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## CHEMISTRY

## BOOKS - R SHARMA CHEMISTRY

## (HINGLISH)

## NEET PREVIOUS PAPER

## Solved Question

1. Name the gas that can readily decolourise acidified $\mathrm{KMnO}_{4}$ solution:
A. $S O_{2}$
B. $\mathrm{NO}_{2}$
C. $P_{2} O_{5}$
D. $\mathrm{CO}_{2}$

Answer: A

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2. Mechanism of a hypothetical reaction
$X_{2}+Y_{2} \rightarrow 2 X Y$ is given below:
(i) $X_{2} \rightarrow X+X$ (fast)
(ii) $X+Y_{2} \Leftrightarrow X Y+Y$ (slow)
(iii) $X+Y \rightarrow X Y$ (fast)

The overall order of the reaction will be :
A. 2
B. 0
C. 1.5
D. 1

Answer: C

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3. The heating of phenyl-methyl ethers with $H I$ produces
A. iodobenzene
B. phenol
C. benzene
D. ethyl chlorides

Answer: B

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4. Which one is the most acidic compound?
(1) OH
A.

(3)
C.
(4) OH
D.

Answer: C

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5. The correct increasing order fo basic strength for the following compound is:
(I)

(II) $\quad \mathrm{NH}_{2}$

(III)

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: C

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6. The most suitable method of separation of a mixture of ortho and para nitrophenol in the ratio $1: 1$ is :
A. Chromatography
B. Crystallization
C. Steam distillation
D. Sublimation

Answer: C

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7. $\mathrm{HgCl}_{2}$ and $I_{2}$ both when dissolved in water containing $I^{-}$ions the pair of species formed is:
A. $H g I_{2}, I^{-}$
B. $\mathrm{HgI}_{4}^{2-}, \mathrm{I}_{3}^{-}$
C. $H g I_{2}, I_{2}, I^{-}$
D. $H g I_{2}, I_{2}, I_{3}^{-}$

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8. Mixture of chloroxylenol and terpineol acts as :
A. antiseptic
B. antipyretic
C. antibiotic
D. analgesic

Answer: A
9. An example of a sigma bonded organometallic compound is:
A. Grignard
B. Ferrocene
C. Cobaltocene
D. Ruthenocene

Answer: A
10. A first order reaction has a specific reaction rate of $10^{-2} \mathrm{sec}^{-1}$. How much time will it take for $20 g$ of the reactant to reduce to $5 g$ ?
A. 138.6 sec
B. 346.5 sec
C. 693.0 sec
D. 238.6 sec

Answer: A
11. The emf of a Daniell cell at $298 K$ is $E_{1}$
$\mathrm{Zn}\left|\mathrm{ZnSO}_{4}(0.01 \mathrm{M})\right|\left|\mathrm{CuSO}_{4}(1.0 \mathrm{M})\right| \mathrm{Cu}$
When the concentration of $Z N S O_{4}$ is $1.0 M$ and that of $\mathrm{CuSO}_{4}$ is 0.01 M , the emf changed to $E_{2}$.

What is the relationship between $E_{1}$ and $E(2)$ ?
A. $E_{1}<E_{2}$
B. $E_{1}>E_{2}$
C. $E_{2}=0 \neq E_{1}$
D. $E_{1}=E_{2}$

Answer: B

## 12. Which is the incorrect statement?

A. Density decrease in case of crystals with schottky's defect
B. $\operatorname{NaCI}(s)$ is insulator, silicon is
semiconductor, silver is conductor, quarts is
piezoelectric crystal
C. Frenkel defect is favoured in those inonic
compounds in which sizes of cations and aninos are almost equal
D. $F e O_{0.98}$ has non stocihiometric metal

## deficiency defect

## Answer: C

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13. If molarity of the dilute solutions is doubled ,the value of molal depression constant $\left(K_{f}\right)$ will be:
A. halved
B. tripled
C. unchanged
D. doubled

## Answer: C

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14. Which of the following is dependent on temperature?
A. Molarity
B. Mole fraction
C. Weight percentage
D. Molality

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15. Identify $A$ and predict the type of reaction $\mathrm{OCH}_{3}$

A. and elimination, addition reaction
(1)


## B. and cine substitution reaction

(2)

C. and cine substitution reaction
(3)

D. and substitution reaction
(4)


## Answer: D

16. The correct order of stoichiometries of $A g C I$
formed when $\mathrm{AgNO}_{3}$ in excess is treated with the complex:
$\mathrm{CoCI}_{3} .6 \mathrm{NH}_{3}, \mathrm{CoCI}_{3} .5 \mathrm{NH}_{3}, \mathrm{CoCI}_{3} .4 \mathrm{NH}_{3}$
respectively is:
A. $3 A g C I, 1 A g C I, 2 A g C I$
B. $3 \mathrm{AgCI}, 2 \mathrm{AgCI}, 1 \mathrm{AgCI}$
C. $2 A g C I, 3 A g C I, 1 A g C I$
D. $1 \mathrm{AgCI}, 3 \mathrm{AgCI}, 2 \mathrm{AgCI}$

Answer: B
17. Which of the following reactions is appropriate for converting acetamide to methamine?
A. Hoffmann hypobromamide reaction
B. Stephens reaction
C. Gabriel phthalimide synthesis
D. Carbylamine reaction

Answer: A

- 

18. In which pair of ions both the species contains $S-S$ bond?

> A. $S_{4} O_{6}^{2}, S_{2} O_{3}^{2-}$
> B. $S_{2} O_{7}^{2-}, S_{2} O_{8}^{2-}$
> C. $S_{4} O_{6}^{2-}, S_{2} O_{7}^{2-}$
> D. $S_{2} O_{7}^{2-}, S_{2} O_{3}^{2-}$

Answer: A

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19. Correct increasing order for the wavelengths of absorption in the visible region by the complexes of $\mathrm{Co}^{3+}$ is:
A.

$$
\left[\mathrm{Co}\left(\mathrm{H}_{2} \mathrm{O}\right)_{6}\right]^{3+},\left[\mathrm{Co}(\mathrm{en})_{3}\right]^{3+},\left[\mathrm{Co}\left(\mathrm{NH}_{3}\right)_{6}\right]^{3+}
$$

B.

$$
\left[\mathrm{Co}\left(\mathrm{H}_{2} \mathrm{O}\right)_{6}\right]^{3+},\left[\mathrm{Co}\left(\mathrm{NH}_{3}\right)_{6}\right]^{3+},\left[\mathrm{Co}(e n)_{3}\right]^{3+}
$$

C.

$$
\left[\mathrm{Co}\left(\mathrm{H}_{2} \mathrm{O}\right)_{6}\right]^{3+},\left[\mathrm{Co}(e n)_{3}\right]^{3+},\left[\mathrm{Co}\left(\mathrm{H}_{2} \mathrm{O}\right)_{6}\right]^{3+}
$$

D.

$$
\left.\left[\mathrm{Co}(e n)_{3}\right]^{3+},\left[\mathrm{Co}(\mathrm{NH})_{3}\right)_{6}\right]^{3+},\left[\mathrm{Co}\left(\mathrm{H}_{2} \mathrm{O}\right)_{6}\right]^{3+}
$$

## Answer: D

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20. Consider the reaction


Identify $A, X, Y$ and $Z$
A. $A-$ Methoxymethane, $X-$ Ethanol,
$Y-$ Ethanoic, $Z-$ semicarbazide
B. $A-$ Ethanal, $X-$ Ethanol

$$
Y-\text { But-2-enal, } Z-\text { Semicarbazone }
$$

C. $A$ - Ethanol, $X-$ Acetaldehyde
$X$ - Butanone, $Z$ - Hydrazone
D. $A$ - Methoxymethane, $X$ - Ethanoic acid
$Y$ - Acetate ion, $Z$ - Hydrazine

Answer: B

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21. Of the following which is the product formed

when cyclohexanone undergoes

condensation followed by heating?
(1)

(2)

(3)

C.
(4)


Answer: A
22. Extraction of gold and silver involves leaching with $\mathrm{CN}^{-}$ion.silver is later recovered by:
A. distillation
B. zone refining
C. displacement by $Z n$
D. Iquation

## Answer: C

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23. Pick out the correct statement with respect to

$$
\left[M n(C N)_{6}\right]^{3-}:
$$

A. It is $s p^{3} d^{2}$ hybridised and tetrahedral
B. It is $d^{2} s p^{3}$ hybridised and octahedral
C. It is $d s p^{2}$ hybridised and square planar
D. It is $s p^{3} d^{2}$ hybridised and octahdral

## Answer: B

24. The reason for greater range of oxidation state in actinoids is attributed to:
A. actinoid contraction
B. $5 f, 6 d$ and $7 s$ levels having comparable energies
C. $4 f$ and $5 d$ levels being close in energies
D. the radioactive nature of actinoids

Answer: B
25. Which fo the following is not correct?
A. Ovalbumin is a simple food reserve in eggwhite
B. Blood proteins thrombin and fibrinogen are involved in blood clotting
C. Denaturation makes the proteins more active

# D. Insulin maintains sugar level in the blood of a 

 human body
## Answer: C

26. Nitration of aniline in strong acidic medium also gives m-nitroaniline because
A. In spite of substitution nitro group always
goes to only m-position
B. In electrophilic substitution reactions amino
group is meta directive
C. In absence of substiutents nitro group
always goes ot m-position.
D. In acidic (strong) medium aniline is present as anilinum ion.

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27. The difference between amylose and amylopectin is
A. Amylopectin have $1 \rightarrow 4 \alpha$ - linkage and $1 \rightarrow 6 \alpha$-linkage
B. Amylose have $1 \rightarrow 4 \alpha$-linkage and $1 \rightarrow 6 \beta$ -
linkage
C. Amylopectin have $1 \rightarrow 4 \alpha$ - linkage and

## $1 \rightarrow 6 \beta$-linkage

## D. Amylose in made up of glucose and galactose

## Answer: A

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28. Regarding cross-linked or network polymers, which of the following statements is incorrect?
A. They contain covalent bonds between various
linear polymer chains.
B. They are formed from bi- and tri - functional monomers.
C. Examples are bakelite and melamine.
D. They contain strong covalent bonds in their polymer chains.

Answer: D

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29. In the reaction


## electrophile involved is

A. dichloromethyl cation $\mathrm{C} \stackrel{\oplus}{\mathrm{H}} \mathrm{Cl}_{2}$
B. formyl cation $\stackrel{\oplus}{C} H O$
C. dichloromethyl anion $\mathrm{C} \stackrel{\oplus}{\mathrm{H}} \mathrm{Cl}_{2}$
D. dichlorocarbene (: $C C l_{2}$ )

Answer: D
30. Carboxylic acid have higher boiling points than aldehydes, ketones and even alcohol of comparable molecular mass. It is due to their
A. formation of intramolecular H - bonding
B. formation of carboxylate ion
C. more extensive association of carboxylic acid
via vander waals force of attraction.
D. formation of intermolecular H - bonding

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31. Compound $A, C_{8} H_{10} O$, is found to react with NaOI (produced by reacting Y with NaOH ) and yields a yellow precipitate with characteristic smell.
$A$ and $Y$ are respectively
A. (1) $\mathrm{H}_{3} \mathrm{C}-\longrightarrow-\mathrm{CH}_{2}-\mathrm{OH}$ and $\mathrm{I}_{2}$
B.
(2)
C.
(3)
$D$


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32. The correct difference between first-and second-order reactions is that
A. The rate of a first-order reaction does not depent on reactant concentrations' the rate
of a second-order reaction does depend on
reactant concentrations
B. The half-life ona first-order reaction does not
depend on $[A]_{0}$, the half-life of a second-
order reaction does depend on $[A]_{0}$
C. A first-order reaction can be catalyzed, a second-order reaction cannot be catalyzed
D. The rate of first-order reaction does depend
on reactant concentrations, the rate of a
second-order reaction does not depend on reactant concentrations

Answer: B

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33. Iron exhibits $b$ structure at roomj temperature.

Above $9000^{\circ} C$, it transformers to $f$ structure. The ratio of density of iron at room temperature to that at $900^{\circ} C$ (assuming molar mass and atomic radii of iron remains constant with temperature) is
A. $\frac{\sqrt{3}}{\sqrt{2}}$
B. $\frac{4 \sqrt{3}}{3 \sqrt{2}}$
C. $\frac{3 \sqrt{3}}{4 \sqrt{2}}$
D. $\frac{1}{2}$

Answer: C
34. Which of the following statements is not ture for halogens?
A. All form monobasic oxyacids.
B. All are oxidizing agents.
C. All but fluorine show positive oxidation states
D. Chlorine has the highest electron-gain enthaply

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35. Considering Ellingham diagram, which of the following metals can be used to reduce alumina?
A. $F e$
B. $Z n$
C. $M g$
D. $C u$

Answer: C
36. Which ordering of compound is according to the decreasing order of the oxidation state of nitrogen?
A. $\mathrm{HNO}_{3}, \mathrm{NO}, \mathrm{N}_{2}, \mathrm{NH}_{4} \mathrm{Cl}$
B. $\mathrm{HNO}_{3}, \mathrm{NO}, \mathrm{NH}_{4} \mathrm{Cl}, \mathrm{N}_{2}$
C. $\mathrm{HNO}_{3}, \mathrm{NH}_{4} \mathrm{Cl}, \mathrm{NO}, \mathrm{N}_{2}$
D. $\mathrm{NH}_{4} \mathrm{Cl}, \mathrm{N}_{2}, \mathrm{NO}, \mathrm{HNO}_{3}$

## Answer: A

37. On which of the following properties does the coagulating power of an ion depend?
A. The magnitude of the charge on the ion alone.
B. Size of the ion alone.
C. Both magnitude and sign of the charge on the ion
D. The sign of charge on the ion alone

Answer: C
38. When initial concentration of the reactant is doubled, the half-life period of a zero order reaction
A. is halved
B. is doubled
C. is tripled
D. remains unchanged

Answer: B

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39. Which of the following compounds can form a

## zwitterion?

A. Aniline
B. Acetanilide
C. Benzoic acid
D. Glycine

Answer: D

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40. The type of isomersim shown by the complex
$\left[\mathrm{CoCl}_{2}(e n)_{2}\right]$ is
A. Geometrical isomerism
B. Coordination isomerism
C. Ionization isomerism
D. Linkage isomerism

Answer: A

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41. Which of the following ions exhibits $d-d$ transitions and paramagnetism as well?
A. $\mathrm{CrO}_{4}^{2-}$
B. $\mathrm{Cr}_{2} \mathrm{O}_{7}^{2-}$
C. $\mathrm{MnO}_{4}^{-}$
D. $\mathrm{MnO}_{4}^{2-}$

Answer: D

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42. The geometry and magnetic behaviour of the complex $\left[\mathrm{Ni}(\mathrm{CO})_{4}\right]$ are
A. square planar geometry and diamagnetic
B. tetraheral geometry and diamgnetic
C. square planer geometry and paramagnetic
D. tetrahedral geometry and paramagnetic

## Answer: B

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43. Iron carbonyl, $\mathrm{Fe}(\mathrm{CO})_{5}$ is
A. tetranuclear
B. mononuclear
C. trinuclear
D. dinuclear

Answer: B

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44. A mixture of 2.3 g formic acid and 4.5 g oxalic acid is treated with conc. $\mathrm{H}_{2} \mathrm{SO}_{4}$. The evolved gaseous mixture is passed through KOH pellets.

Weight (in g ) of the remaining product at STP will be
A. 1.4
B. 3.0
C. 2.8
D. 4.4

Answer: C
45. Consider the change in oxidation state of Bromine corredponding to different emf values as shown in the diagram below :

$$
\begin{gathered}
\mathrm{BrO}_{4} \xrightarrow{1.82 \mathrm{~V}} \mathrm{BrO}_{3}^{-} \xrightarrow{1.5 \mathrm{~V}} \mathrm{HBrO} \\
\mathrm{Br}^{-} \underset{1.0652 \mathrm{~V}}{\leftarrow} \mathrm{Br}_{2} \stackrel{ }{1.595 \mathrm{~V}}
\end{gathered}
$$

The the species undergoing dispropprtionation is .
A. $\mathrm{BrO}_{3}^{-}$
B. $\mathrm{BrO}_{4}^{-}$
C. $B r_{2}$
D. HBrO

## Answer: D

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46. The number of lone pairs of electrons present on the central atom of $\mathrm{CIF}_{3}$ is
A. one
B. two
C. four
D. three

## Answer: B

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47. The compound $A$ on treatment with $N a$ gives
$B$, and with $P C l_{5}$ gives $C . B$ and $C$ react together to give di Ethyl ether. $A, B$ and $C$ are in the order
A. $\mathrm{C}_{2} \mathrm{H}_{5} \mathrm{OH}, \mathrm{C}_{2} \mathrm{H}_{6}, \mathrm{C}_{2} \mathrm{H}_{5} \mathrm{Cl}$
B. $\mathrm{C}_{2} \mathrm{H}_{5} \mathrm{OH}, \mathrm{C}_{2} \mathrm{H}_{5} \mathrm{Cl}, \mathrm{C}_{2} \mathrm{H}_{5} \mathrm{ONa}$
C. $\mathrm{C}_{2} \mathrm{H}_{5} \mathrm{Cl}, \mathrm{C}_{2} \mathrm{H}_{6}, \mathrm{C}_{2} \mathrm{H}_{5} \mathrm{OH}$
D. $\mathrm{C}_{2} \mathrm{H}_{5} \mathrm{OH}, \mathrm{C}_{2} \mathrm{H}_{5} \mathrm{ONa}, \mathrm{C}_{2} \mathrm{H}_{5} \mathrm{Cl}$

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48. The compound $C_{7} H_{8}$ undergoes the following reactions
$C_{7} H_{8} \xrightarrow{3 \mathrm{CI}_{2} / \Delta} A \xrightarrow{\mathrm{Br}_{2} / \mathrm{Fe}} B \xrightarrow{\mathrm{Zn} / \mathrm{HCI}}$
The product ' $C$ ' is .
A. m-bromotoluene
B. o-bromotoluene
C. 3-bromo-2, 4,6- trichlorotoluene
D. p-bromotoluene

Answer: A

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49. For the redox reaction
$\mathrm{MnO}_{4}^{\ominus}+\mathrm{C}_{2} \mathrm{O}_{4}^{2-}+\mathrm{H}^{\oplus} \rightarrow \mathrm{Mn}^{2+}+\mathrm{CO}_{2}+\mathrm{H}_{2} \mathrm{O}$
the correct coefficients of the reactions for the balanced reaction are

$$
\begin{aligned}
& \text { A. } \mathrm{MnO}_{4}^{-} \quad \mathrm{C}_{2} \mathrm{O}_{4}^{2-} \quad \mathrm{H}^{+} \\
& \begin{array}{lll}
16 & 5 & 2 \\
\mathrm{MnO}_{4}^{-} & \mathrm{C}_{2} \mathrm{O}_{4}^{2-} & \mathrm{H}^{+}
\end{array} \\
& \text {B. } \\
& 2 \\
& 5 \\
& 16 \\
& \text { C. } \mathrm{MnO}_{4}^{-} \quad \mathrm{C}_{2} \mathrm{O}_{4}^{2-} \quad \mathrm{H}^{+} \\
& 2 \quad 16 \quad 5 \\
& \text { D. } \mathrm{MnO}_{4}^{-} \quad \mathrm{C}_{2} \mathrm{O}_{4}^{2-} \quad \mathrm{H}^{+} \\
& \begin{array}{lll}
5 & 16 & 2
\end{array}
\end{aligned}
$$

## Answer: B

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50. Identify the major product $P, Q$ and $R$ in the following sequence of reactions:


B.

C.

D.

## Answer: D

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51. Which oxide of nitrogen is not a common pollutant introduced into the atmosphere both due to natural and human activity?
A. $\mathrm{N}_{2} \mathrm{O}_{5}$
B. $\mathrm{NO}_{2}$
C. $\mathrm{N}_{2} \mathrm{O}$
D. NO

## Answer: A::C

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