CHEMISTRY

BOOKS - NTA MOCK TESTS

NTA NEET SET 50

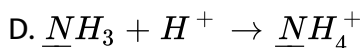**Chemistry**

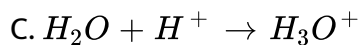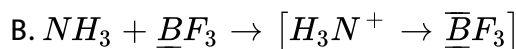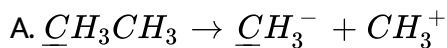**1.** The molality of 15 % by wt solution of H_2SO_4 is

A. 18

B. 2.6

C. 1.2

D. 1.8

Answer: D

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2. In which transformation the change of hybridization and shape about underlined atom take place ?

A. $\underline{C}H_3CH_3 \rightarrow \underline{C}H_3^- + CH_3^+$

B. $NH_3 + \underline{B}F_3 \rightarrow \left[H_3N^+ \rightarrow \overline{\underline{B}}F_3\right]$

C. $H_2\underline{O} + H^+ \rightarrow H_3\underline{O}^+$

D. $\underline{N}H_3 + H^+ \rightarrow \underline{N}H_4^+$

Answer: B

3. The binding energy of the electron in the lowest orbit of the hydrogen atom is 13.6 eV . The magnitudes energies from three lowest orbits of the hydrogen are

A. 13.6, 6.8 , 8.4 eV

B. 13.6 , 10.2 , 3.4 eV

C. 13.6 , 27.2 , 40.8 eV

D. 13.6 ,3.4, 1.5 eV

Answer: D

4. A sample of milk splits after 60 min . At 300 K and after 40 min 400K when the population of lactobacillus acidophilus in it doubles . The activation energy (in KJ/mol) for this process is closest to (Given ,

$R = 8.3 Jmol^{-1}K^{-1}, \quad \ln\left(\frac{2}{3}\right) = 0.4, e^{-3} = 4.0$)

A. 39.8

B. 19.9

C. 3.98

D. 7.96

Answer: C

5. One mole of non - ideal gas undergoes a change of state (2.0 atm , 3 .0 L , 95 K → (4.0 atm , 5.0 L , 245 K) with a change in internal energy , $\Delta U = 30.0 L$ atm . The change in enthalpy (ΔH) of the process in L atm is

A. 40.0

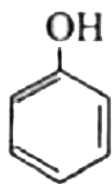B. 22.0

C. 44.0

D. 48.0

Answer: C

6. A binary solid (A^+B^-) has a zinc blende stracture with B ions constituting the lattice and A^+ inos occupying 25% of the terahedral holes. The formula of the solid is
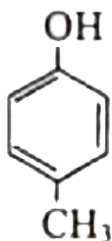
A. AB

B. A_2B

C. AB_2

D. AB_4

Answer: C

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7. In the following compounds
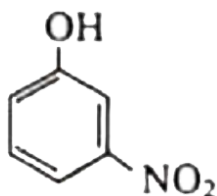

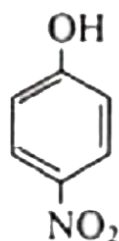OH   OH   OH   OH

(I)   CH₃   NO₂

      (II)   (III)   (IV)

the order of acidity is

A. $III > IV > I > II$

B. $I > IV > III > II$

C. $II > I > III > IV$

D. $IV > III > I > II$

Answer: D

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8. An aqueous solution containing 1 M each of $Au^{3+}, Cu^{2+}, Ag^+, Li^+$

is being electrolysed by using inert electrodes . The value of standard

potentials   are

$E^\circ_{Ag^+ / Ag} = 0.80V, E^\circ_{cu^+ / Cu} = 0.34V$ and $E^\circ_{Au^{3+} / Au} = 1.50V, E^\circ_{Li^+ / Li} =$

with increasing voltage , the sequence of deposition of metals on the

cathode will be

A. Li, Cu , Ag , Au

B. Cu , Ag , Au

C. Au , Ag , Cu

D. Au , Ag , Cu , Li

Answer: C

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9. When 1 L of CO_2 is heated with graphite , the volume of the gases collected is 1.5 L. Calculate the number of moles of CO produced at STP

A. $\dfrac{1}{11.2}$

B. $\dfrac{28}{22.4}$

C. $\dfrac{1}{22.4}$

D. $\dfrac{14}{22.4}$

Answer: C

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10. Which of the following statement is not correct ?

A. $[Ni(CN)_4]^{2-}$ and $[Ni(CO)_4]$ have the same magnetic moment

B. $[NiCl_4]^{2-}$ and $[PtCl_4]^{2-}$ have different shapes

C. Hybridisation states of Co in $[Co(OX)_3]^{3-}$ is sp^3d^2

D. In brown - ring complex $[Fe(H_2O)_5NO]SO_4$ oxidation state of Fe

is +1

Answer: C

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11. The cyanide ion CN and N_2 are isoelectronic, but in contrast to CN^-, N_2 is chemically inert, because of

A. Low bond energy

B. Absence of bond polarity

C. Unsymmetrical electron distribution

D. Presence of more number of electrons in bonding orbital

Answer: B

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12. Which of the following types of forces bind together the carbon atoms in diamond ?
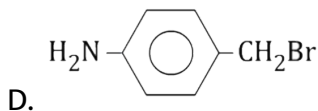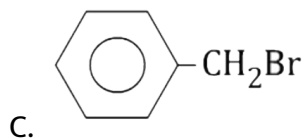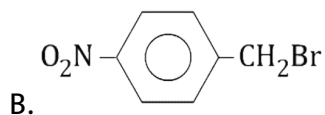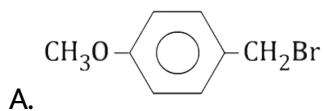
A. Ionic

B. Covalent

C. Dipolar

D. Van der Waals

Answer: B

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13. Which one of the following compounds undergoes predominantly S_N^2 reaction with aqueous NaOH in a polar aprotic solvent ?

A.
CH_3O—⬡—CH_2Br

B.
O_2N—⬡—CH_2Br

C.
⬡—CH_2Br

D.
H_2N—⬡—CH_2Br

Answer: B

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14. Total charge required for the oxidation of two moles Mn_3O_4 into MnO_4^{2-} in presence of alkaline medium is

A. 5 F

B. 10 F

C. 20 F

D. None of these

Answer: C

15. When heated , ammonium carbamate decomposes as follows

$NH_4COONH_2(s) \Leftrightarrow 2NH_3(g) + CO - 2(g)$ At a certain temperature , the equilibrium pressure of the system is 0.318 atm , K_p for the reaction is
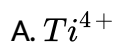
A. 0.128

B. 1.146

C. 4.76×10^{-3}

D. 2.24×10^{-2}

Answer: C

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16. Which one of the following ionic species will impart colour to an aqueous solution ?

A. Ti^{4+}

B. Cu^+

C. Zn^{2+}

D. Cr^{3+}

Answer: D

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17. The reaction of (S) - 2 - bromobutane with OH^- to produce (R) - butan -2 - ol will be

A. first order in 2 - bromobutane only

B. first order in OH^- only

C. first order in 2 - bromobutane and first order in OH^-

D. second order in OH^-

Answer: C

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18. Calculate elevation in boiling point for 2 molal aqueous solution of glucose (Given: $K_{b(H_2O)} = 0.5 Kkgmol^{-1}$)
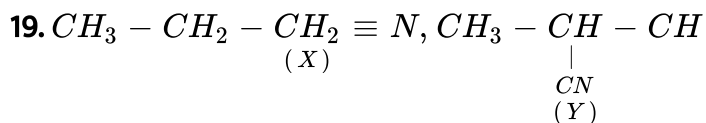
A. $1°C$

B. $4°C$

C. $3°C$

D. $2°C$

Answer: A

19. $CH_3 - CH_2 - \underset{(X)}{CH_2} \equiv N, CH_3 - CH - CH$
$$\underset{\underset{(Y)}{CN}}{|}$$

Relation between (X) and (Y) is

A. Chain isomer

B. Positional isomer

C. Functional isomer

D. Metamers

Answer: A

20. Which of the compounds
$HCHO(I), CH_3CH_2CHO(II), CH_3COCH_3(III)$ and $HCOOC_2H_5(IV)$
will give a secondary alcohol on reaction with excess Grignard reagent ,

followed by hydrolysis ? Select the correct answer using the codes given below

A. II only

B. III only

C. I and IV

D. II and IV

Answer: D

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21. Solubility of calcium phosphate (molecular mass, M) in water is Wg per $100mL$ at $25°C$. Its solubility product at $25°C$ will be approximately

A. $10^9 \left(\dfrac{W}{M}\right)^5$

B. $10^7 \left(\dfrac{W}{M}\right)^5$

C. $10^5 \left(\dfrac{W}{M}\right)^5$

D. $10^3 \left(\dfrac{W}{M} \right)^5$

Answer: B

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22. Select the correct statement
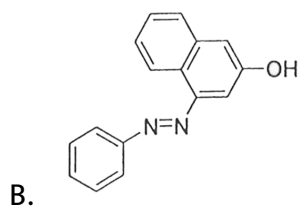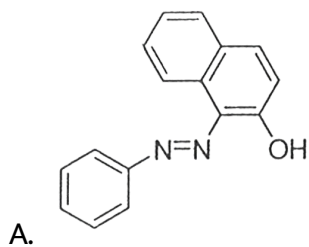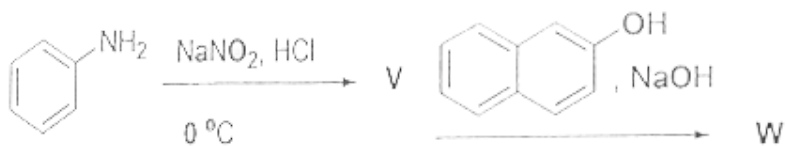
    A. Longmuir adsorption is highly specific

    B. Van der Waals adsorption is reversible

    C. Both A and B are exothermic

    D. All are correct

Answer: D

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23. In the following reactions, the major product W is

A.

B.

C.

D.

Answer: A

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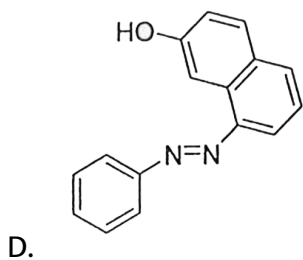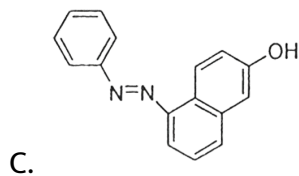
24. Galvanization is applying a coating of :

A. Zn

B. Pb

C. Cr

D. Cu

Answer: A

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25. When dihydroxy acetone reacts with HIO_4, the product is /are

A. HCHO

B. HCHO and HCOOH

C. $HCHO$ and CO_2
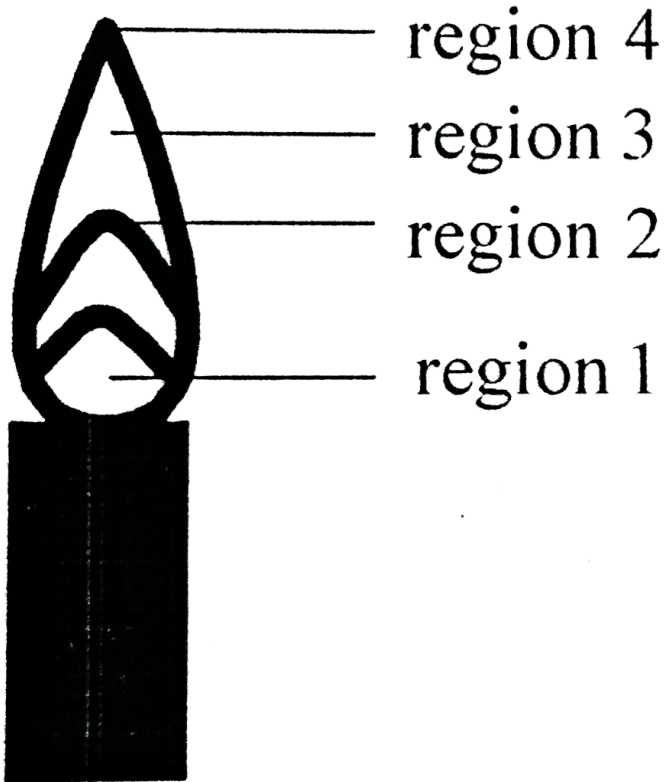
D. CHOOH

Answer: C

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26. The hottest region of Bunsen flame shown in the figure below is :

region 4

region 3

region 2

region 1

A. region 4

B. region 1

C. region 2

D. region 3

Answer: C

27. Select incorrect order

A. $NH_3 > PH_3 > AsH_3 > SbH_3$ (order of acidic strength)

B. $S > Se > Te > O$ (order of electron affinity)
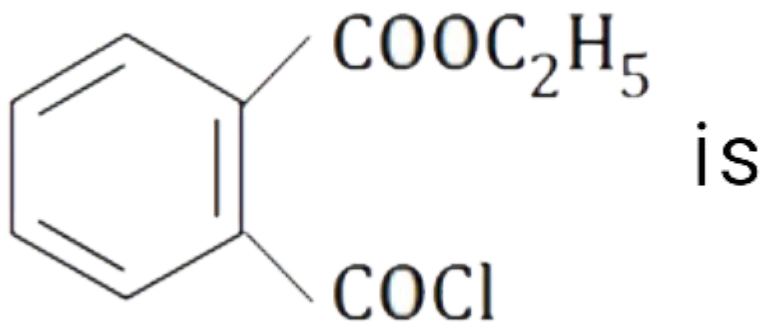
C. $Si < S < P < Cl$ (order of IE)

D. $S^2 > Cl^- > K^+ > Ca^{2+}$ (order of radius)
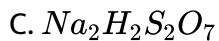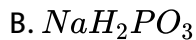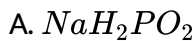
Answer: A

28. The IUPAC name of

is

A. 2 - Chlorocarbonyl ethylbenzoate

B. 2 - Carboxyethyl benzoyl chloride

C. Ethyl - 2- (chlorocarbonyl) benzoate

D. Ethyl - 1 - (chlorocabonyl) benzoate

Answer: C

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29. Which one of these is not an acid salt ?

A. NaH_2PO_2

B. NaH_2PO_3

C. $Na_2H_2S_2O_7$

D. NaH_2PO_4

Answer: A

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30. The compressibility factor of gases is less than unity at STP. Therefore,

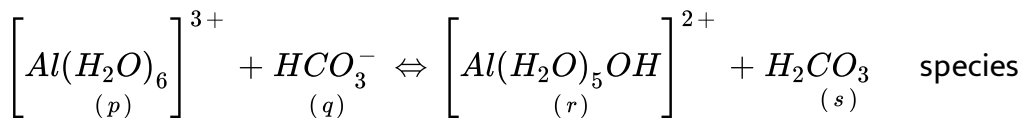A. $vm > 22.4$ litres

B. $vm < 22.4$ litres

C. $vm = 22.4$ litres

D. $vm = 44.8$ litres

Answer: B

31. In the following

$$\left[Al(H_2O)_6 \atop (p) \right]^{3+} + \underset{(q)}{HCO_3^-} \Leftrightarrow \left[Al(H_2O)_5 OH \atop (r) \right]^{2+} + \underset{(s)}{H_2CO_3} \quad \text{species}$$

behaving as Brosnted - Lowry acids are

A. (p),(s)

B. (q),(r)

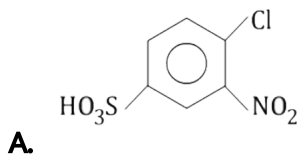C. (q),(s)

D. (p),(r)

Answer: A

32. The intermediate product 'X' of following synthesis is indentified as

$\xrightarrow{Cl_2/FeCl_3}$ $\xrightarrow{Conc.\ H_2SO_4}$ $\xrightarrow[\Delta]{Fuming\ HNO_3}$ 'X' $\xrightarrow[120°C]{NH_3/Cu_2O/\Delta}$

$\xrightarrow{Dil.H_2SO_4,\Delta}$ 2,6-Dinitroaniline
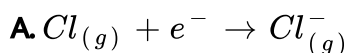
A.

B.

C.

D.
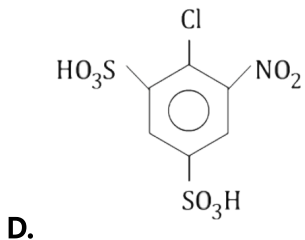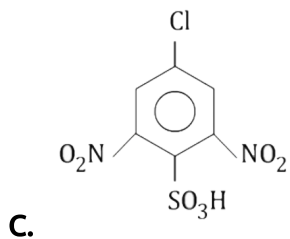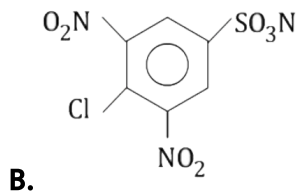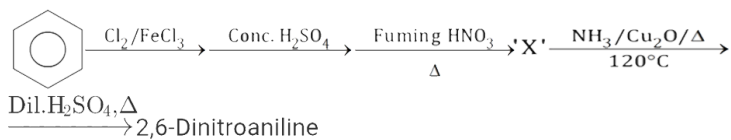
Answer: B

33. Select incorrect order

A. $H_2O > H_2S > H_2Se > H_2T_2$ **(order of bond angle)**
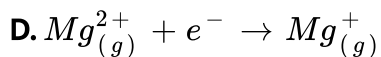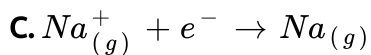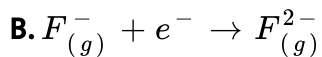
B. $HF > HCl > HBr > HI$ **(order of boiling character)**

C. $Li < BeCl_2 < BCl_3 < CCl_4$ **(order of covalent character)**

D. $CaF_2 > VaCl_2 > CaBr_2 > CaI_2$ **(order of melting point)**

Answer: B

34. In which of the following processes energy is absorbed ?

A. $Cl_{(g)} + e^- \rightarrow Cl^-_{(g)}$

B. $F_{(g)}^- + e^- \rightarrow F_{(g)}^{2-}$

C. $Na_{(g)}^+ + e^- \rightarrow Na_{(g)}$

D. $Mg_{(g)}^{2+} + e^- \rightarrow Mg_{(g)}^+$

Answer: B

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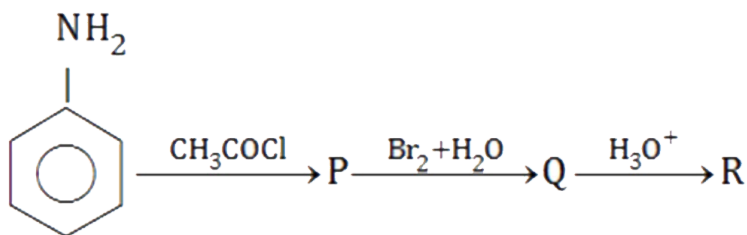
R (major product) is

35.

R (major product) is

NH₂

Br

A.

NH₂

Br

B.

NH₂
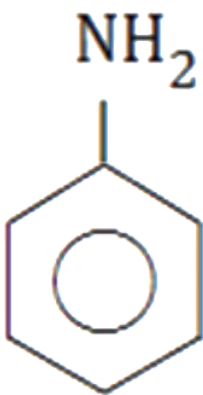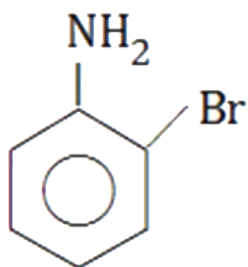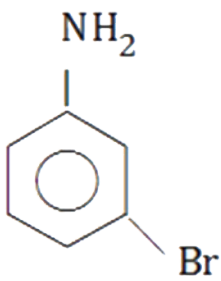
C.

D. None of these

Answer: C

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36. Addition of phosphate fertilizers to water bodies cause

A. enhanced growth of algae

B. increase in amount of dissolved oxygen in water

C. deposition of calcium phosphate

D. increase in fish population

Answer: A

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37. Which one of the following statement is not true ?

A. Buna - S is a copolymer of butadiene and styrene

B. Natural rubber is a 1,4-polymer of isoprene

C. In vulcanization , the formation of sulphur bridges between

different chanis make rubber harder and stronger

D. Natural rubber has the trans configuration at every double bond

Answer: D

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38. The oxidation state of S-atoms in Caro's and Marshall's acids are:

A. $+6, +6$

B. $+6, +4$

C. $+6, -6$

D. $+4, +6$

Answer: A

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39. The process used for the removal of hardness of water is

A. Calgon

B. Baeyer

C. Serpeck

D. Hoope

Answer: A

40. Ethylamine is heated with CS_2 in the presence of $HgCI_2$ The product formed is .

A. ethanethiol

B. diethyl sulphide

C. ethyl thiocyanate

D. ethyl isothiocyanate

Answer: D

41. $Na_2S_2O_3 \cdot 5H_2O$ is used in photography to

    A. Reduce AgBr to metallic Ag

    B. Remove reduced Ag

    C. Remove undecomposed AgBr as a soluble complex

    D. Convert metallic Ag to silver salt

Answer: C

42. If the freezing point of a 0.01 molal aqueous solution of a cobalt (III) chloride-ammonia complex (which behaves as a strong electrolyte) is $-0.0558°C$, the number of chloride (s) in the coordination sphere of the complex if $\left[K_f \text{ of water } = 1.86Kkgmol^{-1}\right]$

A. 0

B. 1

C. 2

D. 3

Answer: B

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43. Tranquilizers are used for the treatment of

A. Cancer

B. AIDS

C. Mental disease

D. Physical disorder

Answer: C

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44. Under what conditions of temperature and pressure the formation of atomic hydrogen from molecular hydrogen will be favoured most ?

    A. High temperature and high pressure

    B. Low temperature and low pressure

    C. High temperature and low pressure

    D. Low temperature and high pressure

Answer: C

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45. Periodic acid splits glucose and fructose into formaldehyde and formic acid, Ratio of moles of formic acid in glucose and fructose is

    A. $1:2$

    B. $5:3$

C. $1:1$

D. $2:3$

Answer: B

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