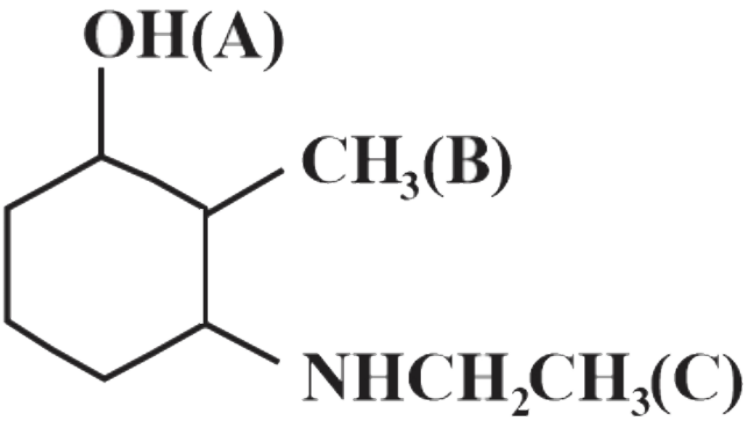
CHEMISTRY

BOOKS - NTA MOCK TESTS

NTA JEE MOCK TEST 106

Chemistry

1. In the following compound, designated as A, B, C will be numbered as



A. 3, 2, 1

B. 6, 1, 2

C. 3, 1, 2

D. 1, 2, 3

Answer: D

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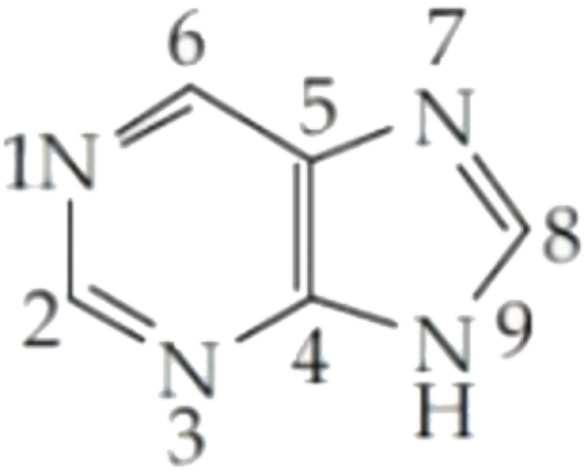
2. The "N" which contribute least to the basicity for the compound is :



A. N - 9

B. N - 3

C. N - 1

D. N - 7

Answer: A

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3. For homogeneous gas reaction $4NH_3 + 5O_2 \Leftrightarrow 4NO + 6H_2O$. The equilibrium constant K_c has the unit of

A. conc.^{+10}

B. conc.^{+1}

C. conc.^{-1}

D. It is dimensionless

Answer: B

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4. In acidic medium Zn reduces nitrate ion ot NH_4^+ ion according to the reaction

$$\underset{\text{(unbalanced)}}{Zn + NO_3^- \rightarrow Zn^{2+} + NH_4^+ + H_2O}$$

How many moles of HCl are required to reduce half a mole of $NaNO_3$ completely? Assume the availability of sufficient Zn.

A. 5

B. 4

C. 3

D. 2

Answer: A

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5. K_b for CH_2ClCOO^- is 6.4×10^{-12}. The pH of $0.1\,\mathrm{M}$ CH_2ClCOO^- in water is :

A. 7.9

B. 6.9

C. 1.9

D. 12.1

Answer: A

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6. Which of the following compounds does not liberate nitrogen with HNO_2?

A. Carbamide

B. Primary amine

C. Secondary amine

D. Alkanamide

Answer: C

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7. Identify Z in the sequence

$$CH_3 - CH_2 - CH = CH_2 \xrightarrow{HBr\,/\,H_2O_2} Y \xrightarrow{(C_2)\,H_5O^-\,Na^+} Z$$

A. $H_3C - \overset{\overset{H}{|}}{\underset{\underset{H}{|}}{C}} - O - CH_2 - CH_3$

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

C. $CH_3 - (CH_2)_3 - O - CH_2 - CH_3$

D. $CH_3 - (CH_2)_4 - O - CH_3$

Answer: C

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8. Which of the following is known as broad spectrum antibiotic?

A. Streptomycine

B. Amylopectin

C. Chloramphenicol

D. Penicillin G

Answer: C

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9. In the electrolytic refining of zinc,

A. Graphite is at the anode.

B. The impure metal is at the cathode.

C. The metal ion get reduced at the anode.

D. Acidified zinc sulphate is the electrolyte.

Answer: D

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10. When xenon hexafluoride is treated with AsF_5 to form an ionic compound, the hybridisation of Xe and As will be respectively

A. sp^3d^2, sp^3d

B. sp^3d, sp^3d^2

C. sp^3d^3, sp^3d^2

D. sp^3d^2, sp^3d^2

Answer: D

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11. Match the following-

Column – I	Column - II
A. sp^3	(i) $\left[Co\left(NH_3\right)_6\right]^{3+}$
B. dsp^2	(ii) $\left[Ni\left(CO\right)_4\right]$
C. sp^3d^2	(iii) $\left[Pt\left(NH_3\right)_2Cl_2\right]$
D. d^2sp^3	(iv) $\left[CoF_6\right]^{3-}$

A. $\begin{vmatrix} A & B & C & D \\ (v) & (ii) & (iv) & (iii) \end{vmatrix}$

B. $\begin{vmatrix} A & B & C & D \\ (ii) & (iii) & (iv) & (v) \end{vmatrix}$

C. $\begin{vmatrix} A & B & C & D \\ (ii) & (iii) & (i) & (v) \end{vmatrix}$

D. $\begin{vmatrix} A & B & C & D \\ (ii) & (iii) & (iv) & (i) \end{vmatrix}$

Answer: D

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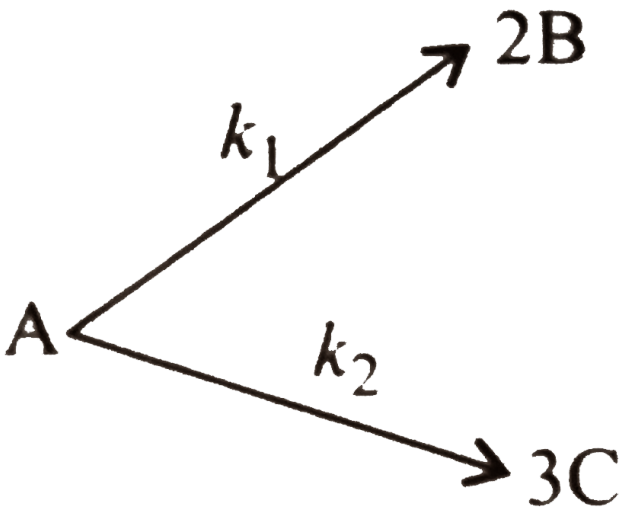
12. Consider the following parallel reactions being given by $A\left(t_{1/2} = 1.386 \times 10^2 hours\right)$, each path being first order.



If the distribution of B in the Product mixture is

$50\ \%$, the partical half life of A for converison into B is

A. 346.5 h

B. 231 h

C. 154 h

D. 92.4 h

Answer: B

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13. Which of the following is incorrect?

A. IE_1 of $Li < IE_1$ of Be

B. IE_1 of $Be < IE_1$ of B

C. IE_1 of $Li > IE_1$ of Na

D. IE_1 of $He > IE_1$ of Ne

Answer: B

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14. Given $E_{Cr^{3+}/Cr^{\circ}} = -O \cdot 74V$,

$E^{\circ}_{MnO_4^-/Mn^{2+}} = 1.51V$

$E^{\circ}_{Cr_2O_7^{2-}/Cr^{3+}}$ = 1.33V , $E^{\circ}_{Cl/Cl^-} = 1.36V$

Based on the given above , Strongest oxidising agent will be:

A. Mn^{2+}

B. MnO_4^{2-}

C. Cl^-

D. Cr^{3+}

Answer: B

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15. 0.45 gm of an organic compound gave on combution 0.792 gm of CO_2 and $0.324gm$ of water.

0.24 gm of the same substance was Kjeldahlised and the ammonia liberated was absorbed in 50.0 ml of $\frac{M}{8H_2SO_4}$. The excess acid required 77.0 ml of $\frac{N}{10}NaOH$ for complete neutralisation. Calculate the empirical formula of the compound.

A. $H_4C_2N_8O$

B. $C_2H_4N_8O$

C. $C_4H_8N_2O$

D. $C_2N_\circ H_4O$

Answer: C

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16. The wave number of first emission line in the atomic spectrum of hydrogen in the Balmer series is

A. $\frac{5R}{36}cm^{-1}$

B. $\frac{3R}{4}cm^{-1}$

C. $\frac{7R}{144}cm^{-1}$

D. $\frac{9R}{400}cm^{-1}$

Answer: A

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17. At low pressure, the van der Waals equation is reduced to

A. $Z = \frac{PV_m}{RT} = 1 - \frac{aP}{RT}$

B. $Z = \frac{PV_m}{RT} = 1 + \frac{bP}{RT}$

C. $PV_m = RT$

D. $Z = \frac{PV_m}{RT} = 1 - \frac{a}{V_m RT}$

Answer: D

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18. When potassium is reacted with oxygen, which of the following compound(s) is/are formed?

A. K_2O

B. KO_2

C. Both K_2O and KO_2

D. K_2O_2

Answer: B

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19. Carnellite is a mineral of

A. Ca

B. Na

C. Mg

D. Zn

Answer: C

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20. Acetone on treatment with $CH_3 - Mg - I$ and on further hydrolysis gives

A. Isopropyl alcohol

B. Primary alcohol

C. Acetic acid

D. 2 - methyl 2 - propanol

Answer: D

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21. The value of $\log_{10} K$ for a reaction $A \Leftrightarrow B$ is

(Given: $\Delta_f H^{\Theta}_{298K} = -54.07 kJ mol^{-1}$,

$\Delta_r S^{\Theta}_{298K} = 10 JK^{=1} mol^{-1}$, and

$R = 8.314 JK^{-1} mol^{-1}$

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22. On ozonolysis, an alkene (x) forms two carbonyl compounds namely butan - 2 - one and methanal. The total number of methyl groups present in alkene (x) is

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23. Out of all the possible isomers of $C_5H_{11}Cl$, how many are secondary in nature?

(Exclude stereoisomers if any.)

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24. The bond order of NO molecule is

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25. If the density of some lake water is $1.25gmL^{-1}$ and contains $92g$ of $Na^{\oplus}$ ions per kg of water, calculate the molality of $Na^{\oplus}$ ions in the lake.

A. 5

B. 34

C. 4

D. 51

Answer: 4