**CHEMISTRY****NTA MOCK TESTS ENGLISH****NTA JEE MOCK TEST 64****Chemistry**

1. Match the column I with column II and mark the appropriate choice.

| | Column I | | Column II |
|-----|----------|-------|----------------------|
| (p) | P | (i) | 6 unpaired electrons |
| (q) | Cr | (ii) | 2 unpaired electrons |
| (r) | Fe | (iii) | 3 unpaired electrons |
| (s) | Si | (iv) | 4 unpaired electrons |

A. (p)-(ii), (q)-(i), (r)-(iii), (s)-(iv)

B. (p)-(i), (q)-(iii), (r)-(ii), (s)-(iv)

C. (p)-(iii), (q)-(i), (r)-(iv), (s)-(ii)

D. (p)-(iv), (q)-(ii), (r)-(i), (s)-(iii)

Answer: C



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2. The number of hyperconjugating structures shown by the carbocations are given below. Which one is not correctly matched?

A. $CH_3 - \overset{+}{\underset{\text{CH}_3}{\text{C}}} - CH_3$, 9 hyperconjugating

B. $CH_3 - \overset{+}{\text{C}} - CH_3$, 8 hyperconjugating structures

C. $CH_3 - \overset{+}{\text{CH}_2}$, 3 hyperconjugating structures

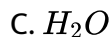
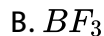
D. $\overset{+}{\text{CH}_3}$, No hyperconjugating structures

Answer: B



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3. Which of the following will have the highest dipole moment ?



D. All have zero dipole moment

Answer: C



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4. Soaps do not work in hard water containing calcium and magnesium ions because

A. Ca^{2+} and Mg^{2+} ions form insoluble calcium and magnesium salts in the form of scum

B. Na^+ and K^+ present in soap react with Ca^{2+} and Mg^{2+} and hinder cleansing process

C. a large amount of soap is to be used in presence of



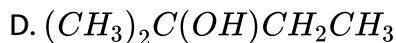
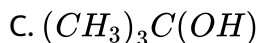
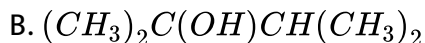
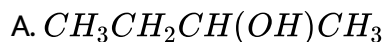
D. scum formed by combination of Na^{+} , Ca^{2+} and Mg^{2+} stick to the cloth and are not removed on agitation

Answer: A



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5. An alcohol X on heating with concentrated H_2SO_4 gives an alkene Y which can show geometrical isomerism . The alcohol X is



Answer: A

6. Match the column I with column II and mark the appropriate choice.

| | Column I | Column II |
|-----|--|-----------------------------|
| (p) | $\text{H}_2(\text{g}) + \text{Br}_2(\text{g}) \rightarrow 2\text{HBr}(\text{g})$ (i) | $\Delta H = \Delta U - 2RT$ |
| (q) | $\text{PCl}_5(\text{g}) \rightarrow \text{PCl}_3(\text{g}) + \text{Cl}_2(\text{g})$ (ii) | $\Delta H = \Delta U + 3RT$ |
| (r) | $\text{N}_2(\text{g}) + 3\text{H}_2(\text{g}) \rightarrow 2\text{NH}_3(\text{g})$ (iii) | $\Delta H = \Delta U$ |
| (s) | $2\text{N}_2\text{O}_5(\text{g}) \rightarrow 4\text{NO}_2(\text{g}) + \text{O}_2(\text{g})$ (iv) | $\Delta H = \Delta U + RT$ |

A. (p) - (iii), (q) - (i), (r) - (ii), (s) - (iv)

B. (p) - (iii), (q) - (iv), (r) - (i), (s) - (ii)

C. (p) - (ii), (q) - (i), (r) - (iv), (s) - (iii)

D. (p) - (iv), (q) - (ii), (r) - (i), (s) - (iii)

Answer: B

7. An electric charge of 5 Faradays is passed through three electrolytes $AgNO_3$, $CuSO_4$ and $FeCl_3$ solution. The grams of each metal liberated at cathode will be

A. $Ag = 10.8g$, $Cu = 12.7g$, $Fe = 1.11g$

B. $Ag = 540.8g$, $Cu = 367.5g$, $Fe = 325g$

C. $Ag = 108g$, $Cu = 63.5g$, $Fe = 56g$

D. $Ag = 540g$, $Cu = 158.8g$, $Fe = 93.3g$

Answer: D

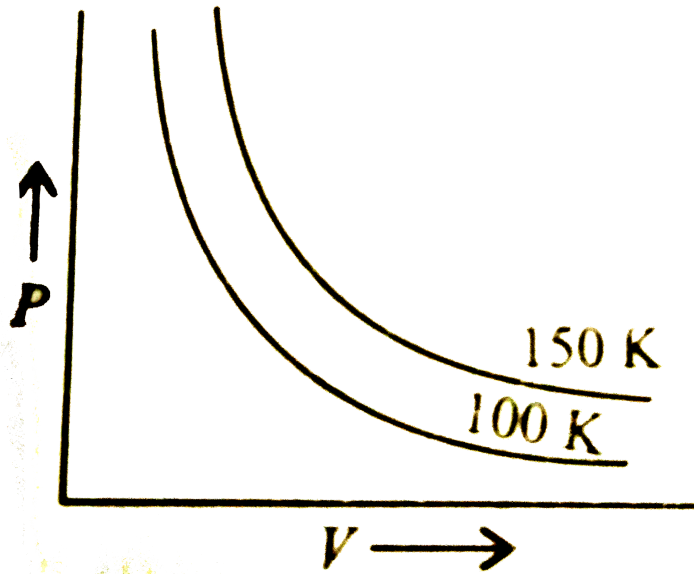


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8. A graph is plotted between pressure and volume at different temperatures . On the basis of the graph what changes will you observe in the volume if

(i) the pressure is increased at constant temperature .

(ii) the temperature is decreased at constant pressure .



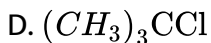
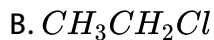
- A. volume increases in both the cases
- B. volume decreases in both the cases
- C. volume increases in (i) and decreases in (ii)
- D. volume decreases in (i) and increases in (ii)

Answer: B



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9. Which of the following alkyl halides is hydrolysed by S_N1 mechanism?

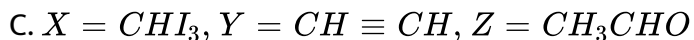
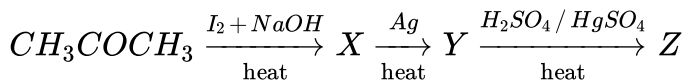


Answer: D



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10. Identify (X), (Y) and (Z) in the given reaction.



D. $X = CH_3COCl$, $Y = CH_2 = CH_2$, $Z = CH_3CHO$

Answer: C



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11. A compound $C_6H_{14}O_2$ has two tertiary alcoholic groups . The IUPAC name of this compound is

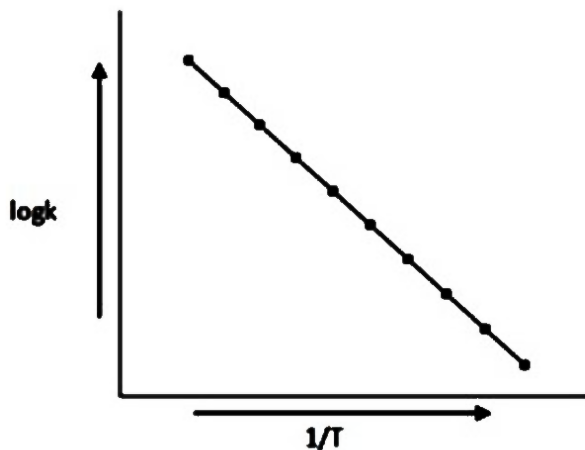
- A. 2, 3 - dimethyl - 1, 2 - butanediol
- B. 3, 3 - dimethyl - 1, 2 - butanediol
- C. 2, 3 - dimethyl - 1, 2 - butanediol
- D. 2 - methyl - 2, 3 - pentanediol

Answer: C



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12. When a plot between $\log k$ and $1/T$ is plotted we get the graph as shown.



What is the value of slope in the graph?

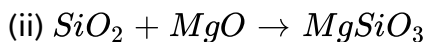
- A. $\frac{E_a}{RT}$
- B. $-\frac{E_a}{2.303R}$
- C. $-\frac{E_a}{2.303RT} \log A$
- D. $-\frac{E_a}{2.303} \frac{R}{T}$

Answer: B



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13. During the formation of the slag by the reaction of flux and impurities which of the following is an example of acidic and basic flux?



A. (i) SiO_2 — Acidic flux (ii) MgO - Basic flux

B. (i) SiO_2 — Basic flux (ii) MgO - Acidic flux

C. (i) SiO_2 — Basic flux (ii) MgO - Basic flux

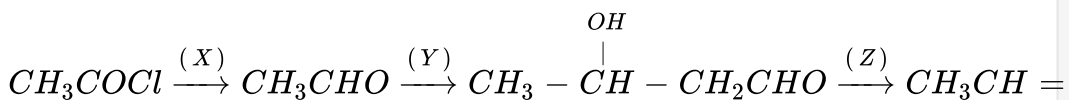
D. (i) SiO_2 — Acidic flux (ii) MgO - Acidic flux

Answer: A



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14. Fill in the reagents for the given conversion :



A.

| | | |
|---------------|-----------|------|
| X | Y | Z |
| $Pd / BaSO_4$ | dil. NaOH | heat |

- B. $\left| \begin{array}{ccc} X & Y & Z \\ \hline \text{NaOH} & \text{Hydrolysis} & \text{heat} \end{array} \right|$
- C. $\left| \begin{array}{ccc} X & Y & Z \\ \hline I_2 / NaOH & LiAlH_4 & H_3O^+ \end{array} \right|$
- D. $\left| \begin{array}{ccc} X & Y & Z \\ \hline CrO_3 & \text{Warm} & CO_2 \end{array} \right|$

Answer: A



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15. The correct match between Item-I and Item-II is:

| Column I | | Column II | |
|----------|------------------------|-----------|---|
| (a) | High density polythene | (I) | Peroxide catalyst |
| (b) | Polyacrylonitrile | (II) | Condensation at high temperature & Pressure |
| (c) | Novolac | (III) | Ziegler-Natta Catalyst |
| (d) | Nylon 6 | (IV) | Acid or base catalyst |

- A. (p) - (i), (q) - (ii), (r) - (iii), (s) - (iv)
- B. (p) - (ii), (q) - (iii), (r) - (iv), (s) - (i)
- C. (p) - (iii), (q) - (i), (r) - (iv), (s) - (ii)
- D. (p) - (iv), (q) - (iii), (r) - (i), (s) - (ii)

Answer: C



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16. Which of the following azeotropes is not correctly matched ?

A. $HNO_3(68\%) + H_2O(32\%)$: Maximum boiling azeotrope, boiling point = 393.5 K

B. $H_2O(43\%) + HI(57\%)$: Minimum boiling azeotrope, boiling point = 290 K

C. $C_2H_5OH(95.5\%) + H_2O(4.5\%)$: Minimum boiling azeotrope, boiling point = 351.15 K

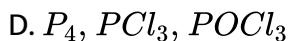
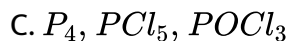
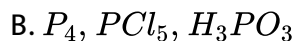
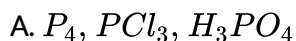
D. Chloroform (93.2%) + $C_2H_5OH(6.8\%)$: Minimum boiling azeotrope, boiling point = 332.2 K

Answer: B



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17. A translucent white waxy solid (A) reacts with excess of chlorine to give a yellowish white powder (B). (B) reacts with organic compounds containing -OH group converting them into chloro derivatives. (B) on hydrolysis gives (C) and is finally converted to phosphoric acid. (A), (B) and (C) are



Answer: C



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18. A metal (M) produces a gas (N) on reaction with alkalies like NaOH and KOH. Same gas is produced when the metal reacts with dilute sulphuric acid. Gas (N) reacts with another toxic gas (P) to form methanol at high

temperature and pressure . (N) also reacts with metals like (Q) to form electrovalent hydrides. M, N, P and Q respectively are

A. Zn, H_2, CO, Na

B. Na, H_2, Cl_2, Ca

C. Al, H_2, H_2S, B

D. Mg, H_2, NO_2, Al

Answer: A



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19. Match the column I with column II and mark the appropriate choice.

| | Column I | | Column II |
|-----|---------------|-------|-----------------------------------|
| (p) | CH_3COONa | (i) | Almost neutral, $pH > 7$ or < 7 |
| (q) | NH_4Cl | (ii) | Acidic, $pH < 7$ |
| (r) | $NaNO_3$ | (iii) | Alkaline, $pH > 7$ |
| (s) | CH_3COONH_4 | (iv) | Neutral, $pH = 7$ |

A. (p) - (i), (q) - (ii), (r) - (iii), (s) - (iv)

B. (p) - (ii), (q) - (iii), (r) - (iv), (s) - (i)

C. (p) - (iii), (q) - (ii), (r) - (iv), (s) - (i)

D. (p) - (iv), (q) - (i), (r) - (iii), (s) - (ii)

Answer: C



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20. Which of the following statements is not correct?

A. Proteins are polyamides formed from amino acids

B. Except glycine, all other amino acids show optical activity

C. Natural proteins are commonly made up of L - isomer of amino acids

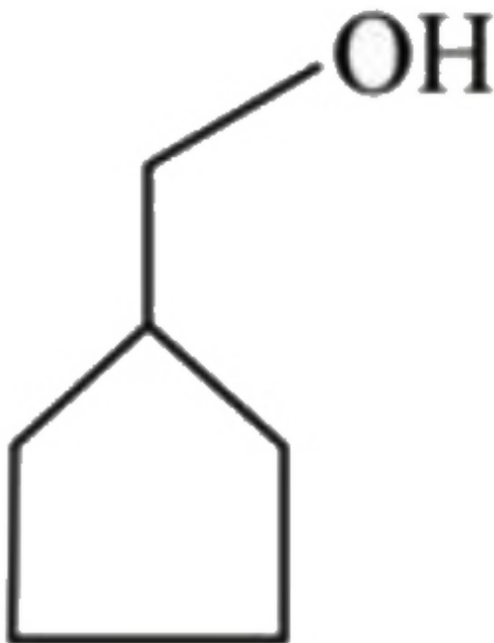
D. In α - amino acids, $-NH_2$ and $-COOH$ groups are attached to different carbon atoms

Answer: D



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21. How many positional isomers are possible for this compound



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22. If in I_2Cl_6 the number of covalent bonds and coordinate bonds are m and n respectively. Find the sum of $m + n$



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23. The number of possible stereo isomers in Ma_3b_3 is equal to
(Here a, b are different monodentate ligands).



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24. If the pK_a of acetic acid and pK_b of NH_4OH are 4.76 and 4.75 respectively, what will be the pH of ammonium acetate solution ?



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