CHEMISTRY

BOOKS - NTA MOCK TESTS

NEET MOCK TEST 12

Chemistry

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1. On what ground can you say that scandium $(Z = 21)$ is a transition element but zinc $(Z = 30)$ is not?

A. Incompletely filled 3d orbitals in Sc

B. Coloured compounds

C. variable oxidation state

D. None of the above

Answer: A

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2. The catalyst used in the manufactures of polythene by Ziegler-Natta method is:

A. Titanium tetrachoride and triphenyl aluminium

B. Titanium tetrachloride and triethyl aluminium

C. Titanium dioxide

D. Titanium isoperoxide

Answer: B

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3. The carbon -carbon bond distance in benzene is

A. Longer than a $C - C$ single bond

B. Longer than a $C = C$ double bond

C. Shorter than a $C = C$ double bond

D. Shorter than a $C \equiv C$ triple bond

Answer: B

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4. The number of atoms in $100 g an f$ crystal with density $d = 10g/cm^3$ and the edge equal to 100 pm is equal to

A. 1×10^{25}

B. 2×10^{25}

C. 3×10^{25}

D. 4×10^{25}

Answer: D

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5. $1, 44$ gran if tutanium (Ti) reacted with excess of O_2 and produce x gram of non $-$ stoichiometric compound $Ti_{1.44}O$. The value of x is :

A. 1.44

B. 2

C. 1.77

D. None of these

Answer: C

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6. 2.56×10^{-3} equivalent of KOH is required to neutralise $0.12544 g H_2 XO_4$.The atomic mass of X (in $g/$ mol) is :
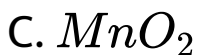
[Given : $H_2 XO_4$ is a dibasic acid]

A. 16

B. 8

C. 7

D. 32

Answer: D

7. Which one of the following compounds is a

peroxide?

A. KO_2

B. BaO_2

C. MnO_2

D. NO_2

Answer: B

8. If activation energy, E_a of the reaction is equal to RT then

A. The rate of reaction will be independent on initial concentration of reactant.

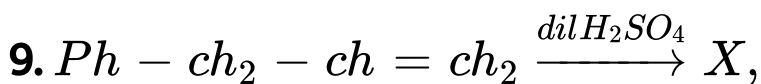B. The rate constant becomes approximately equal to 37% of the Arrhenius constant

C. The rate of reaction becomes infinite

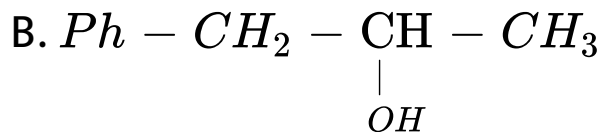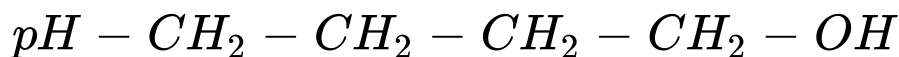D. The rate of reaction always be first order.

Answer: B

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9. $Ph - ch_2 - ch = ch_2 \xrightarrow{dil\,H_2SO_4} X$,

Identify product $'X'$ is :

A.

$$pH - CH_2 - CH_2 - CH_2 - CH_2 - OH$$

B. $Ph - CH_2 - \underset{\underset{OH}{|}}{CH} - CH_3$

C. $Ph - \underset{\underset{OH}{|}}{CH} - CH_2 - CH_3$

D. $Ph - CH_2 - OH$
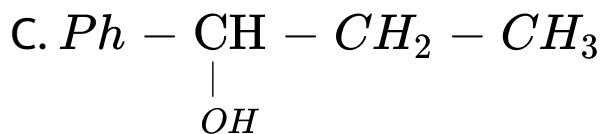
Answer: C

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10. The number of g-molecules of oxygen in

6.0×10^{24} CO molecules is:

$\left[Take: N_A = 6 \times 10^{23}\right]$

A. 5 gm molecules

B. 10 gm molecules

C. 1 gm molecules

D. 0.5 gm molecules

Answer: A

$$CH_3$$

$$Br \underline{\hspace{2cm}} H$$

$$CH_2CH_3$$

11.
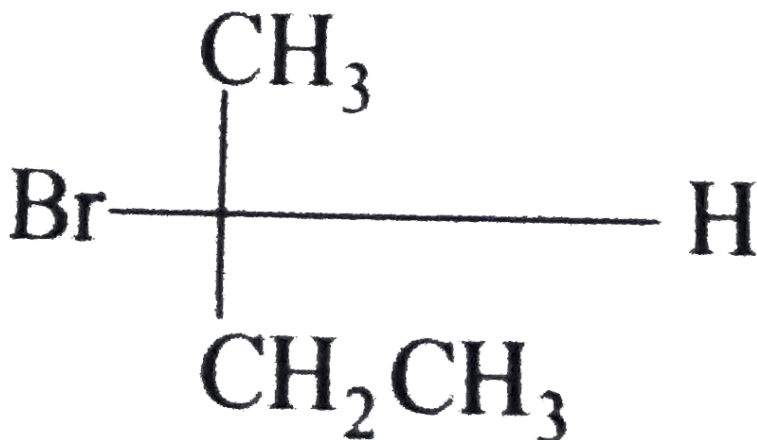
water (through S_{N^2} reaction mechanism) then

sterochemistry of product so formed will be:

A. R

B. S

C. Mixture of R and S

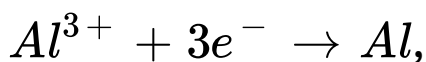D. Partial S + racemic mixture

Answer: B

12. Calculate the amount of electricity required to deposite 0.9 g of aluminium by electrolysis of a salt containing its ion, if the electrode reaction is

$Al^{3+} + 3e^- \rightarrow Al,$

(atomic mass of Al $= 27, 1F = 96500C$)

A. $9.65 \times 10^3 C$

B. $1.93 \times 10^4 C$

C. $9.65 \times 10^4 C$

D. $4.32 \times 10^5 C$

Answer: A

13. The vapour pressure of water at $20° C$ is $17.54 mm$. When 20g of non - ionic substance is dissolved in 100g of water, the

vapour pressure is lowered by $0.30mm$. What is the molecular mass of the substance ?

A. 200.8 g/mol

B. 206.88 g/mol

C. 210.5 g/mol

D. 215.2 g/mol

Answer: B

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14. A weak acid $HX(K_a = 10^{-5})$ on reaction with $NaOH$ gives NaX. For $0.1M$ aqueous solution of NaX, the $\%$ hydrolysis is
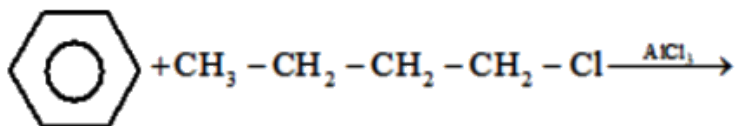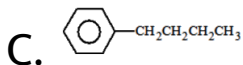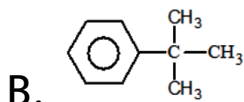
A. $0.001\,\%$

B. $0.01\,\%$

C. $0.15\,\%$

D. $1\,\%$

Answer: B

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 $+ CH_3 - CH_2 - CH_2 - CH_2 - Cl \xrightarrow{\text{AlCl}_3}$

15.

Hydrocarbon (X) major product X is

A. $-CH_2-CH-CH_3$ with CH_3

B. $-\overset{CH_3}{\underset{CH_3}{C}}-CH_3$

C. $-CH_2CH_2CH_2CH_3$
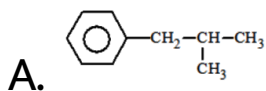
D. None of these

Answer: D

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16. The IUAPC name of ethyl isobutyl ether is

A. 1 - ethoxy propane

B. 1 - ethoxy - 2- methyl propane

C. 1 - ethoxy butane

D. 2 - methyoxy butane

Answer: B

17. Which of the following sets of quantum numbers could represent the last electron added to complete the electron added to complete the electron configuation for a ground state atom of $Br(Z = 35)$ according to Aufbau principle,

A. $4, 0, 0, \ -\dfrac{1}{2}$

B. $4, 1, 1, \ -\dfrac{1}{2}$

C. $3, 1, 1, \ -\dfrac{1}{2}$

D. $4, 1, 2, \ +\dfrac{1}{2}$

Answer: B

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18. Enthalpy of a reaction at $27°C$ is 15 kJ mol^{-1}. The reaction will be feasible if entropy is

    A. $15 \text{ J mol}^{-1}K^{-1}$

    B. $-50 \text{ J mol}^{-1}K^{-1}$
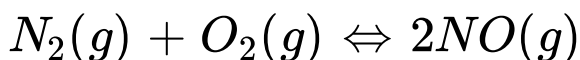
    C. Greater than $50 \text{ J mol}^{-1}K^{-1}$

    D. Less than $50 \text{ J mol}^{-1}K^{-1}$

Answer: C

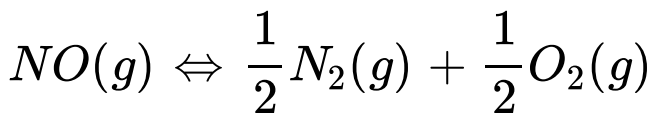**19.** The equilibrium constant for the reaction

$$N_2(g) + O_2(g) \Leftrightarrow 2NO(g)$$

at temperature T is 4×10^{-4}.

The value of K_c for the reaction

$$NO(g) \Leftrightarrow \frac{1}{2}N_2(g) + \frac{1}{2}O_2(g)$$

at the same temperature is

A. 2.5×10^2

B. 50

C. 4×10^{-4}

D. 0.02

Answer: B

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20. Which of the following is correct ?

A. Tin stone is magnetic in nature

B. Wolframite is non - magnetic in nature

C. Wolframite is $FeWO_4 . MnWO_4$

D. Cassiterite and rutile are sulphides ore

Answer: C

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21. The osmotic pressure of solution containing $34.2g$ of cane sugar (molar mass = 342 g mol^{-1}) in 1 L of solution at $20°C$ is (Given $R = 0.082$ L atm $K^{-1}mol^{-1}$)

A. 2.40 atm

B. 3.6 atm

C. 24 atm

D. 0.0024 atm

Answer: A

22. $C_6H_5OH + CHCl_3 + NaOH \rightarrow$

salicylaldehyde The electrophile involved in

the above reaction is.

A. Dichloromethyl cation $(CHCl_2)$

B. Dichlorocarbene $(:CCl_2)$

C. Trichloromethyl anion $\overline{C}Cl_3$

D. Formyl cation (CHO)

Answer: B

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23. When aniline is treated will sodium nitrite and hydrochloric acid at $0°C$, it gives

A. Phenol and N_2

B. Diazonium salt

C. Hydrazo compound

D. No reaction takes place

Answer: B

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24. Which of the following statements about hydrogen is incorrect?

A. Hydrogen has three isotopes of which tritium is the most common.

B. Hydrogen never acts as cation in ionic salts.

C. Hydronium ion, H_3O^+ exists freely in solution.

D. Dihydrogen acts as a reducing agent

Answer: A

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25. The angle between the overlapping of one s-orbital and one p-orbital is

A. $180°$

B. $120°$

C. $190°28'$

D. $120°60'$

Answer: A

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26. At $25°C$ the pH of water is 7. When temperature of water is increased to $70°C$ than pH of water and nature of water is

A. pH will decrease and the sample becomes acidic

B. pH will increase but the sample will remain neutral

C. pH will remain constant as 7.

D. pH will decrease but the sample will remain neutral.

Answer: D

27. An ether is more volatile than an alcohol having the same molecualr formula. This is due to -

    A. dipolar character of ethers

    B. alcohols having resonance structures

    C. inter - molecular hydrogen bonding in ethers

D. inter - molecular hydrogen bonding in

alcohols

Answer: D

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28. The drug used as post operative analgesic

in medicine is

A. L - Dopa

B. Amoxycilin

C. Sulphapyridine

D. Morphine

Answer: D

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29. Higher order (> 3) reaction are rare due

to :

A. Loss of active species on collision.

B. Low probability of simultaneous collision of all the reacting species.

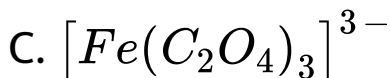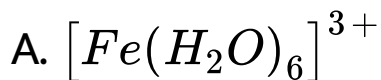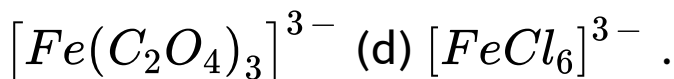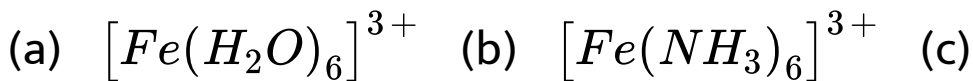C. Increase in entropy and activation energy as more molecules are involved.

D. Shifting of equilibrium towards reactants due to elastic collisions.

Answer: B

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30. Amongst the following , the most stable complex is :

(a) $[Fe(H_2O)_6]^{3+}$ (b) $[Fe(NH_3)_6]^{3+}$ (c) $[Fe(C_2O_4)_3]^{3-}$ (d) $[FeCl_6]^{3-}$.

A. $[Fe(H_2O)_6]^{3+}$

B. $[Fe(NH_3)_6]^{3+}$

C. $[Fe(C_2O_4)_3]^{3-}$

D. $[FeCl_6]^{3-}$

Answer: C

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31. Phenol is a weaker acid than acetic acid

because:

A. Phenoxide ion is better stabilized by

resonance than acetate ion

B. Acetate ion is better stabilized by

resonance than phenoxide ion

C. Phenol is led soluble in water than acetic

acid

D. Both phenoxide ion and acetate ion are

stable

Answer: B

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32. Select correct statements (s) :

A. Acidic strength of $HBr > HCl$ but

reverse is true for their reducing

property

B. Basic strength of $PH_3 > AsH_3$ but reverse is true for their $H\widehat{C}H$ bond angle

C. K_{a_1} of fumaric acid is higher than maleic acid but reverse is true for their K_{a_2}

D. Cassiterite and rutile are sulphides ore

Answer: C

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33. Which of the following statement in relation to the hydrogen atom is correct?

A. 3s, 3p and 3d- orbitals all have the same energy

B. 3s and 3p- orbitals is lower energy than 3d- orbtial

C. 3p-orbital is ower in energy than 3d- orbital

D. 3s-orbital is lower in energy than 3p -

   orbital

Answer: A

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34. Hydrolysis of $SiCl_4$ gives compound 'X'

and HCl on heating to $1000°C$ 'X' loses water

and forms 'Y'. Identify 'X' and 'Y' respectively.

A. H_2SiCl_6, SiO_2

B. H_4SiO_4, Si

C. SiO_2, Si

D. H_2SiO_4, SiO_2

Answer: D

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35. When dry silver chloride is fused with sodium carbonate, we get pure :

A. Silver

B. Chlorine

C. Sodium

D. Carbomonoxide

Answer: A

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36. The elecron affinity of chlorine is $3.7eV$. How much energy in kcal is released when $2g$ chlorine is completely converted to cl^- ion in

a gaseous state ?

$$\left(1eV = 23.06 kcal\,\text{mol}^{-10}\right).$$
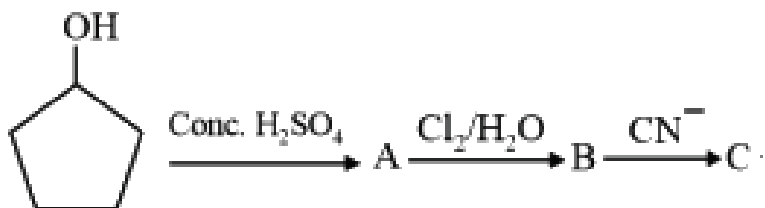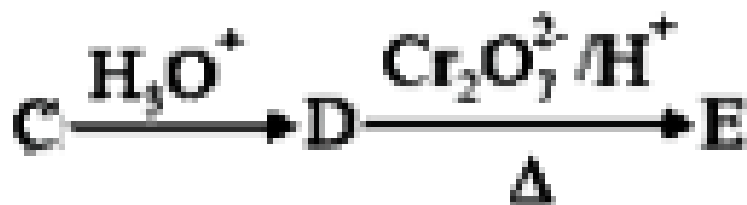
A. 4.80 kCal
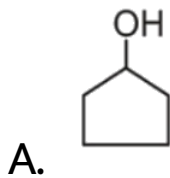
B. 5.20 kCal

C. 1.50 kCal

D. 3.60 kCal

Answer: A

Conc. H_2SO_4 → A $\xrightarrow{Cl_2/H_2O}$ B $\xrightarrow{CN^-}$ C·

37.

$C \xrightarrow{H_3O^+} D \xrightarrow[\Delta]{Cr_2O_7^{2-}/H^+} E$
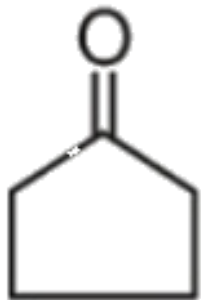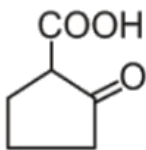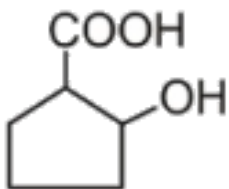
E is ?

A.

B.

C.

D.

Answer: B

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38. Calculate the total pressure in a 10 litre cylinder which contains 0.4g of helium, 1.6g of oxygen and 1.4g of nitrogen at $27°C$. Also calculate the partial pressure of helium gas in the cylinder. Assume ideal behaviour of gases. Given $R = 0.082$ litre atm $K^{-1}mol^{-1}$.

A. 0.492 atm

B. 49.2 atm

C. 4.92 atm

D. 0.0492 atm

Answer: A

39. $N_0/2$ atoms of X(g) are converted into X^+ (g) by energy E_1. $N_0/2$ atoms of X(g) are converted into X^- (g) by the energy E_2 . Hence ionisation potential and electron affinity of X(g) are :

A. $\dfrac{4E_1}{N_0}, \dfrac{4(E_1 - E_2)}{N_0}$

B. $\dfrac{4E_1}{N_0}, \dfrac{4E_0}{N_0}$

C. $\dfrac{(E_1 - E_2)}{N_0}$, $\dfrac{4E_2}{N_0}$

D. None is correct

Answer: B

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40. Match the following processes of metallurgy with their corresponding ore for which they are used :

(i) Froth floatation method

(a) Germanium

(ii) Electrolytic refining of metals

(b) ZnS

(iii) Zone refining of metals

(c) copper

A. (i) - (c), (ii) - (a), (iii) - (b)

B. (i) - (b), (ii) - (c), (iii) - (a)

C. (i) - (a), (ii) - (c), (iii) - (b)

D. (i) - (a), (ii) - (b), (iii) - (c)

Answer: B

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41. Cow milk is an example of natural emulsion stabilized by

A. Fat

B. Water

C. Casein

D. Mg^{2+} ions

Answer: C

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42. Only iodine forms hepta-fluroide IF_7, but chlorine and bromine give penta-flurorides. The reason for this is:

A. Low electron affinity of Iodine

B. Unusual pentagonal bipyramidal strucure of lF_7

C. The the larger Iodine atom can accommodate more number of smaller Fluorine atom around it
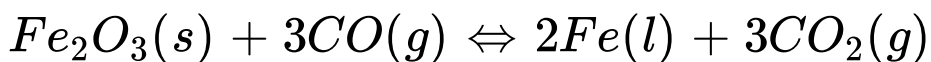
D. Low chemical reactivity of lF_7

Answer: C

43. The following reaction occurs in the Blast Furnace where ions ore is reduced to iron metal :

$$Fe_2O_3(s) + 3CO(g) \Leftrightarrow 2Fe(l) + 3CO_2(g)$$

Using the Le Chatelier's principle, predict which one of the following will not disturb the equilibrium?

A. Addition of CO_2

B. Removal of CO_2

C. Addition of Fe_2O_3

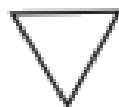D. Removal of CO

Answer: C

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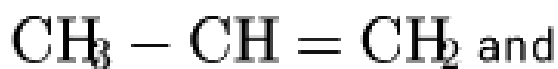**44.** Which of the following phosphorus is the most reactive?

A. Red phosphorus

B. White phosphorus

C. Scarlet phosphorus

D. Violet phosphorus

Answer: B

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$CH_3 - CH = CH_2$ and $\bigtriangledown$

45. are:

A. Optical isomers

B. Ring Chain isomers

C. Functional Isomers

D. None

Answer: B

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