



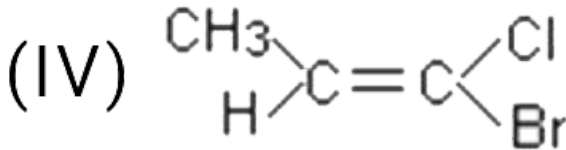
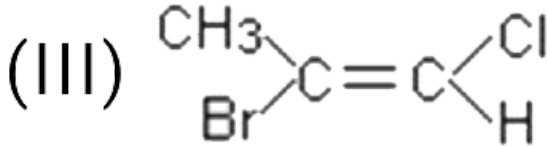
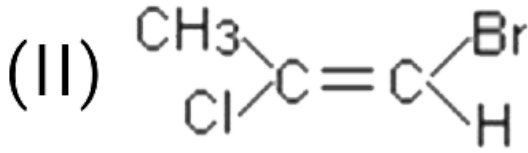
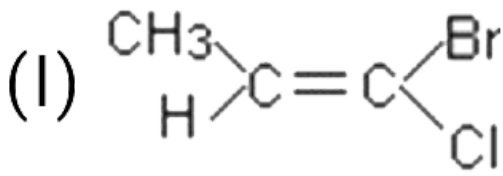
CHEMISTRY

BOOKS - NTA MOCK TESTS

NTA NEET SET 31

Chemistry

1. Which of the following is a pair of geometric isomers ?



A. I and II

B. I and III

C. I and IV

D. II and III

Answer: C





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2. How many chiral stereoisomers can be drawn for 2 - bromo - 3 - chlorobutane ?

A. 2

B. 3

C. 4

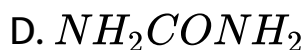
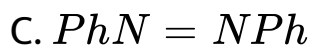
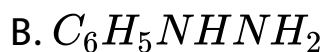
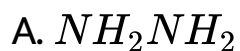
D. 5

Answer: C



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3. Which of the following compounds will not give Lassaigne's test for nitrogen ?



Answer: A



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4. How many grams of ice at $0^{\circ}C$ can be melted by the addition of 500 J of heat ? (The molar heat of fusion for ice is 6.02Kamal^{-1})

A. 0.083 g

B. 1.50 g

C. 3.06 g

D. 12.0 g

Answer: B



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5. A 1.0g sample of substance A at $100^\circ C$ is added to 100mL of H_2O at $25^\circ C$. Using separate 100mL portions of H_2O , the procedure is repeated with substance B and then with substance C . How will the final temperatures of the water compare ?

Substance	Specific Heat
A	$0.60 \text{ Jg}^{-1} \text{ }^\circ\text{C}^{-1}$
B	$0.40 \text{ Jg}^{-1} \text{ }^\circ\text{C}^{-1}$
C	$0.20 \text{ Jg}^{-1} \text{ }^\circ\text{C}^{-1}$

A. $T_C > T_B > T_A$

B. $T_B > T_A > T_C$

C. $T_A > T_B > T_C$

D. $T_A = T_B = T_C$

Answer: C



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6. By what factor does the average velocity of a gaseous molecule increase when the temperature (in Kelvin) is doubled?

A. 1.4

B. 2.0

C. 2.8

D. 4.2

Answer: A



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7. When solid lead iodide is added to water, the equilibrium concentration of I^- becomes $2.6 \times 10^{-3} M$. What is the K_{sp} for PbI_2 ?

A. 2.2×10^{-9}

B. 8.8×10^{-9}

C. 1.8×10^{-8}

D. 3.5×10^{-8}

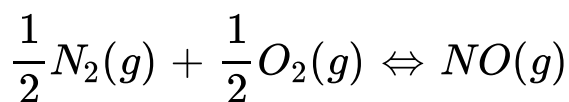
Answer: B



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8. The free energy of formation of NO is 78kJmol^{-1} at the temperature of an automobile engine (1000K).

What is the equilibrium constant for this reaction at 1000K ?



A. 8.4×10^{-5}

B. 7.1×10^{-5}

C. 4.2×10^{-5}

D. 1.7×10^{-5}

Answer: A



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9. The first order reaction $2N_2O(g) \rightarrow 2N_2(g) + O_2(g)$ has a rate constant of $1.3 \times 10^{-11} s^{-1}$ at $270^\circ C$ and $4.5 \times 10^{-10} s^{-1}$ at $350^\circ C$. What is the activation energy for this reaction ?

A. 155 kJ

B. 230 kJ

C. 68 kJ

D. 124.6 kJ

Answer: D



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10. What will happen to volume of a bubble of air found under water in a lake where temperature is $15^{\circ}C$ and the pressure is 1.5 atm, if the bubble rises to the surface where the temperature is $25^{\circ}C$ and the pressure is 1.0 atm?

- A. Its volume will become greater by a factor of 2.4
- B. Its volume will become greater by a factor of 1.55
- C. Its volume will become greater by a factor of 1.2
- D. Its volume will become smaller by a factor of 0.80

Answer: B



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11. What is the $[H^+]$ in 0.40 M solution of , HOCl ,
 $K_a = 3.5 \times 10^{-8}$?

A. $1.4 \times 10^{-8} M$

B. $1.2 \times 10^{-4} M$

C. $1.9 \times 10^{-4} M$

D. $3.7 \times 10^{-4} M$

Answer: B



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12. Sodium chloride , NaCl , usually crystallizes in a face - centered cubic lattice. How many ions are in contact with any single Na^+ ion ?

A. 4

B. 6

C. 8

D. 1

Answer: B



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13. What is the osmotic pressure of a $0.0020 \text{ mol dm}^{-3}$ sucrose ($C_{12}H_{22}O_{11}$) solution at $20^\circ C$? (Molar mass constant,

$$R = 8.314 \text{ JK}^{-1} \text{ mol}^{-1}. 1 \text{ dm}^3 = 0.001 \text{ m}^3)$$

A. 4872 pa

B. 4.87 pa

C. 0.00487 pa

D. 0.33 pa

Answer: A



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14. Calculate the wavelength of light required to break the bond between two chlorine atoms in a chlorine molecule. The Cl- Cl bond energy is 243 kJ mol^{-1} ($h = 6.6 \times 10^{-34} \text{ Js}$, $c = 3 \times 10^8 \text{ m/s}$, Avogadro's number = $6.02 \times 10^{23} \text{ mol}^{-1}$)

A. $8.18 \times 10^{-31} \text{ m}$

B. $6.26 \times 10^{-21} \text{ m}$

C. $4.905 \times 10^{-7} \text{ m}$

D. $4.1 \times 10^{-6} \text{ m}$

Answer: C



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15. As O_2 (l) is cooled at 1 atm pressure, it freezes to form solid I at 54.5 K. At a lower temperature, solid rearrange to solid II, which has a different crystal that for the phase transition solid to solid II, $\Delta H = -743.1 \text{ J mol}^{-1}$ and $\Delta S = -17.0 \text{ J K}^{-1} \text{ mol}^{-1}$. At what temperature are solids I and II in equilibrium?

A. 2.06 K

B. 31.6 K

C. 43.7 K

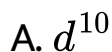
D. 53.4 K

Answer: C



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16. Which of the following configuration of ions has zero CFSE in both strong and weak ligand fields ?



Answer: A



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17. Pi (π) bond is formed by the overlap of

A. p - p orbitals

B. s - s orbitals

C. s - p orbitals

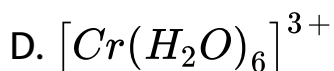
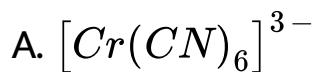
D. s - d orbitals

Answer: A



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18. Which of the following complex has minimum magnitude of Δ^0 ?



Answer: C



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19. The polarity of the covalent bond among the following is maximum in



C. N - F

D. C - F

Answer: D



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20. Which of the following ions gives coloured solution?

A. Cu^+

B. Fe^{2+}

C. Zn^{2+}

D. Ag^+

Answer: B

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21. On adding excess of NH_4OH to copper sulphate solution

- A. A deep blue solution is obtained
- B. A blue precipitate of $Cu(OH)_2$ is obtained
- C. A black precipitate of CuO is obtained
- D. No change takes place

Answer: A

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22. The bond angle formed by different hybrid orbitals are in the order

A. $sp^2 > sp^3 > sp$

B. $sp^3 < sp^2 > sp$

C. $sp^3 > sp^2 > sp$

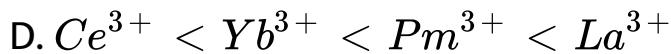
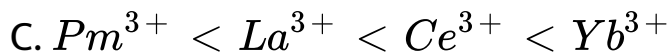
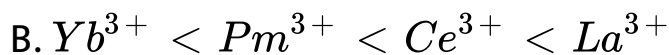
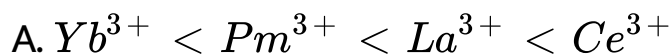
D. $sp > sp^2 > sp^3$

Answer: D



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23. Arrange Ce^{3+} , La^{3+} , Pm^{3+} and Yb^{3+} in increasing order of their size -



Answer: B



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24. The number of unpaired electrons in $Ni(CO)_4$ is

A. 0

B. 2

C. 3

D. 4

Answer: A



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25. The most abundant noble gas in the atmosphere is

A. He

B. Ne

C. Ar

D. Kr

Answer: C



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26. Which of the following methods is used for obtaining aluminium metal ?

A. Electrolysing fused Al_2O_3 and cryolite

B. By heating Al_2O_3 with carbon

C. By heating Al_2O_3 in muffle furnace

D. By a process called pyrometallurgy

Answer: A



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27. A hydroxyl acid on heating gives a 5 - membered lactone. The acid is



Answer: A



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28. Compound 'A' undergoes formation of cyanohydrin which on hydrolysis gives lactic acid $[CH_3CH(OH)COOH]$ Therefore, compound 'A' is :

- A. Acetaldehyde
- B. Acetone
- C. Benzaldehyde
- D. Formaldehyde

Answer: A



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29. A solution containing 62 g ethylene glycol in 250 g water is cooled to $-10^{\circ}C$. If K_f for water is 1.86 K mol^{-1} , the amount of water (in g) separated as ice is :

A. 32

B. 48

C. 16

D. 64

Answer: D



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30. Which one of the following metal ions is essential inside the cell for the metabolism of *glucose* / *synthesis* of proteins:



Answer: A



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31. Which of the following statements is not correct ?

- A. Terylene is a polyester polymer
- B. The monomer of natural rubber is butadiene.
- C. Caprolactum is the monomer of nylon - 6
- D. Phenol formaldehyde resin is known as Bakelite

Answer: B



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32. The anticodon transfer RNA for the messenger RNA codon G-C-A is

A. G-U-T

B. T-G-A

C. C-G-U

D. A-G-T

Answer: C



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33. The number of orbitals associated with quantum numbers $n = 5, m_s = +\frac{1}{2}$ is :

A. 16

B. 55

C. 14

D. 25

Answer: D



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34. The ammonia (NH_3) released on quantitative reaction of 0.6 g urea (NH_2CONH_2) with sodium hydroxide ($NaOH$) can be neutralized by :

A. 200 ml of 0.4 N HCl

B. 200 ml of 0.2 N HCl

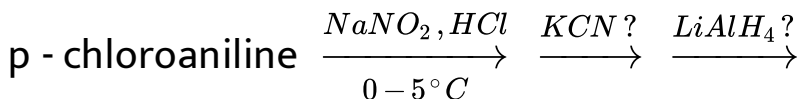
C. 100 ml of 0.1 N HCl

D. 100 ml of 0.2 N HCl

Answer: D

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35. The final product in the following reaction sequence is



- A. p - chlorophenol
- B. p - chlorobenzamide
- C. p - chlorobenzylamine
- D. p - chlorobenzyl alcohol

Answer: C



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36. The compound with molecular formula C_8H_{10} which will give only two isomers on electrophilic substitution with $Cl_2 / FeCl_3$ or with HNO_3 / H_2SO_4 is

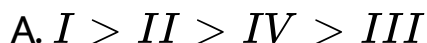
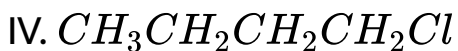
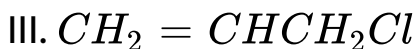
- A. none of these
- B. 1,4-dimethyl benzene
- C. 1,2-dimethyl benzene
- D. ethylbenzene

Answer: C



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37. Decreasing order of reactivity in Williamson's ether synthesis of the following .



D. $II > III > IV > I$

Answer: D



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38. Identify the product in the reaction



A. $PhCOCH_2CH_3$

B. $PhCH_2CH_2CHO$

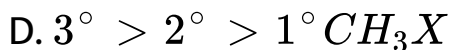
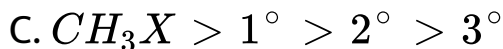
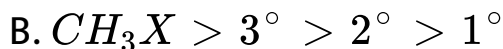
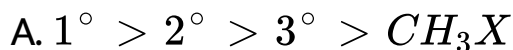
C. $PhCOCOMe$

D. $PhCH_2COCH_3$

Answer: A

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39. The order of rate of hydrolysis of alkyl halides 1° , 2° , 3° and CH_3X by the S_N2 pathway is :



Answer: C

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40. Formation of ozone in the upper atmosphere from oxygen takes place by the action of

- A. cosmic rays
- B. ultraviolet rays
- C. free radicals
- D. nitrogen oxides

Answer: B



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41. From sodium aurocyanide $Na[Au(CN)_2]$, gold can be precipitate adding powder of

A. Hg

B. Ag

C. Zn

D. None of these

Answer: C



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42. A diatomic molecule has a dipole moment of 1.2 D. If its bond length is equal to 10^{-10} m then the fraction of an electronic charge on each atom will be

A. 45 %

B. 55 %

C. 75 %

D. 25 %

Answer: D



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43. Which one of the following is the correct statement ?

A. Boric acid is a protonic acid

B. Both Tl^{3+} and Al^{3+} ions act as oxidizing agent in aqueous solution.

C. Hydrogen bonding in H_3BO_3 gives it a layered structure .

D. $B(Oet)_3$ imparts blue colour to the burner flame.

Answer: C



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44. For following reactions $A \xrightarrow{700K} \text{Product}$

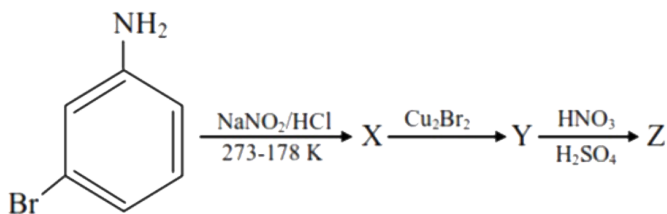
$A \xrightarrow{500K} \text{Product}$

it was found that the E_a is decreased by 30 kJ/mol in the presence of catalyst. If the rate remains unchanged, the activation energy for catalysed reaction if (Assume pre exponential factor is same)

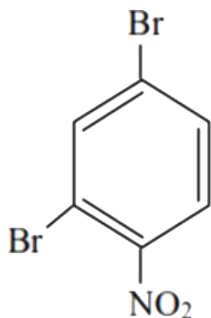
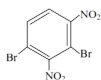
- A. 75 kJ/mol
- B. 105 kJ/mol
- C. 135 kJ/mol
- D. 198 kJ/mol

Answer: A

45. The major product Z obtained in the following reaction scheme is



A.

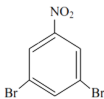


B.

C.



D.



Answer: B



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