

CHEMISTRY

BOOKS - NTA MOCK TESTS

NTA NEET SET 61

Chemistry

1. For a photochemical reaction $A \rightarrow B$, 1.0×10^{-5} mole of B were formed on absorbing 1.2×10^{19} quanta each of $\lambda = 360nm$. The quantum efficiency is given by

A. 0.50

B. 1

C. 0.1

D. 0.2

Answer: A



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2. Calculate percentage of carbon in ethanol (C_2H_5OH).

A. 52

B. 13

C. 34

D. 90

Answer: A



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3. Which among the following metals crystallises as a simple cube ?

A. Polonium

B. Iron

C. Copper

D. Gold

Answer: A



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4. Which of the following compounds contain(s) no covalent bond(s)?

KCl , PH_3 , O_2 , B_2H_6 , H_2SO_4

A. KCl , B_2H_6

B. KCl , B_2H_6 , PH_3

C. KCl , H_2SO_4

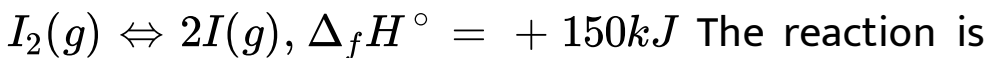
D. KCl

Answer: D



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5. When I_2 dissociates to its atomic form the following reaction occurs



The reaction is favoured at

A. low temperature

B. high temperature

C. no change with temperature

D. high pressure

Answer: B



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6. For a reaction, $I^- + OCl^- \rightarrow IO^- + Cl^-$ in an aqueous medium, the rate of reaction is given by

$$\frac{d[IO^-]}{dt} = k \left(\frac{I^- [OCl^-]}{[OH^-]} \right).$$

The overall order of reaction is

A. -1

B. 0

C. 1

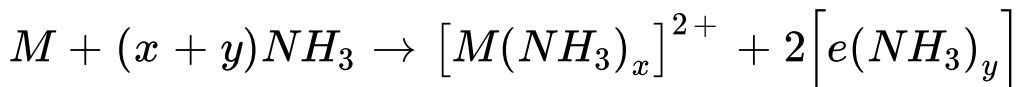
D. 2

Answer: C



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7. The alkali metals dissolve in ammonia to give a deep blue solution which is conducting in nature.



Which of the following is not true about the solutions of alkali metals in liquid ammonia ?

- A. The blue colour is due to ammoniated electron
- B. The solutions is paramagnetic
- C. The blue colour changes to brown on standing
- D. In concentrated solution blue colour changes to bronze and becomes diamagnetic

Answer: C

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8. One mole of ethanol is produced reacting graphite , H_2 and O_2 together . The standard enthalpy of formation is $-277.7 \text{ kJ mol}^{-1}$

Calculate the standard enthalpy of the reaction when 4 moles of graphite is involved.

- A. -227.7 kJ/mol
- B. -555.4 kJ/mol
- C. -138.85 kJ/mol
- D. -69.42 kJ/mol

Answer: B



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9. The source of energy in a cellular reaction is

- A. Light energy
- B. Solar radiation
- C. Chemical energy
- D. Heat energy

Answer: C



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10. 1 mole of $FeSO_4$ (atomic weight of Fe is 55.84g mol^{-1}) is oxidized to $Fe_2(SO_4)_3$. Calculate the equivalent weight of ferrous ion.

A. 55.84

B. 27.92

C. 18.61

D. 111.68

Answer: A



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11. The temperature coefficient of a reaction is 2.

When the temperature is increases from

$30^{\circ}C$ to $90^{\circ}C$, the rate of reaction is increased

by

A. 150 times

B. 410 times

C. 72 times

D. 64 times

Answer: D



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12. 100 mL of a solution with $\text{pH} = 6$ is diluted to 1000 mL by adding water. pH will

A. decrease by 0.7 unit

B. increase by 1 unit

C. increase by 9 units

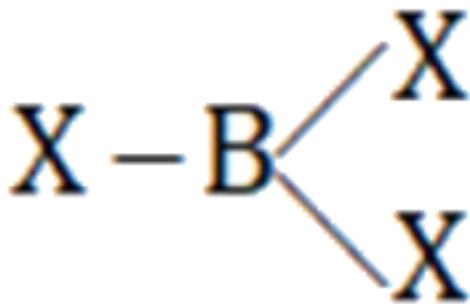
D. increase by 0.7 unit

Answer: D



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13. In BX_3 , $B - X$ distance is shorter than what is expected theoretically because ($X = F, Cl, Br, I$)



A. sp^3 hybridisation of B is responsible for shorter B - X

B. B - X has a double bond character due to back-bonding

C. Dimerisation takes place in BX_3 which is responsible for shorter B - X distance

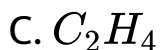
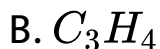
D. Due to larger size of X, B - X distance decrease

Answer: B



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14. A gaseous hydrocarbon gives upon combustion 0.72g of water and 3.08g of CO_2 . The empirical formula of the hydrocarbon is

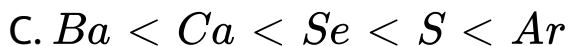


Answer: D



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15. Which of the following represents the correct order of increasing first ionization enthalpy for Ca, Ba, S, Se and Ar ?



Answer: C



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16. What type of forces bind the substrate to the active site of enzyme ?

(i) Ionic bonding (ii) Hydrogen bonding (iii) van der Waals forces (iv) Reaction with functional group of enzymes

A. (i) , (ii) and (iv)

B. (i) , (iii) and (iv)

C. (i) , (ii) and (iii)

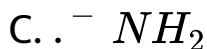
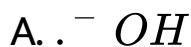
D. (i), (ii) , (iii) and (iv)

Answer: C



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17. Which of the following has the highest nucleophilicity ?



Answer: B



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18. The molarity of a solution obtained by mixing 750mL of $0.5(M)\text{HCl}$ with 250mL of $2(M)\text{HCl}$ will be:

A. 0.875 M

B. 0.975 M

C. 1.75 M

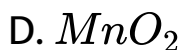
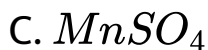
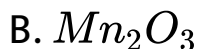
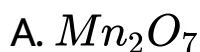
D. 1.00 M

Answer: A



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19. An explosion takes place when conc. H_2SO_4 is added to $KMnO_4$. Which of the following is formed?

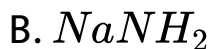
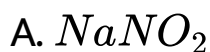


Answer: A



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20. During the fusion of an organic compound with sodium metal, nitrogen of the organic compound is converted into



Answer: C



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21. In a buffer solution consisting of a mixture of weak base and its salt, the ratio of salt to base is increases 10 times , the pOH of the solution will

- A. Increase by one units
- B. Decrease by one units
- C. Increase by ten units
- D. Decrease by ten units

Answer: A



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22. At $37^{\circ}C$, the osmotic pressure of blood is 8.21 atm . The amount of glucose that should be used per litre for an intravenous injection so that it becomes isotonic with blood is

- A. 117 g
- B. 58.06 g
- C. 108 g
- D. 580.6 g

Answer: B



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23. The geometries of the ammonia complexes of Ni^{2+} , Pt^{2+} and Zn^{2+} , respectively, are

- A. octahedral , square planar and tetrahedral
- B. square planar , octahedral and tetrahedral
- C. tetrahedral and square planar and octahedral
- D. octahedral , tetrahedral and square planar

Answer: A

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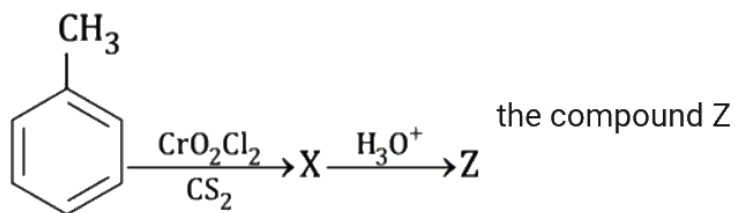
24. The oxidation number of sulphur in S_8 , S_2F_2 and H_2S respectively are:

- A. 0, + 1 and - 2
- B. + 2, + 1 and - 2
- C. 0, + 1 and + 2
- D. - 2, + 1 and - 2

Answer: A

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25. In the following reaction,



is

- A. benzoic acid
- B. benzaldehyde
- C. acetophenone
- D. benzene

Answer: B

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26. When PbO_2 reacts with conc HNO_3 , the gas (es)
) evolved is / are .

A. NO_2

B. O_2

C. N_2

D. N_2O

Answer: B



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27. The number of possible organobromine compounds which can be obtained in the allylic bromination of 1 - butene with N - bromosuccinimide is

A. 1

B. 2

C. 3

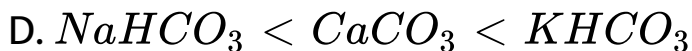
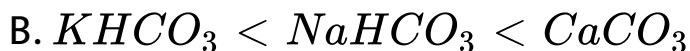
D. 4

Answer: D



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28. The correct increasing order of solubility among the compounds follows as



Answer: A



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29. Which of the following statement is false for alkali metals ?

A. lithium is strongest reducing agent

B. all alkali metals given blue solution in liquid ammonia

C. Li^+ ion is exceptionally small

D. Lithium carbonate is stable towards heat and do not decompose

Answer: D



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30. Which will be the correct stability order of the different conformations of n - butane ?

A. Fully - eclipsed > eclipsed > gauche >

anti - staggered

B. Anti - staggered > eclipsed > gauche >

fully - eclipsed

C. Anti - staggered > gauche > eclipsed >

fully - eclipsed

D. Gauche > anti - staggered > eclipsed >

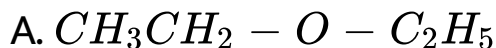
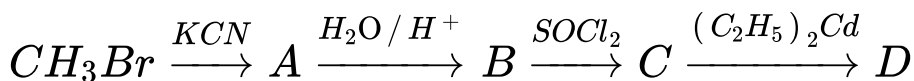
fully - eclipsed

Answer: C



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31. End product D of reaction sequence is

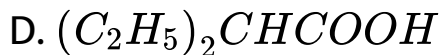
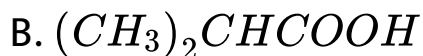
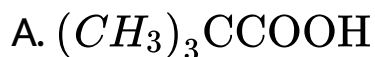


Answer: C



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32. Which of the following carboxylic acids is the most reactive towards esterification ?



Answer: C



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33. Which of the following statements is true in case of alkyl halides ?

- A. They are polar in nature
- B. They can form hydrogen bonds
- C. They are highly soluble in water
- D. They undergo addition reactions

Answer: A



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34. Tertiary butyl alcohol gives tertiary butyl chloride on treatment with

A. Conc. HCl/anhydrous $ZnCl_2$

B. KCN

C. NaOCl

D. Cl_2

Answer: A



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35. Phenylacetylene on treatment with

$HgSO_4 / H_2SO_4, H_2O$ produces

- A. acetophenone
- B. phenylacetaldehyde
- C. phenylacetic acid
- D. 1- phenylethanol

Answer: A



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36. Which of the following shows the correct reaction for nitrobenzene reduction ?

A. Nitrobenzene reacts with Zn dust and NH_4Cl to produce aniline

B. Nitrobenzene reacts with $LiAlH_4$ to produce phenyl hydroxylamine

C. Nitrobenzene reacts with Fe and HCl to produce nitrobenzene

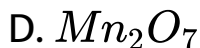
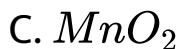
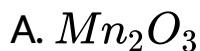
D. Nitrobenzene reacts with Zn dust and NH_4Cl to produce phenyl hydroxylamine

Answer: D



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37. Which of the manganese oxides is the most acidic from the given options ?



Answer: D





38. Which of the following can help to predict the rate of reaction if the standard Gibb's free energy of reaction ($\Delta_r G^\circ$) is known ?

A. Equilibrium constant

B. $\Delta_r H^\circ$

C. $\Delta_r U^\circ$

D. Heat liberated during the course of reaction in calorimeter

Answer: A



39. Which statements are correct for the peroxide ion ?

- (1) It has five completely filled anti - bonding molecular orbitals
- (2) It is diamagnetic
- (3) It has bond order one
- (4) It is isoelectronic with neon

A. 1,2

B. 2,3

C. 2,4

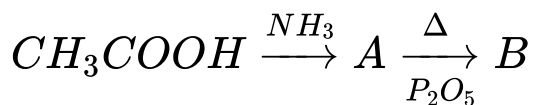
D. 1,2,3

Answer: B



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40. Name the end product in the following series of reaction



A. Methane

B. Methanol

C. Acetonitrile

D. Acetamide

Answer: C



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41. For the reaction , $N_2O_4(g) \rightleftharpoons 2NO_2(g)$ the degree of dissociation at equilibrium is 0.4 at a pressure of 1 atm. The value of K_p is

A. 0.64 atm

B. 0.60 atm

C. 0.19 atm

D. 0.762 atm

Answer: D



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42. The reason for “drug induced poisoning” is :

A. binding reversibly at the active site of the enzyme

B. bringing conformational changes in the binding site of enzyme

C. binding at the allosteric sites of the enzyme

D. binding irreversibly to the active site of the enzyme

Answer: C



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43. Which of the following is a branched polymer, having branched chain polysaccharide units ?

A. Starch

B. Bakelite

C. High density polyethylene

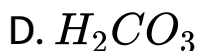
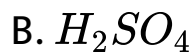
D. Nylon

Answer: A



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44. Which of the following is present in maximum amount in acid rain ?



Answer: B



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45. Which one of the following statements is false ?

- A. R and S configurations correspond to the enantiomers of an optically active compound
- B. The process of converting an optically active compound into a racemate is called racemization

C. A molecule containing a plane of symmetry
can be optically active

D. Optical isomers that are not enantiomers are
called diastereoisomers

Answer: C



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