mathrm{Cu}\left(\mathrm{NO}_{3}\right)_{2}$ and $\mathrm{NO}_{2}$
B. $\mathrm{Cu}\left(\mathrm{NO}_{3}\right)_{2}$ and NO
C. $\mathrm{Cu}\left(\mathrm{NO}_{3}\right)_{2}, \mathrm{NO}$ and $\mathrm{NO}_{2}$
D. $\mathrm{Cu}\left(\mathrm{NO}_{3}\right)_{2}$ and $\mathrm{N}_{2} \mathrm{O}$

## Answer: A

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8. Which of the following reagents would distinguish cis-
cyclopenta-1, 2, -diol from the trans-isomer ?
A. Acetone
B. Ozone
C. $\mathrm{MnO}_{2}$
D. Aluminium isopropoxide

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9. Lithium has a bcc structure. Its density is $530 \mathrm{~kg} . \mathrm{m}^{-3}$ and its atomic mass is $6.94 \mathrm{~g} . \mathrm{mol}^{-1}$. Calculate the edge length of a unit cell of Lithium metal.
$\left(N_{A}=6.02 \times 10^{23} \mathrm{~mol}^{-1}\right)-$
A. 154 pm
B. 352 pm
C. 527 pm
D. 264 pm

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10. Which one of the following orders is correct for the bond dissociation enthalpy of halogen molecules?
A. $I_{2}>B r_{2}>C l_{2}>F_{2}$
B. $C l_{2}>B r_{2}>F_{2}>I_{2}$
C. $B r_{2}>I_{2}>F_{2}>C l_{2}$
D. $F_{2}>C l_{2}>B r_{2}>I_{2}$

## Answer: C

11. Which of the following is an analgesic ?
A. Novalgin
B. Penicillin
C. Streptomycin
D. Chloromycetin

Answer: A

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12. Consider the nitration of benzene using mixed conc.
$\mathrm{H}_{2} \mathrm{SO}_{4}$ and $\mathrm{HNO}_{3}$. If a large amount of $\mathrm{KHSO}_{4}$ is
added to the mixture, the rate of nitration will be -
A. faster
B. slower
C. unchanged
D. doubled

Answer: B

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13. Consider the following liquid -vapour equilibrium.

Liquid $\Leftrightarrow$ Vapour

Which of the following relations is correct ?
A. $\frac{d \operatorname{In} G}{d T^{2}}=\frac{\Delta H_{v}}{R T^{2}}$
B. $\frac{d \operatorname{In} P}{d T}=\frac{-\Delta H_{v}}{R T}$
c. $\frac{d \operatorname{In} P}{d T}=\frac{-\Delta H_{v}}{T^{2}}$
D. $\frac{d \operatorname{In} P}{d T}=\frac{\Delta H_{v}}{R T^{2}}$

## Answer: D

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14. The pressure of $\mathrm{H}_{2}$ required to make the potential of
$H_{2}$ - electrode zero in pure water at 298 K -
A. $10^{-14} \mathrm{~atm}$
B. $10^{-12} \mathrm{~atm}$
C. $10^{-10} \mathrm{~atm}$
D. $10^{-4} \mathrm{~atm}$

## Answer: A

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15. Which of the following has longest $\mathrm{C}-\mathrm{O}$ bond length ?
(Free C-O bond length in CO is $1.128 \AA$ A)-
A. $\mathrm{Ni}(\mathrm{CO})_{4}$
B. $\left[\mathrm{Co}(\mathrm{CO})_{4}\right]^{\ominus}$
C. $\left[\mathrm{Fe}(\mathrm{CO})_{4}\right]^{2-}$
D. $\left[\mathrm{Mn}(\mathrm{CO})_{6}\right]^{+}$

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16. The addition of a catalyst during a chemical reaction
alters which of the following quantities ?
A. Entropy
B. Internal energy
C. Enthalpy
D. Activation energy

Answer: D

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17. Which is the correct statement for the given acids ?
A. Phosphinic acid is a diprotic acid while phosphonic
acid is a monoprotic acid
B. Phosphonic acid is a monoprotic acid while phosphinic acid a dprotic acid
C. Both are triprotic acids
D. Both are diprotic acids

## Answer: B

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18. Fog is colloidal solution of -
A. Liquid in gas
B. Gas in liquid
C. Solid in gas
D. Gas in gas

## Answer: A

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19. The ionic radii of $A^{+}$and $B^{-}$ions are $0.98 \times 10^{-10}$
m and $1.81 \times 10^{-10} \mathrm{~m}$. The coordination number of each ion in $A B$ is -
A. 6
B. 4
C. 8
D. 2

## Answer: A

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20. Which of the following statements about the composition of the vapour over an ideal 1:1 molar mixture of benzene and toluene is correct ? Assume that the temperature is constant at $25^{\circ} \mathrm{C}$. (Given : Vapour

Pressure Data at $25^{\circ} \mathrm{C}$, benzene $=12.8 \mathrm{kPa}$, Toluene $=$ 3.85 kPa )-
A. The vapour will contain a higher percentage of benzene
B. The vapour will contain a higher percentage of toluene
C. The vapour will contain equal amounts of benzene and toluene
D. Not enough information is given to make a prediction
21. The product formed by the reaction of an aldehyde with a primary amine is -
A. Schiff base
B. Ketone
C. Carboxylic acid
D. Aromatic acid

Answer: A

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22. Which of the following biphenysis is optically active ?
A.
B.
C.
D.

Answer: B

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23. The correct statement regarding the basicity of arylamines is -
A. Arylamines are generally less basic than
alkylamines because the nitrogen lone-pair
electrons are delocalized by interaction with the
aromatic ring $\pi$ electron system.
B. Arylamines are generally more basic thatn
alkylamines because the nitrogen lone-pair
electrons are not delocalized by interaction with
the aromatic ring $\pi$ electron system
C. Arylamines are generally more basic than
alkylamines
D. Arylamines are generally more basic than
alkylamines, because the nitrogen atom in
arylamines is sp-hybridized

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24. The correct statement regarding RNA and DNA, respectively is -
A. The sugar component RNA is arabinose and the
sugar components in DNA is 2' -deoxyribose.
B. The sugar component in RNA is ribose and the sugar components in DNA is 2' -deoxyribose.
C. The sugar component is RNA is arabinose.
D. The sugar component in RNA is $2^{\prime}$-deoxyribose and the sugar component in DNA is arabinose

Answer: B

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25. At $100^{\circ} \mathrm{C}$ the vapour pressure of a solution of 6.5 g of a solute in 100 g water is 732 mm . If $k_{b}=0.5$, the boiling point of this solution will be -
A. $101^{\circ} \mathrm{C}$
B. $100^{\circ} \mathrm{C}$
C. $102^{\circ} \mathrm{C}$
D. $103^{\circ} \mathrm{C}$
26. Which one given below is a non-reducing sugar ?
A. Maltose
B. Lactose
C. Glucose
D. Sucrose

Answer: D

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1. A nitrogen -containing aromatic compound $A$ reacts with $\mathrm{Sn} / \mathrm{HCl}$, followed by $H N O_{2}$ to give an unstable compound B. B on treatment with phenol, forms a beautiful coloured compound $C$ with the molecular formula $\mathrm{C}_{12} \mathrm{H}_{10} \mathrm{~N}_{2} \mathrm{O}$. The structure of compound A-
A. A
B.
C.
D.

## Answer: C

## 2. Consider the reaction

$$
\mathrm{CH}_{3} \mathrm{CH}_{2} \mathrm{CH}_{2} \mathrm{Br}+\mathrm{NaCN} \rightarrow \mathrm{CH}_{3} \mathrm{CH}_{2} \mathrm{CH}_{2} \mathrm{CN}+\mathrm{NaBr}
$$

This reaction will be the fastest in -
A. water
B. ethanol
C. methanol
D. N,N'-dimethylformamide (DMF)

## Answer: D

3. The molar conductivity of a $0.5 \mathrm{~mol} / \mathrm{dm}^{3}$ solution of
$\mathrm{AgNO}_{3}$ with electrolytic conductivity of
$5.76 \times 10^{-3} S . \mathrm{cm}^{-1}$ at 298 K is -
A. $28.8 S . \mathrm{cm}^{2} / \mathrm{mol}$
B. $2.88 S . \mathrm{cm}^{2} / \mathrm{mol}$
C. $11.52 \mathrm{~S} . \mathrm{cm}^{2} / \mathrm{mol}$
D. $0.086 S . \mathrm{cm}^{2} / \mathrm{mol}$

## Answer: C

4. The decomposition of phosphine $\left(\mathrm{PH}_{3}\right)$ an tungsten at low pressure is a first-order reaction. It is because the
A. rate of decomposition is very low
B. rate is proportional to the surface coverage
C. rate is inversely proportional to the surface coverage
D. rate the independent of the surface coverage

Answer: B

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5. The coagulation values in millimoles per litre of the electrolytes used for the coagulation of $A s_{2} S_{3}$ are given below :
I. $(\mathrm{NCl})=52$, II. $\left(B a C l_{2}=0.69\right.$
III. $\left(\mathrm{MgSO}_{4}\right)=0.22$

The correct order of their coagulating power is -
A. $I I I>I>I I$
B. $I>I I>I I I$
C. $I I>I>I I I$
D. $I I I>I I>I$

## Answer: D

6. During the electrolysis of molten sodium chloride, the time required to produce 0.10 mol of chlorine gas using a current of 3 amperes is -
A. 330 minutes
B. 55 minutes
C. 110 minutes
D. 220 minutes

## Answer: C

7. The van't Hoff factor (i) for a dilute aqueous solution of the strong electrolyte barium hydroxide is-
A. 3
B. 0
C. 1
D. 2

## Answer: A

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8. In calcium flouride, having the flourite structure, the coordination numbers for calcium ion $\left(C a^{2+}\right)$ and
flouride ion ( $F^{-}$) are-
A. 4 and 8
B. 4 and 2
C. 6 and 6
D. 8 and 4

## Answer: D

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9. If the $E_{\text {cell }}^{0}$ for a given reaction has a negative value, which of the following gives the correct relationships for the values of $\Delta G^{0}$ and $K_{e q}$ ?
A. $\Delta G^{0}<K_{e q}<1$
B. $\Delta G^{0}>0, K_{e q}<1$
C. $\Delta G^{0}>0, K_{e q}>1$
D. $\Delta G^{0}<0, K_{e q}>1$

Answer: B

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10. Which one of the following is incorrect for ideal solution?
A. $\Delta G_{\text {mix }}=0$
B. $\Delta H_{\text {mix }}=0$
C. $\Delta U_{\text {mix }}=0$
D. $\Delta P=P_{\text {obs }}-P_{\text {calculated by Raoult's law }}=0$

## Answer: A

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11. $A I F_{3}$ is soluble in HF only in presence of KF : It is due to the formation of -
A. $K_{3}\left[A I F_{3} H\right]$
B. $K_{3}\left[\mathrm{AIF}_{3} \mathrm{H}_{3}\right]$
C. $K_{3}\left[A I F_{6}\right]$
D. $\mathrm{AIH}_{3}$

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12. Zinc can be coated on iron to produce galvanised iron but the reverse is not possible .It is because-
A. zinc has higher negative electrode potential than iron
B. zinc is lighter than iron
C. zinc has lower melting point than iron
D. zinc has lower negative electrode potential than

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13. Hot concentrated sulphuric acid is a moderately strong oxidizing agent. Which of the following reactions does not show oxidizing behaviour ?

$$
\begin{aligned}
& \text { A. } \mathrm{CaF}_{2}+\mathrm{H}_{2} \mathrm{SO}_{4} \rightarrow \mathrm{CaSO}_{4}+2 \mathrm{HF} \\
& \text { B. } \mathrm{Cu}+2 \mathrm{H}_{2} \mathrm{SO}_{4} \rightarrow \mathrm{CuSO}_{4}+\mathrm{SO}_{2}+2 \mathrm{H}_{2} \mathrm{O} \\
& \text { C. } 3 \mathrm{~S}+2 \mathrm{H}_{2} \mathrm{SO}_{4} \rightarrow 3 \mathrm{SO}_{2}+2 \mathrm{H}_{2} \mathrm{O} \\
& \text { D. } \mathrm{C}+2 \mathrm{H}_{2} \mathrm{SO}_{4} \rightarrow \mathrm{CO}_{2}+2 \mathrm{SO}_{2}+2 \mathrm{H}_{2} \mathrm{O}
\end{aligned}
$$

14. The correct geometry and hybridization for $\mathrm{XeF}_{4}$ are-
A. sqaure planar, $s p^{3} d^{2}$
B. octahedral, $s p^{3} d^{2}$
C. trigonal bipyramidal, $s p^{3} d$
D. planar triangle, $s p^{3} d^{3}$

Answer: A

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15. The correct increasing order of trans-effect of the following species is -
A. $\mathrm{CN}^{-}>\mathrm{Br}^{-}>\mathrm{C}_{6} \mathrm{H}_{5}^{-} \mathrm{NH}_{3}$
B. $\mathrm{NH}_{3}>\mathrm{CN}^{-}>\mathrm{Br}^{-}>\mathrm{C}_{6} \mathrm{H}_{5}^{-}$
C. $\mathrm{CN}^{-}>\mathrm{C}_{6} \mathrm{H}_{5}^{-}>\mathrm{Br}^{-}>\mathrm{NH}_{3}$
D. $\mathrm{Br}^{-}>\mathrm{CN}^{-}>\mathrm{NH}_{3}>\mathrm{C}_{6} \mathrm{H}_{5}^{-}$

## Answer: C

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16. Which one of the following statements related to lanthanons is incorrect?
A. $\mathrm{Ce}(+4)$ solutions are widely used as oxidizing agent
in voumetric analysis.
B. Europium shows +2 oxidation state.
C. The basicity decreases as the ionic radius decreases from Pr to Lu.
D. All the lanthanons are much more reactive than aluminium.

## Answer: D

## D Watch Video Solution

17. Which of the following can be used as the halide component for Friedel-Crafts reaction ?
A. Isopropyl chloride
B. Chlorobenzene
C. Bromobenzene
D. Chloroethene

## Answer: A

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18. Jahn-Teller effect is not observed in high spin complexes of -
A. $d^{9}$
B. $d^{7}$
C. $d^{8}$
D. $d^{4}$

Answer: C

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19. Which one of the following structures represents nylon 6,6 polymer ?
A.
B.
C.
D.

## Answer: A

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20. Which one of the following nitro-compounds does not react with nitrous acid?
A.
B.
C.
D.

## - View Text Solution

21. The central dogma of molecular genetic states that the genetic information flows from -
A. DNA $\rightarrow$ RNA $\rightarrow$ Carbohydrates
B. Amino acids $\rightarrow$ Proteins $\rightarrow$ DNA
C. DNA $\rightarrow$ Carbohydrates $\rightarrow$ Proteins
D. DNA $\rightarrow$ RNA $\rightarrow$ Proteins

## Answer: D

$\square$
$\square$

