

CHEMISTRY

BOOKS - NTA MOCK TESTS

NTA NEET SET 28

Chemistry

1. For the reaction $N_2O_5 \rightarrow 2NO_2 + \frac{1}{2}O_2$, the rate of disappearance of N_2O_5 is $6.25 \times 10^{-3} \text{ mol L}^{-1} \text{ s}^{-1}$. The rate of formation of NO_2 and O_2 will be respectively.

A. $1.25 \times 10^{-2} \text{ mol L}^{-1} \text{ s}^{-1}$ and $6.25 \times 10^{-3} \text{ mol L}^{-1} \text{ s}^{-1}$

B. $6.25 \times 10^{-3} \text{ mol L}^{-1} \text{ s}^{-1}$ and $6.25 \times 10^{-3} \text{ mol L}^{-1} \text{ s}^{-1}$

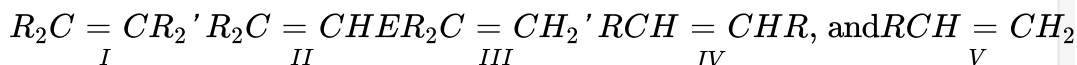
C. $1.25 \times 10^{-2} \text{ mol L}^{-1} \text{ s}^{-1}$ and $3.125 \times 10^{-3} \text{ mol L}^{-1} \text{ s}^{-1}$

D. $6.25 \times 10^{-3} \text{ mol L}^{-1} \text{ s}^{-1}$ and $3.125 \times 10^{-3} \text{ mol L}^{-1} \text{ s}^{-1}$

Answer: C

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2. The order of stability of the alkenes



is -

A. I > II > III > IV > V

B. I = II > III > IV > V

C. II > I > IV > III > V

D. V > IV > III > II > I

Answer: A

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3. An increase in equivalent conductance of a strong electrolyte with dilution is mainly due to:

- A. increase in number of ions
- B. increase in ionic mobility of ions
- C. 100 % ionization of electrolyte at normal dilution
- D. increase in both i.e., number of ions and ionic mobility of ions

Answer: B



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4. Property of the alkaline earth metals that increases with their atomic number is

- A. electronegativity
- B. Solubility of their hydroxides in water
- C. Solubility their sulphates in water

D. ionization energy

Answer: B

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5. 25.3 g of sodium carbonate, Na_2CO_3 is dissolved in enough water to make 250 mL of solution. If sodium carbonate dissociates completely, molar concentration of sodium ions, Na^+ and carbonate ions, CO_3^{2-} are respectively (Molar mass of $NaCO_3 = 106\text{g mol}^{-1}$)

A. 0.477 M and 0.477 M

B. 0.955 M and 1.910 M

C. 1.910 M and 0.955 M

D. 1.90 M and 1.910 M

Answer: C

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6. In a buffer solution containing equal concentration of B^- and HB , the K_b for B^- is 10^{-10} . The pH of buffer solution is

- A. 4
- B. 5
- C. 7
- D. 6

Answer: A



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7. Which of the following pairs has the same size ?

- A. Zn^{2+} , Hf^{4+}
- B. Fe^{2+} , Ni^{2+}
- C. Zr^{4+} , Ti^{4+}
- D. Zr^{4+} , Hf^{4+}

Answer: D

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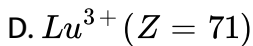
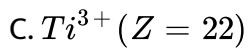
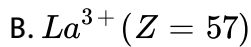
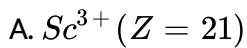
8. An aqueous solution is 1.00 molal in KI . Which change will cause the vapor pressure of the solution to increase?

- A. addition of water
- B. addition of $NaCl$
- C. addition of Na_2SO_4
- D. addition of 100 molal KI

Answer: A

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9. Which of the following ions will exhibit colour in aqueous solution ?



Answer: C



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10. The ratio of acid strength of $HOCN$ and HCN is about

Given K_a of $HOCN = 1.2 \times 10^{-4}$ and K_a of $HCN = 4.2 \times 10^{-10}$

A. 535 : 1

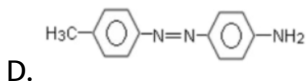
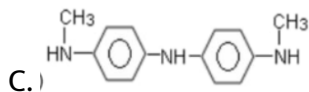
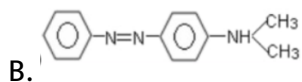
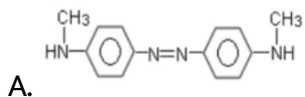
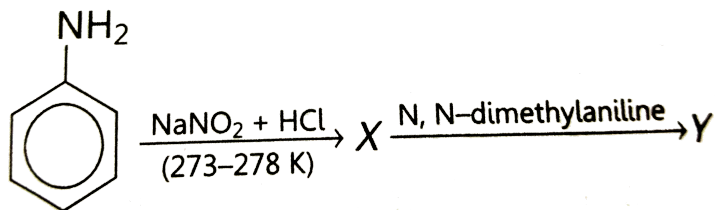
B. 1 : 535

C. 2.86×10^5 : 1

D. 2.86×10^4 : 1

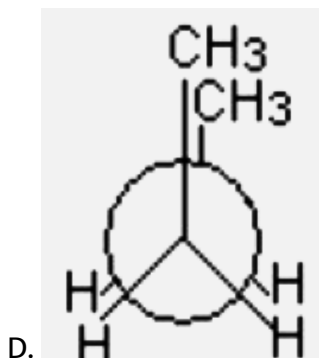
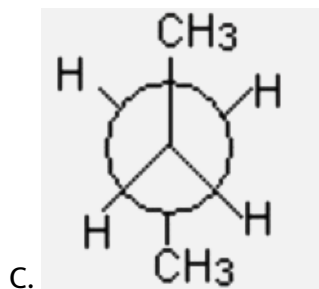
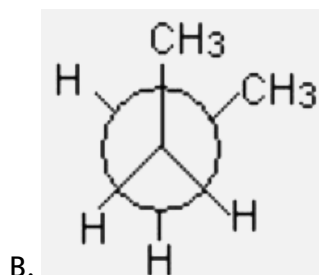
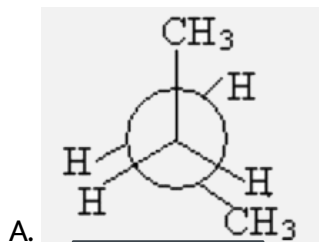
Answer: A

11. Aniline in a set of the following reactions yielded a coloured product Y



Answer: B

12. In the following the most stable conformation of *n*-butane is:



Answer: C



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13. How many α - and β - particles will be emitted when ${}_{90}\text{Th}^{232}$ changes into ${}_{82}\text{Pb}^{208}$?

A. 6, 4

B. 4, 6

C. 8, 6

D. 6, 8

Answer: A



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14. Standard entropies of X_2 , Y_2 and XY_3 are 60, 40 and $50 \text{ JK}^{-1} \text{ mol}^{-1}$ respectively. For the reaction

$\frac{1}{2}X_2 + \frac{3}{2}Y_2 \leftrightarrow XY_3$, $\Delta H = -30 \text{ kJ}$ to be at equilibrium, the temperature should be

- A. 500 K
- B. 750 K
- C. 1000 K
- D. 1250 K

Answer: B



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15. During the kinetic study of the reaction, $2A + B \rightarrow C + D$, following results were obtained

Run	[A] /molL ⁻¹	[B] /molL ⁻¹	Initial rate of formation of D /molL ⁻¹ min ⁻¹
I	0.1	0.1	6.0×10^{-3}
II	0.3	0.2	7.2×10^{-2}
III	0.3	0.4	2.88×10^{-1}
IV	0.4	0.1	2.40×10^{-2}

Based on the above data which one of the following is correct?

A. rate = $k[A][B]^2$

B. rate = $k[A]^2[B]$

C. rate = $k[A][B]$

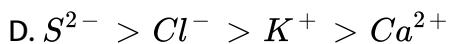
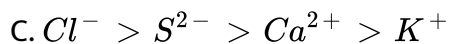
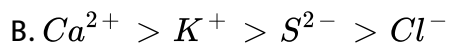
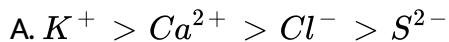
D. rate = $k[A]^2[B]^2$

Answer: A



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16. The correct order of decreasing ionic radii among the following isoelectronic species is



Answer: D



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17. The reaction of toluene with Cl_2 in presence of $FeCl_3$ gives X and reaction in presence of light gives Y Thus X and Y are .

A. $X = \text{Benzyl chloride}$, $Y = m\text{-chlorotoluene}$

B. $X = \text{Benzyl chloride}$, $Y = o\text{-o chlorotoluene}$,

C. $X = m\text{-chlorotoluene}$, $Y = p\text{-chlorotoluene}$

D. X = o - chlorotoluene and p - chlorotoluene, Y = - trichloromethyl benzene

Answer:

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18. Liquid hydrocarbon can be converted to a mixture of gaseous hydrocarbon by

- A. Hydrolysis
- B. Oxidation
- C. Cracking
- D. Distillation under reduced pressure

Answer: C

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19. For the reduction of silver ions with copper metal, the standard cell potential was found to be $+0.46\text{V}$ at 25°C the value of the standard Gibb's energy, ΔG° will be

A. -98.0kJ

B. -89.0kJ

C. -89.0J

D. -44.5kJ

Answer: B



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20. AB crystallizes in a body centred cubic lattice with edge length a equal to 387pm . The distance between two oppositely charged ions in the lattice is :

A. 300 pm

B. 335 pm

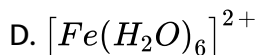
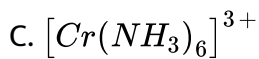
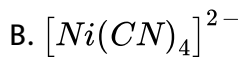
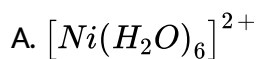
C. 250 pm

D. 200 pm

Answer: B

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21. Which of the following complex ion is not expected to absorb visible light?



Answer: B

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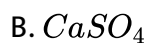
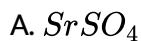
22. Which one of the following ions has electronic configuration $[Ar]3d^6$? (At. Nos. $Mn = 25$, $Fe = 26$, $Co = 27$, $Ni = 28$)



Answer: A

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23. Which one of the following alkaline earth metal sulphates has its hydration enthalpy greater than its lattice enthalpy?

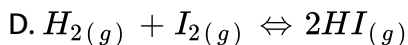
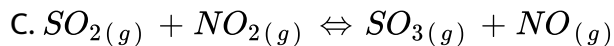
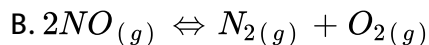
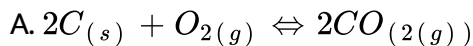




Answer: C

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24. In which of the following equilibrium K_c and K_p are not equal?



Answer: A

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25. pH of saturated solution of $Ba(OH)_2$ is 12. The value of solubility product (K_{sp}) of $Ba(OH)_2$ is

A. $5.00 \times 10^{-7} M^3$

B. $4.00 \times 10^{-6} M^3$

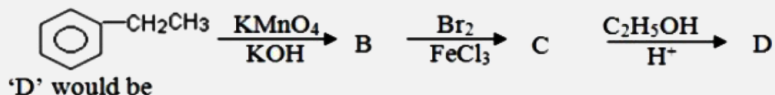
C. $4.00 \times 10^{-7} M^3$

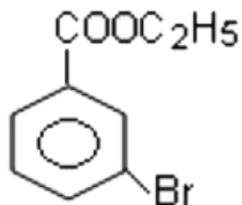
D. $5.00 \times 10^{-6} M^3$

Answer: A

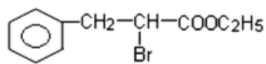
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26. In a set of reaction, ethyl benzene yielded a product D

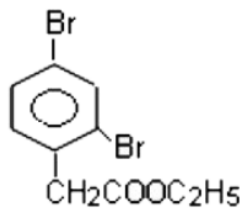




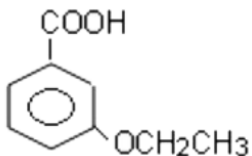
A.



B.



C.



D.

Answer: A



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27. The number of atoms in 0.1 mol of a triatomic gas is:

A. 1.800×10^{22}

B. 6.023×10^{22}

C. 1.806×10^{23}

D. 3.600×10^{23}

Answer: C



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28. Given are cyclohexanol (*I*), acetic acid (*II*), 2, 4, 6 – trinitrophenol (*III*) and phenol (*IV*). In these the order of decreasing acidic character will be:

A. III gt IV gt II gt I

B. III gt II gt IV gt I

C. II gt III gt I gt IV

D. II gt III gt IV gt I

Answer: B



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29. Oxidation state of P in $H_4P_2O_5$, $H_4P_2O_6$, $H_4P_2O_7$ are respectively

A. +3, +4, +5

B. +3, +5, +4

C. +5, +3, +4

D. +5, +4, +4

Answer: A



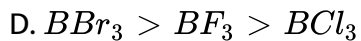
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30. In BF_3 , BCl_3 and BBr_3 the stability order is

A. $BF_3 > BCl_3 > BBr_3$

B. $BCl_3 > BCl_3 > BF_3$

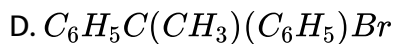
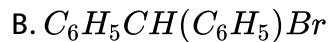
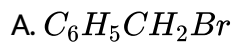
C. $BBr_3 > BF_3 > BF_3$



Answer: A

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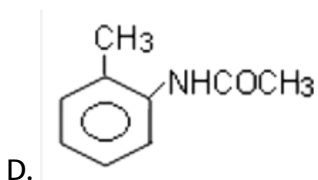
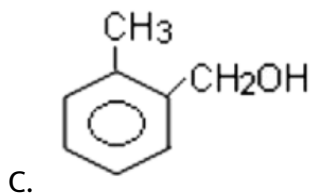
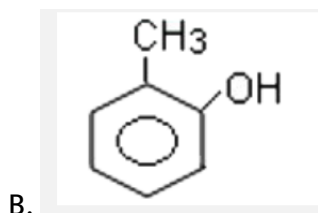
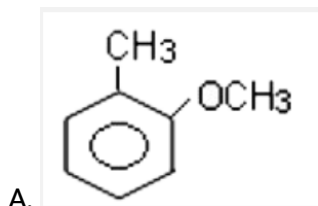
31. Which one is most reactive towards S_N1 reactions ?



Answer: D

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32. Which one of the following is most reactive towards electrophilic reagent ?



Answer: B

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33. Which of the following represents the correct order of increasing electron gain enthalpy with negative sign for the elements O, S, F and Cl?

A. S It O It Cl It F

B. Cl It F It O It S

C. O It S It F It Cl

D. F It S It O It Cl

Answer: C



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34. Which one of the following is employed as a tranquilizer drug ?

A. Mifepristone

B. Promethazine

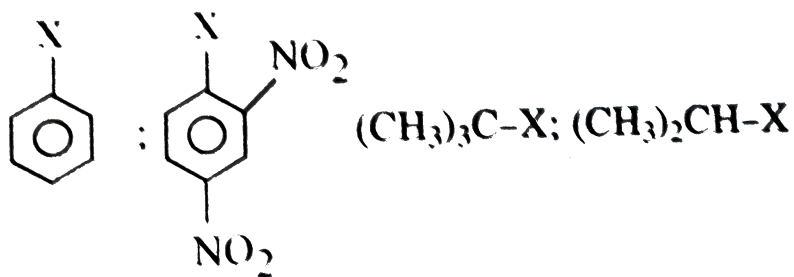
C. Valium

D. Naproxen

Answer: C

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35. The correct order of increasing reactivity of C-X bond towards nucleophile in the following compounds is :



A. III lt II lt I lt IV

B. I lt II lt IV lt III

C. II lt III lt I lt IV

D. IV lt III lt I lt II

Answer: B

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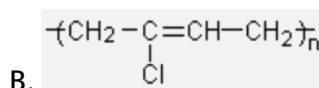
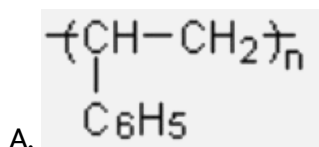
36. Which one of the following does not exhibit the phenomenon of mutarotation ?

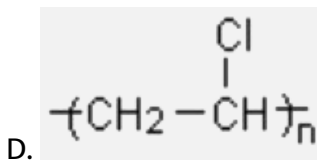
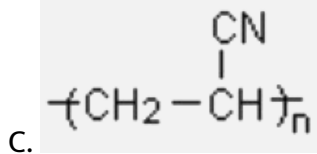
- A. (-) Fructose
- B. (+) Sucrose
- C. (+) Lactose
- D. (+) Maltose

Answer: B

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37. Which of the following structures represents neoprene polymer?

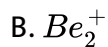




Answer: B

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38. Which of the following species does not exist under normal conditions?



Answer: C

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39. A solution of sucrose (molar mass = 342g mol^{-1}) has been prepared by dissolving 68.5g of sucrose in 1000g of water. The freezing point of the solution obtained will be :

(K_f for water = 1.86K kg mol^{-1})

A. -0.570C

B. -0.372C

C. -0.520

D. $+0.372\text{C}$

Answer: B

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40. The existence of two different coloured complexes with the composition $[\text{Co}(\text{NH}_3)_2\text{Cl}_2]^+$ is due to

- A. Ionization isomerism
- B. Linkage isomerim
- C. Geometrical isomerism
- D. Coordinatin isomerism

Answer: C

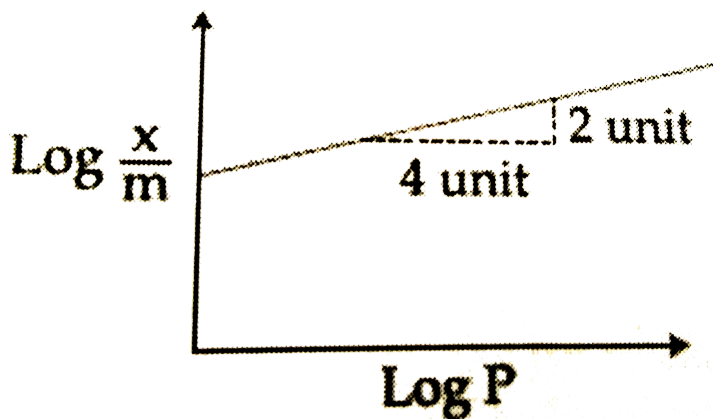
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41. Which of the following reactions will not result in the formation of carbon- carbon bond?

- A. Friedal - Crafts acylation
- B. Reimer - Tieman reacton
- C. Cannizaro reaction
- D. Wurtz reaction

Answer: C

42. Adsorption of a gas follows Freundlich adsorption isotherm. In the given plot, x is the mass of the gas adsorbed on mass m of the adsorbent at pressure P . $\frac{x}{m}$ is proportional to:



- A. $P^{\frac{1}{4}}$
- B. P^2
- C. P
- D. $P^{\frac{1}{2}}$

Answer: D

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43. Which of the following statements about primary amines is false ? .

- A. Alkyl amines are stronger bases than ammonia
- B. Alkyl amines are stronger bases than aryl amines
- C. Alkyl amines react with nitrous acid to produce alcohols
- D. Aryl amines react with nitrous acid to produce phenols

Answer: D

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44. Acetamide is treated with the following reagents separately. Which one of these would yield methyl amine?

A. PCl_5

B. $NaOH / Br_2$

C. Sodalime

D. Hot conc. H_2SO_4

Answer: B

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45. Which one of the following statements regarding Henry's law is not correct ?

- A. The value of K_H increases with function of the nature of the gas.
- B. Higher the value of K_H at a given pressure, higher is the solubility of the gas in the liquids
- C. The partial pressure of the gas in vapour phase is proportional to the mole fraction of the gas in the solution.
- D. Different gases have different K_H (Henry's law constant) value at the same temperature.

Answer: B



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