CHEMISTRY
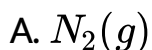
BOOKS - NTA MOCK TESTS

NTA NEET SET 41

Chemistry

1. Maximum deviation from ideal gas is expected from

A. $N_2(g)$

B. $CH_4(g)$

C. $NH_3(g)$

D. $H_2(g)$

Answer: C

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2. The molarity of solution containing $15.20g$ of urea, (molar mass $= 60$) dissolved in $150g$ of water is

    A. $1.689 \ \text{mol kg}^{-1}$

    B. $0.1689 \ \text{mol kg}^{-1}$

    C. $0.5922 \ \text{mol kg}^{-1}$

    D. $0.2533 \ \text{mol kg}^{-1}$

Answer: A

3. Dipole-induced dipole interaction are present in which of the following pairs

    A. H_2O and alcohol
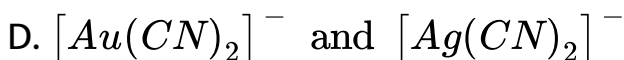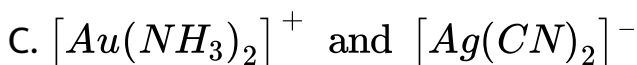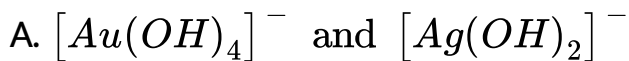
    B. Cl_2 and CCl_2

    C. HCl and He - atoms

    D. SiF_4 and He - atoms

Answer: C

4. The electrolytes usually used in the electroplating of gold and silver, respectively, are

A. $\left[Au(OH)_4\right]^-$ and $\left[Ag(OH)_2\right]^-$

B. $\left[Au(CN)_2\right]^-$ and $[AgCl_2]^-$

C. $\left[Au(NH_3)_2\right]^+$ and $\left[Ag(CN)_2\right]^-$

D. $\left[Au(CN)_2\right]^-$ and $\left[Ag(CN)_2\right]^-$

Answer: D

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5. What is the activation energy for a reaction if its rate doubles when the temperature is raised from $20°C$ to

$35°C$? $\left(R = 8.314 J\text{mol K}^-\right)$

A. $269 kJmol^{-1}$

B. $34.7 kJmol^{-1}$

C. $15.1 kJmol^{-1}$

D. $342 kJmol^{-1}$

Answer: B

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6. Calculate the pH of a solution made by mixing 50 mL of

$0.01 Mba(OH)_2$ with 50 mL water. (Assume complete
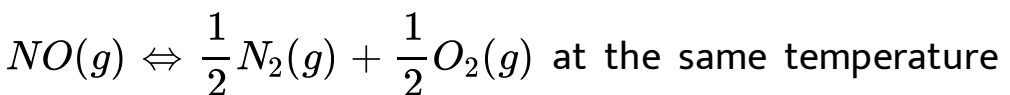
ionisation)

A. 6

B. 10

C. 2

D. 12

Answer: D

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7. 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. 4×10^{-6}

B. 2.5×10^2

C. 0.02

D. 50

Answer: D

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8. The standard enthalpies fo formation of $CO_2(g), H_2O(1)$, and glucose (s) at $25°C$ are $-400kJmol^{-1}, -300kJmol^{-}$, and $-1300kJmol^{-1}$, respectively. The standard enthalply of combustion per gram of glucose at $25°C$ is

A. $+2900kJ$

B. $-2900kJ$

C. $-16.11kJ$

D. $+16.11kJ$

Answer: C

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9. Geometrical shapes of the complexes fromed by the reaction of Ni^{2+} with CO, CN^- and H_2O, respecitively , are :

A. square planar , tetrahedral and octahedral

B. octahedral , square planar and octahedral

C. octahedral , tetrahedral and square planer

D. tetrahedral , square plane and octahedral

Answer: D

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10. Which one of the following molecules hydrides acts as

a Lewis acid ?

A. CH_4

B. NH_3

C. H_2O

D. B_2H_6

11. The vapour pressures of pure liquids A and B are 400 and 600 mm Hg respectively at 298 K. On mixing the two liquids, the sum of their initial volumes is equal to the volume of the final mixture. The mole fraction of liquid B is 0.5 in the mixture. The vapour pressure of the final solution, the mole fractions of components A and B in vapour phase, respectively are :

   A. 500 mm Hg , 0.5 , 0.5

   B. 450 mm Hg , 0.4 , 0.6

   C. 450 mm Hg , 0.5 , 0.5

D. 500 mm Hg , 0.4 , 0.6

Answer: D

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12. The first and second ionisation enthalpies of a metal are 496 and $4560KJmol^{-1}$, respectively. How many moles of HCI and H_2SO_4 Respectively , will be needed to react completely with 1 mole of the metal of the metal hydroxide ?

    A. 1 and 1

    B. 1 and 2

    C. 2 and 0.5

D. 1 and 0.5

Answer: D

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13. Among the statements (a)-(d) , the correct ones are :

(a) Lithium has the highest hydration enthalpy among the alkali metals.

(b) Lithium chloride is insoluble in pyridine.

(c) Lithium cannot form ethynide upon its reaction with ethyne.

(d) Both lithium and magnesium react slowly with H_2O

A. (1),(2) and (4) only

B. (1) and (4) only

C. (2) and (3) only

D. (1),(3) and (4)

Answer: D

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14. The true statement amongst the following is :

A. S is a function of temperature but ΔS is not a function of temperature

B. Both ΔS and are functions of temperature.

C. S is not a function of temperature but ΔS is a function of temperature.

D. Both S and ΔS are not functions of temperature.

Answer: B

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15. A, B and C are three biomolecules . The results of the tests performed on them are given below:

	Molisch's Test	Barfoed Test	Biuret Test
A	Positive	Negative	Negative
B	Positive	Positive	Negative
C	Negative	Negative	Positive

A, B and C are respectively :

A. 1 = Lactose , 2 = Glucose , 3 = Alanine

B. 1 = Lactose , 2 = Glucose , 3 = Albumin

C. 1 = Glucose , 2 = Fructose , 3 = Albumin

D. 1 = Lactose , 2 = Fructose , 3 = Alanine

Answer: B

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16. Reason of lanthanoid contraction is

    A. Negligible screening effect of 'f' orbitals

    B. Decreasing screening effect

    C. Increasing nuclear charge

    D. Decreasing nuclear charge

Answer: A

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17. Adsorpton of gases on solid surface is generally exothermic because :

    A. enthalpy is positive

B. enthalpy decreases

C. entropy increase

D. free energy increase

Answer: B

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18. In the cyanide extraction process of silver from argentite ore, the oxidising and reducing agents are

A. HNO_3 and CO respectively

B. HNO_3 and Zn dust respectively

C. O_2 and Zn dust respectively

D. O_2 and CO respectively

Answer: C

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19. Among statements (a)-(d), the correct ones are :

(a) Decomposition of hydrogen peroxide gives dioxygen.

(b) Like hydrogen peroxide, compounds, such as $KClO_3$, $Pb(NO_3)_2$ and $NaNO_3$ when heated liberate dioxygen.

(c) 2-Ethylanthraquinone is useful for the industrial preparation of hydrogen peroxide.

(d) Hydrogen peroxide is used for the manufacture of sodium perborate.

A. (1) and (3) only

B. (1), (2) , (3) and (4)

C. (1), (3) and (4) only

D. (1) , (2) and (3) only

Answer: B

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20. Rutherford's αparticle dispersion experiment

concludes that

A. All positive ions are deposited at small part

B. All negative ions are deposited at small part

C. Proton moves around the electron

D. Neutrons are charged particles

Answer: A

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21. Structure of the compound whose $IUPAC$ name is $3-$ ethyl$-2-$ hydroxy$-4-$ methylhex$-3-$ en$-5-$ ynoic acid is

A.
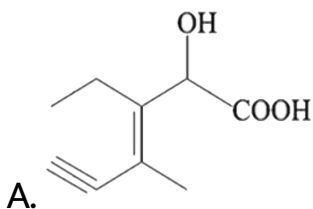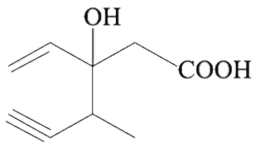
B.
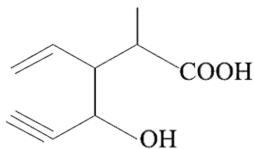
C.
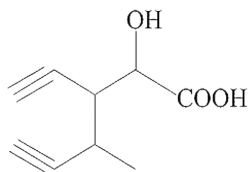
D.

Answer: A

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22. The correct order of stability for the following alkoxides is
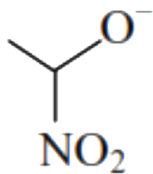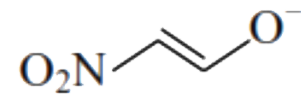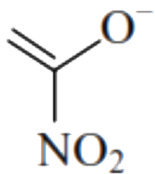
(1)   (2

A. $(2) > (1) > (3)$

B. $(2) > (3) > (1)$

C. $(3) > (1) > (2)$

D. $(3) > (2) > (1)$

Answer: D

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23. On monochlorination of 2-methylbutane, the total number of chiral compound formed is :

A. 2

B. 4

C. 6

D. 8

Answer: C

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24. Which of the following is not an organo - metallic compound ?

A. $(C_2H_5)_4Pb$

B. $C_2H_5 - O - Na$

C. C_4H_9Li

D. $[(C_5H_5)_2Fe]$
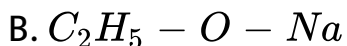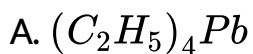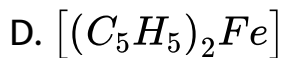
Answer: B

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25. The major product of the following reaction is

$$\xrightarrow[\substack{(2)\ CrO_3/H^+ \\ (3)\ H_2SO_4/\Delta}]{(1)\ KOH\ (aqueous)}$$

A.

B.

C.

D.
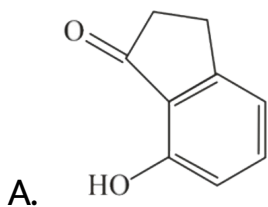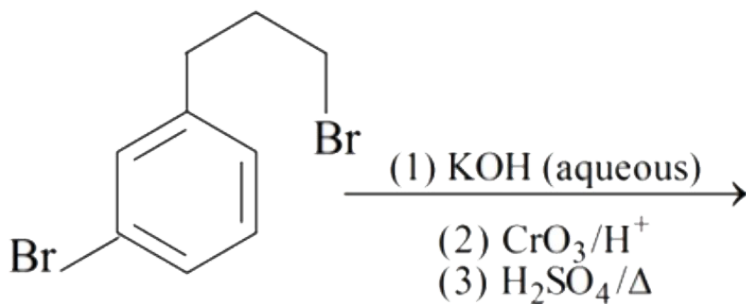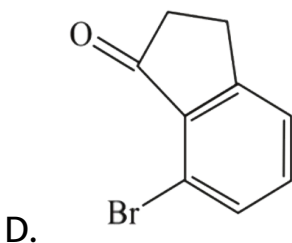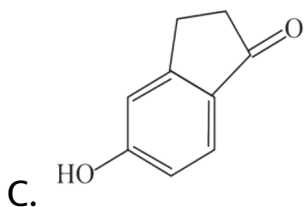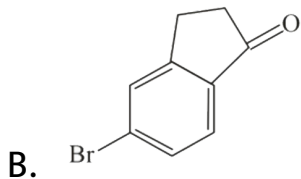
Answer: B

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26. KI in acetone , undergoes $S_N 2$ reaction with each of

P,Q,R,and S The rates of the reaction vary as

H_3C-Cl $\underset{Q}{\text{(structure)}}$ $\underset{R}{\text{(structure)}}$ $\underset{S}{\text{(structure)}}$

P   Q   R   S

A. $P > Q > R > S$

B. $S > P > R > Q$

C. $P > R > Q > S$

D. $R > P > S > Q$
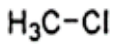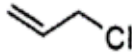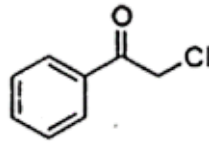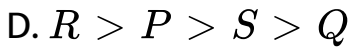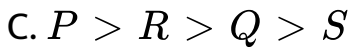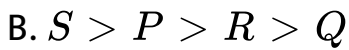
Answer: B

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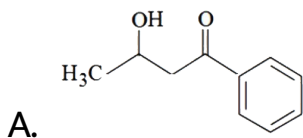**27.** Which of the following used for conversion of 2-hexyne into trans-2-hexene?

A. H_2, PtO_2

B. $Li - NH_3 / C_2H_5OH$
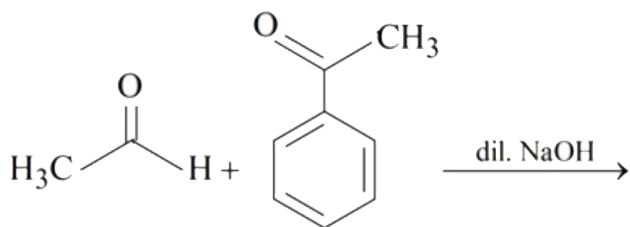
C. $NaBH_4$

D. $H_2 / Pd / BaSO_4$
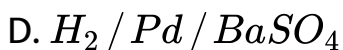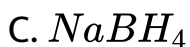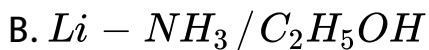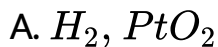
Answer: B

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28. The major product formed in the following reaction is

H_3C — C(=O) — H + (phenyl with C(=O)CH$_3$ group) → dil. NaOH

A.

B.

C.

D.
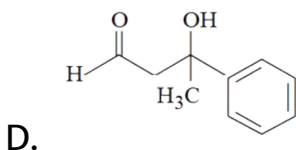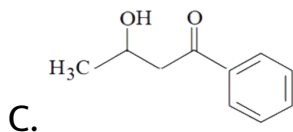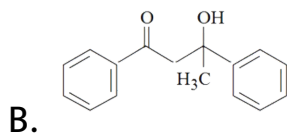
Answer: A

29. Which is the monomer of neoprene in the following?

A. $CH_2 = C(CH_3) - CH = CH_2$

B. $CH_2C(Cl) - CH = CH_2$

C. $CH_2 = CH - C \equiv CH$

D. $CH_2 = CH - CH = CH_2$
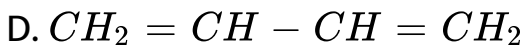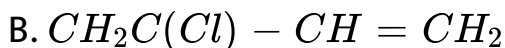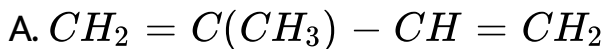
Answer: B

30. The secondary structure of proteins is derived from

A. Hydrogen bonding

B. peptide linkage

C. Folding of chains

D. Disulphide linkage

Answer: A

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31. Given

(I)   (II)   (III)
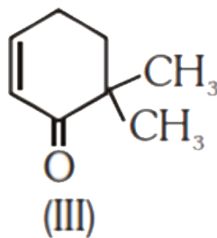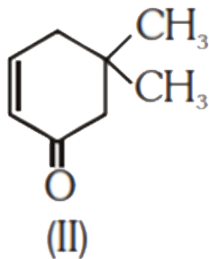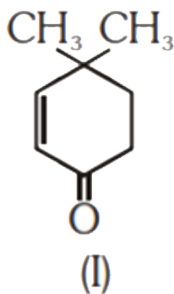
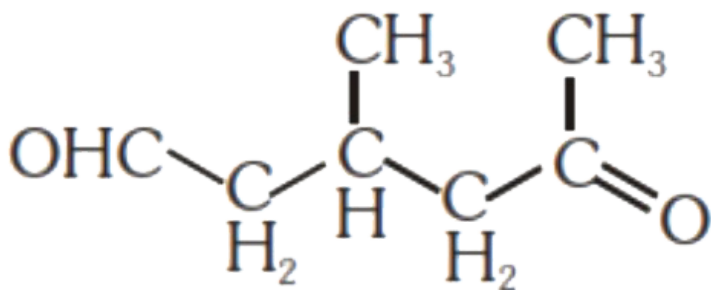Which of the given compounds can exhibit tautomerism ?
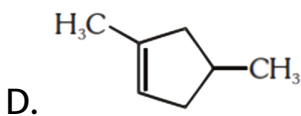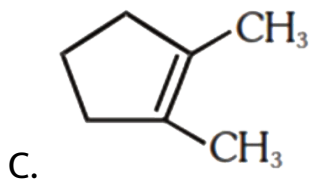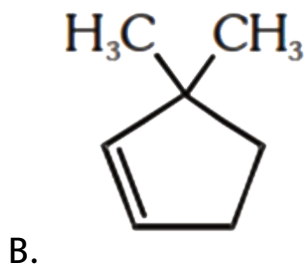
A. I and III

B. II and III

C. I , II and III

D. I and II

Answer: C

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32. A single compound of the structure

$$OHC-\underset{H_2}{C}-\underset{\underset{H}{|}}{\overset{\overset{CH_3}{|}}{C}}-\underset{H_2}{C}-\overset{\overset{CH_3}{|}}{C}=O$$

is obtained from ozonolysis of which of the following cyclic compounds ?

A.

B.

H$_3$C CH$_3$

C.

CH$_3$

CH$_3$

D.

H$_3$C

—CH$_3$
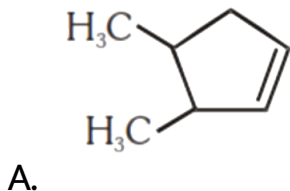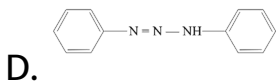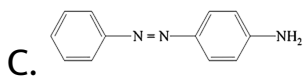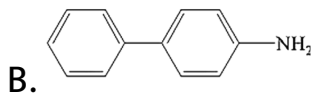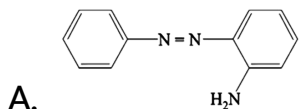
Answer: D

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33. Benzene diazonium chloride on reaction with aniline in the presence of dilute hydrochloric acid gives :

A.

B.

C.

D.

Answer: C

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34. The K_{sp} of Ag_2CrO_4, $AgCl$, $AgBr$ and AgI are respectively,

1.1×10^{-12}, 1.8×10^{-10}, 5.0×10^{-13}, 8.3×10^{-17}.

Which one of the following salts will precipitate last if $AgNO_3$ solution is added to the solution containing equal moles of NaCl,NaBr,NaI and Na_2CrO_4 ?

A. AgI

B. AgCl

C. Ag_2CrO_4

D. AgBr

Answer: C

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35. A metal has an fcc latticed.The edge length of the unit cell is 404 pm .The density of the metal is $2.72g/cm^{-3}$ .The molar mass of the metal is

$(N_A$ Avogadro's constant $= 6.2 \times 10^{23} mol^{-1})$

    A. 30 g/mol

    B. 27 g/mol

    C. 20 g/mol

    D. 40 g/mol

Answer: B

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36. Which of the following structure is similar to graphite e?

A. B

B. B_4C

C. B_2H_6

D. BN

Answer: D

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37. Some meta-directing substituents in aromatic substitution are given which one is the most deactivating?

A. $-SO_3H$

B. $-COOH$

C. $-NO_2$

D. $-C \equiv N$

Answer: C

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38. Chemical name of aspirin is ___
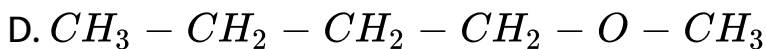
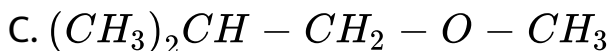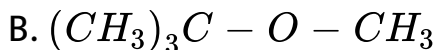A. Phenyl salicylate

B. Acetyl salicyclic acid

C. Acetyl benzoic acid

D. Methyl salicylate

Answer: B

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39. Among the following ethers, which one will produce methyl alcohol on treatment with hot concentrated HI?

A. $CH_3 - CH_2 - CH(CH_3) - O - CH_3$

B. $(CH_3)_3C - O - CH_3$

C. $(CH_3)_2CH - CH_2 - O - CH_3$

D. $CH_3 - CH_2 - CH_2 - CH_2 - O - CH_3$

Answer: B

40. A hydrogen gas electrode is made by dipping platinum wire in a solution of HCl or $pH = 10$ and by passing bydrogen gas around the platinum wire at one atm pressure . The oxidation potential of electrode would be ?

A. 0.59 V

B. 0.118 V

C. 1.18 V

D. 0.059 V

Answer: A

41. Based on equation $E = -2.178 \times 10^{-18} J \left(\dfrac{Z^2}{n^2} \right)$, certain conclusions are written. Which of them is not correct ?

A. Larger the value of n, the larger is the orbit radius .

B. Equation can be used to calculate the change in energy when the electron changes orbit.

C. For n = 1 , the electron has a more negative energy than it does for n = 6 which means that the electron is more loosely bound in the smallest allowed orbit.
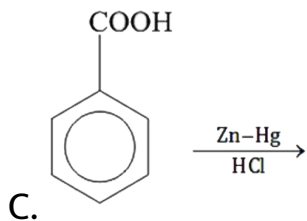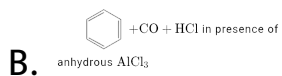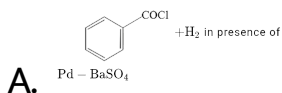
D. The negative sign in equation simply means that the energy of electron bound to nucleus is lower than it
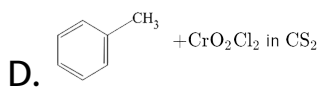
would be if the electrons were at the infinite

distance from the nucleus .

Answer: C

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42. The reaction by which Benzaldehyde can not be

prepared

A. COCl $+H_2$ in presence of Pd $-$ BaSO$_4$

B. $+CO + HCl$ in presence of anhydrous AlCl$_3$

C. COOH $\xrightarrow{\text{Zn–Hg}}{\text{HCl}}$

D. $+CrO_2Cl_2$ in CS_2

Answer: C

43. Which one of the following molecules contains no π - bond ?

A. H_2O

B. SO_2

C. NO_2

D. CO_2

Answer: A

44. Which of the following is a polar molecule

A. SF_4

B. SiF_4

C. XeF_4

D. BF_3
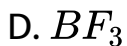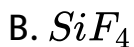
Answer: A

45. $KMnO_4$ (m.w.=158) oxidises oxalic acid in acid medium to CO_2 and water as follows :

$$5C_2O_4^{2-} + 2MnO_4^- + 16H^+ \rightarrow 10CO_2 + 2Mn^{2+} + 8H_2O$$
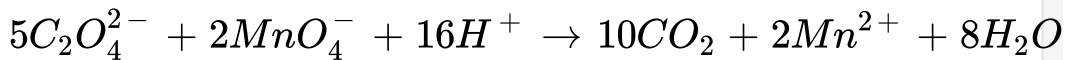
What is the equivalent weigth of $KMnO_4$?

A. 158

B. 31.6

C. 39.5

D. 79

Answer: B

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