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India's Number 1 Education App

## CHEMISTRY

## NTA MOCK TESTS ENGLISH

## NTA NEET SET 55

Chemistry

1. Gd (64) has unpaired electrons with sum of spin
A. 7,3.5
B. 8,3
C. 6,3
D. 8,4

## Answer: D

2. 2.4 g of pure Mg (at. Mass = 24) is dropped in 100 mL of 1 M HCl . Which of the following statement is wrong ?
A. 1.12 L of hydrogen is produced at S.T.P
B. 0.05 mol of magnesium is left behind
C. HCl is the limiting reagent
D. 0.005 mol of magnesium is left behind

## Answer: D

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3. An element with atomic mass 100 has a bcc structure and edge length 400 pm . The density of element is
A. $2.144 \mathrm{~g} / \mathrm{cm}^{3}$
B. $5.188 \mathrm{~g} / \mathrm{cm}^{3}$
C. $7.289 \mathrm{~g} / \mathrm{cm}^{3}$
D. $10.376 \mathrm{~g} / \mathrm{cm}^{3}$

## Answer: B

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4. The bonding electrons and lone pairs present in $I_{3}^{-}$are respectively:
A. 12
B. 3
C. 6
D. 9

## Answer: D

5. 

$x \mathrm{MnO}_{4}^{-}+y \mathrm{C}_{2} \mathrm{O}_{4}^{2-}+z \mathrm{H}^{+} \rightarrow x \mathrm{Mn}^{2+}+2 y \mathrm{CO}_{2}+\frac{z}{2} \mathrm{H}_{2} \mathrm{O}$
The values of $x, y$ and $z$ in the reaction are, respectively
A. 10,2,5,2
B. 2,5,2,10
C. 6,4,2,4
D. 3,5,2,10

## Answer: B

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6. The number of possible optical isomers for complexes $M A_{2} B_{2}$ with $s p^{3}$ and $d s p^{2}$ hybridized metal atoms, respectively, is :

Note $A$ and $B$ are unidentate neutral and unidentate monoanionic ligands, respectively.
A. 2 and 2
B. 0 and 0
C. 0 and 2
D. 0 and 1

## Answer: B

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7. For the reaction , $2 \mathrm{SO}_{2}+\mathrm{O}_{2} \Leftrightarrow 2 \mathrm{SO}_{3}$, the rate of disappearance of $O_{2}$ is $2 \times 10^{-4} \mathrm{molL}^{-1} \mathrm{~s}^{-1}$. The rate of appearance of $\mathrm{SO}_{3}$ is
A. $2 \times 10^{-4} \mathrm{~mol} L^{-1} s^{-1}$
B. $4 \times 10^{-4} \mathrm{molL} L^{-1} \mathrm{~s}^{-1}$
C. $1 \times 10^{-4} \mathrm{molL} L^{-1} \mathrm{~s}^{-1}$
D. $6 \times 10^{-4} \mathrm{molL} L^{-1} s^{-1}$
8. Zine can be coated on iron to produce galvanized iron but the reverse is not possible it is because
A. Zinc is lighter than iron
B. Zinc has lower melting point than iron
C. Zinc has lower negative electrode potential than iron
D. Zinc has higher negative electrode potential than iron

## Answer: D

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9. The $\left[\mathrm{H}^{+}\right]$of a resulting solution that is 0.01 M acetic acid $\left(K_{a}=1.8 \times 10^{-5}\right)$ and 0.01 M in benzoic acid $\left(K_{a}=6.3 \times 10^{-5}\right):$

$$
\text { A. } 9 \times 10^{-4}
$$

B. $81 \times 10^{-4}$
C. $9 \times 10^{-5}$
D. $2.8 \times 10^{-3}$

## Answer: A

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10. At $35^{\circ} \mathrm{C}$, the vapour pressure of $C S_{2}$ is 512 mm Hg and that of acetone is 344 mm Hg . A solution of $C S_{2}$ in acetone has a total vopour pressure of 600 mm Hg . The false statement amongst the following is
A. A mixture of $100 \mathrm{~mL} C S_{2}$ and 100 mL acetone has a volume
$<200 \mathrm{~mL}$
B. Roult's law is not obeyed by this system
C. Heat must be adsorbed in order to produce the solution at $35^{\circ} \mathrm{C}$
D. $C S_{2}$ and acetone are less attracted to each other than to themselves

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11. Which of the following compounds is not chiral ?
A. $\mathrm{CH}_{3} \mathrm{CHDCH}_{2} \mathrm{Cl}$
B. $\mathrm{CH}_{3} \mathrm{CH}_{2} \mathrm{CHDCl}$
C. $\mathrm{DCH}_{2} \mathrm{CH}_{2} \mathrm{CH}_{2} \mathrm{Cl}$
D. $\mathrm{CH}_{3} \mathrm{CHClCH}_{2} \mathrm{D}$

## Answer: C

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12. The order of the oxidation state of the phos- phorus atom in $\mathrm{H}_{3} \mathrm{PO}_{2}, \mathrm{H}_{3} \mathrm{PO}_{4}, \mathrm{H}_{3} \mathrm{PO}_{3}$ and $H_{4} \mathrm{P}_{2} \mathrm{O}_{6}$ is :-
A. $\mathrm{H}_{3} \mathrm{PO}_{4}>\mathrm{H}_{3} \mathrm{PO}_{2}>\mathrm{H}_{3} \mathrm{PO}_{3}>\mathrm{H}_{4} \mathrm{P}_{2} \mathrm{O}_{6}$
B. $\mathrm{H}_{3} \mathrm{PO}_{4}>\mathrm{H}_{2} \mathrm{P}_{2} \mathrm{O}_{6}>\mathrm{H}_{3} \mathrm{PO}_{3}>\mathrm{H}_{3} \mathrm{PO}_{2}$
C. $\mathrm{H}_{3} \mathrm{PO}_{2}>\mathrm{H}_{3} \mathrm{PO}_{3}>\mathrm{H}_{4} \mathrm{P}_{2} \mathrm{O}_{6}>\mathrm{H}_{3} \mathrm{PO}_{4}$
D. $\mathrm{H}_{3} \mathrm{PO}_{4}>\mathrm{H}_{3} \mathrm{PO}_{2}>\mathrm{H}_{3} \mathrm{PO}_{4}>\mathrm{H}_{4} \mathrm{P}_{2} \mathrm{O}_{6}$

## Answer: B

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13. Silver chloride dissolves in excess of $\mathrm{NH}_{4} \mathrm{OH}$. The cation present in solution is.
A. $\left[\operatorname{Ag}\left(N H_{3}\right)_{6}\right]^{+}$
B. $\left[\mathrm{Ag}\left(\mathrm{NH}_{3}\right)_{4}\right]^{+}$
C. $\mathrm{Ag}^{+}$
D. $\left[\mathrm{Ag}\left(\mathrm{NH}_{3}\right)_{2}\right]^{+}$
14. Arrang the anions (p) $\bar{C} H_{3},(q) \bar{N} H_{2},(r) O H^{-},(s) F^{-}$, in decreasing order of their basic strength .
A. $p>q \gg r>s$
B. $q>p>r>s$
C. $r>q>p>s$
D. $r>p>q>s$

## Answer: A

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15. The product of the reaction is

A.

B.

C.

D.

## Answer: B

16. The reaction of $\mathrm{H}_{2} \mathrm{O}_{2}$ with $\mathrm{H}_{2} \mathrm{~S}$ is an example of reaction .
A. addition
B. oxidation
C. reduction
D. redox

## Answer: D

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17. Which of the following is not correct statement for periodic classification of elements?
A. The properties of the elements are the periodic functions of their atomic numbers
B. Non - metallic elements are lesser in number than the metallic elements
C. The first ionization energies of the elements along a period do not vary in a regular manner with increase in atomic number
D. For transition elements, the d - electrons are filled monotonically with increase in atomic number

## Answer: D

18. What is the density of solution of sulphuric acid used as an electrolyte in lead accumulator?
A. $1.5 g L^{-1}$
B. $1.2 g L^{-1}$
C. $1.8 g L^{-1}$
D. $2.0 g L^{-1}$

## Answer: B

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19. Which of the following common elements is/are present in the anode mud in electrolytic refining of copper ?
A. Sn and Ag
B. Pb and Zn
C. Ag and Au
D. Fe and Ni

## Answer: C

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$X$ is
A. $\mathrm{Ph}-\stackrel{O}{\stackrel{O}{C}}-\mathrm{H}$
B. $\mathrm{Ph}-\stackrel{\stackrel{O}{\|}-\mathrm{C}}{\mathrm{C}}-\mathrm{Ph}$

D. $\mathrm{Ph}-\stackrel{\stackrel{\mid}{\mathrm{C}}-\mathrm{CH}_{3}}{ }$

## Answer: B

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21. Which of the following statement is correct for $\left[M n(C N)_{6}\right]^{3-}$ according to valence bond theory ?
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 octahedral

## Answer: B

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22. The correct order of atomic radii in group 13 elements is
A. $A l>G a<I n<T I$
B. $G a<A l<I n<T I$
C. $A l<I n<G a<T I$
D. $A l>G a<T I<I n$

## Answer: B

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23. Identify the monosaccharide containing only one asymmetric carbon atom in its molecule.
A. Ribulose
B. Ribose
C. Erythrose
D. Glyceraldehyde

## Answer: D

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24. Which of the following compounds is (S) - 4 - chloro - 1methylcyclohexene ?


A.


## C. <br> D.

## Answer: A

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25. When equal volume of the following solutions are mixed, which of the following gives maximum precipitate ? $\left(K_{s p}\right.$ of $\left.\mathrm{AgCl}=10^{-12}\right)$
A. $10^{-4} \mathrm{MAg}^{+}$and $10^{-4} \mathrm{MCl}^{-}$
B. $10^{-3} \mathrm{MAg}^{+}$and $10^{-3} \mathrm{MCl}^{-}$
C. $10^{-5} M A g^{+}$and $10^{-5} M C l^{-}$
D. $10^{-6} \mathrm{MAg}^{+}$and $10^{-6} \mathrm{MCl}^{-}$

## Answer: B

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26. The correct order of increasing bond angles in the following species is
A. $\mathrm{ClO}_{2}^{-}<\mathrm{Cl}_{2} \mathrm{O}<\mathrm{ClO}_{2}$
B. $\mathrm{Cl}_{2} \mathrm{O}<\mathrm{ClO}_{2}<\mathrm{ClO}_{2}^{-}$
C. $\mathrm{ClO}_{2}<\mathrm{Cl}_{2} \mathrm{O}<\mathrm{ClO}_{2}^{-}$
D. $\mathrm{ClO}_{2}<\mathrm{ClO}_{2}^{-}<\mathrm{ClO}_{2}$

## Answer: D

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27. The maximum prescribed concentration of copper in drinking water is:
A. 0.005
B. 3
C. 2
D. 5

## Answer: A

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28. The reactant ' $P$ ' in the following reactions is
$P \xrightarrow[\text { dil } . \mathrm{H}_{2} \mathrm{SO}_{4}]{\mathrm{K}_{2} \mathrm{Cr}_{2} \mathrm{O}_{7}} \mathrm{C} \xrightarrow[\mathrm{H}_{3} \mathrm{O}^{+}]{\mathrm{CH}_{3} \mathrm{MgBr}} \mathrm{CH}_{3}-\underset{\mathrm{OH}}{\stackrel{\mathrm{CH}_{3}}{\mathrm{C}}}-\mathrm{CH}_{3}$
A. $\mathrm{CH}_{3} \mathrm{CHOHCH}_{3}$
B. $\mathrm{CH}_{3} \mathrm{COCH}_{3}$
C. $\mathrm{CH}_{3} \mathrm{CH}_{2} \mathrm{OH}$
D. $\mathrm{CH}_{3} \mathrm{COOH}$

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29. The maximum number of $90^{\circ}$ angles between bond pair-bond pair of electrons is observed in
A. $s p^{3} d^{2}$ hybridisation
B. $s p^{3}$ dhybridisation
C. $d s p^{3}$ hybridisation
D. $d s p^{2}$ hybridisation

## Answer: A

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30. Calculate the energy in joule corresponding to light of wavelength 45
(Planck's constant $h=6.63 \times 10^{-34}$ Js: speed of light : $c=3 \times 10^{8} \mathrm{~ms}$
A. $6.67 \times 10^{11}$
B. $4.42 \times 10^{-15}$
C. $6.67 \times 10^{15}$
D. $4.42 \times 10^{-18}$

## Answer: D

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31. 1.0 g of magnesium is burnt with $0.56 \mathrm{~g} O_{2}$ in a closed vessel. Which reactant is left in excess and how much? (At.wt: $\mathrm{Mg}=24, \mathrm{O}=16$ )
A. $\mathrm{Mg}, 5.8 \mathrm{~g}$
B. $\mathrm{Mg}, 0.58 \mathrm{~g}$
C. $O_{2}, 0.24 \mathrm{~g}$
D. $O_{2}, 2.4 \mathrm{~g}$

## Answer: B

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32. Which of the following carboxylic acids is a tricarboxylic acid?
A. Citric acid
B. Malonic acid
C. Succinic acid
D. Malic acid

## Answer: A

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33. Metal carbides on reaction with $\mathrm{H}_{2} \mathrm{O}$ form $\mathrm{CH}_{4}$, Carbide can be
A. $\mathrm{CaC}_{2}$
B. $M g_{3} C_{2}$
C. $B e_{2} C$
D. All of these

## Answer: C

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34. Which of the following carbocations is most stable ?

A. I
B. II
C. III
D. IV

## Answer: B

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35. Calculate the wok done during combustion of 0.138 kg of ethanol, $\mathrm{C}_{2} \mathrm{H}_{5} \mathrm{OH}_{(l)}$ at 300 K . Given: $\mathrm{R}=8.314 \mathrm{~J} \mathrm{~K}^{-1} \mathrm{~mol}^{-1}$, molar mass of ethanol $=46 \mathrm{~g} \mathrm{~mol}^{-1}$.
A. $-7482 J$
B. 7482 J
C. $-2494 J$
D. 2494 J

## Answer: B

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36. When $\mathrm{SO}_{2}$ gas is passed into aqueous $\mathrm{Na}_{2} \mathrm{CO}_{3}$, the product (s) formed is (are)
A. $\mathrm{NaHSO}_{4}$
B. $\mathrm{Na}_{2} \mathrm{SO}_{2}$
C. $\mathrm{NaHSO}_{3}$
D. $\mathrm{Na}_{2} \mathrm{SO}_{3}$ and $\mathrm{NaHSO}_{3}$

## Answer: D

37. The correct match between items of List - I and List - II is

| List - I |  | List - II |
| :--- | :--- | :--- |
| (A) Coloured impurity | (P)Steam <br> distillation |  |
| Mixture of o - <br> (B) nitrophenol and p - <br> nitrophenol | (Q)Fractional <br> distillation |  |
| (C) Crude Naphtha | (R)Charcoal <br> treatment |  |
| (D) Mixture of glycerol | (S) under reduced |  |
| and sugars | pressure |  |

A. $1-\mathrm{R}, 2-\mathrm{S}, 3-\mathrm{P}, 4-\mathrm{Q}$
B. $1-\mathrm{R}, 2-\mathrm{P}, 3-\mathrm{Q}, 4-\mathrm{S}$
C. 1-P, 2-P, 3-Q,4-S
D. $1-\mathrm{R}, 2-\mathrm{P}, 3-\mathrm{S}, 4-\mathrm{Q}$

## Answer: B

38. An organic compound "X" having molecular formula $\mathrm{C}_{5} \mathrm{H}_{10} \mathrm{O}$ yields phenyl hydrazone and gives negative response to the lodoform test and Tollen's test. It produces n-pentant on reduction. 'X' could be:
A. pentanal
B. 2 - pentanone
C. 3 - pentanone
D. amyl alcohol

## Answer: B

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39. The equilibrium constant of the following are :

$$
\begin{array}{ll}
\mathrm{N}_{2}+3 \mathrm{H}_{2} \Leftrightarrow 2 \mathrm{NH}_{3} & K_{1} \\
\mathrm{~N}_{2}+\mathrm{O}_{2} \Leftrightarrow 2 \mathrm{NO} & K_{2} \\
\mathrm{H}_{2}+\frac{1}{2} \mathrm{O}_{2} \rightarrow \mathrm{H}_{2} \mathrm{O} & K_{3}
\end{array}
$$

The equilibrium constant $(K)$ of the reaction :
$2 \mathrm{NH}_{3}+\frac{5}{2} \mathrm{O}_{2} \stackrel{k}{\Longleftrightarrow} 2 \mathrm{NO}+3 \mathrm{H}_{2} \mathrm{O}$, will be
(a) $K_{1} K_{3}^{3} / K_{2}$
(b) $K_{2} K_{3}^{3} / K_{1}$
(c) $K_{2} K_{3} / K_{1}$
(d) $K_{2}^{3} K_{3} / K_{1}$
A. $K_{1} \cdot \frac{K_{2}}{K_{3}}$
B. $K_{2} \cdot \frac{K_{3}^{3}}{K_{1}}$
C. $K_{2} \cdot \frac{K_{3}^{2}}{K_{1}}$
D. $K_{2}^{2} \cdot \frac{K_{3}}{K_{1}}$

## Answer: B

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40. Which one of the following is an example of a thermosetting polymer?
A. Bakelite
B. PVC
C. Nylon 6, 6
D. Buna-S

## Answer: A

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41. for the given PV isotherms, which of the following is correct for
$T_{1}, T_{2}, T_{3} ?$

A. $T_{1}<T_{2}<T_{3}$
B. $T_{3}<T_{2}<T_{1}$
C. $T_{2}<T_{3}<T_{1}$
D. $T_{1}<T_{3}<T_{2}$

## Answer: A

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42. The difference between $\bar{C}_{p}$ and $\bar{C}_{v}$ is $\left[\bar{C}_{p}\right.$ and $\bar{C}_{v}$ signify molar quantities ]
A. larger is case of gases in comparison to solids and liquids
B. large in case of liquids in comparison to gas and solids
C. larger in case of solids in comparison to gas and liquids
D. equal solids , liquids and gases
43. Barbiturates acts as
A. hypnotics
B. antimicrobials
C. antacids
D. antiseptics

## Answer: A

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44. What will be the product when benzaldehyde is treated with NaOD in $\mathrm{D}_{2} \mathrm{O}$ ?
A. $\mathrm{C}_{2} \mathrm{H}_{5} \mathrm{CH}_{2} \mathrm{OD}$ and $\mathrm{C}_{6} \mathrm{H}_{5} \mathrm{COONa}$
B. $\mathrm{C}_{2} \mathrm{H}_{5} \mathrm{CH}_{2} \mathrm{OD}$ and $\mathrm{C}_{6} \mathrm{H}_{5} \mathrm{COOD}$
C. $\mathrm{C}_{6} \mathrm{H}_{5} \mathrm{CHDOD}$ and $\mathrm{C}_{6} \mathrm{H}_{5} \mathrm{COONa}$
D. $\mathrm{C}_{6} \mathrm{H}_{5} \mathrm{COOCHDC} \mathrm{C}_{6} \mathrm{H}_{5}$

## Answer: A

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45. What is the correct explanation of the non - reducing property of sucrose?
A. $\alpha$ - D - glucopyranose and $\beta$ - D - fructofuranose are linked via
$C_{2}$ and $C_{1}$ centres respectively
B. $\alpha$ - D - glucopyranose and $\beta$ - D - fructofuranose are linked via
$C_{1}$ and $C_{2}$ centres respectively
C. $\alpha$ - D - glucopyranose and $\beta$ - D - fructofuranose are linked via
$C_{2}$ and $C_{2}$ centres respectively
D. $\alpha$ - D - glucopyranose and $\beta$ - D - fructofuranose are linked via
$C_{3}$ and $C_{4}$ centres respectively

## Answer: B

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