



## CHEMISTRY

### BOOKS - NTA MOCK TESTS

### 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**

 [Watch Video Solution](#)

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

A.  $CH_3 - \overset{+}{C} - CH_3$ , 9 hyperconjugating structures

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

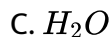
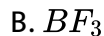
C.  $CH_3 - \overset{+}{C}H_2$ , 3 hyperconjugating structures

D.  $\overset{+}{C}H_3$ , No hyperconjugating structures

**Answer: B**

 [Watch Video Solution](#)

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



D. All have zero dipole moment

**Answer: C**



[Watch Video Solution](#)

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



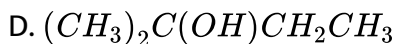
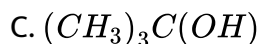
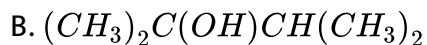
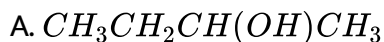
D. scum formed by combination of  $Na^+$ ,  $Ca^{2+}$  and  $Mg^{2+}$  stick to

the cloth and are not removed on agitation

**Answer: A**

 [Watch Video Solution](#)

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**

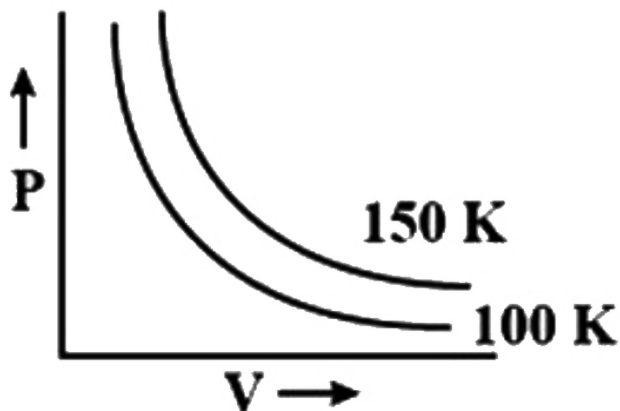


[Watch Video Solution](#)

8. A graph is plotted between pressure and volume at different temperature. 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

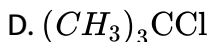
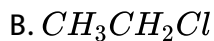


- A. volume increases in both the cases
- B. volume decreases in both the cases
- C. volume increases in (i) and decreases in (ii)
- D. volume decreases in (i) and increases in (ii)

**Answer: B**

[Watch Video Solution](#)

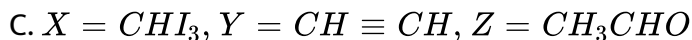
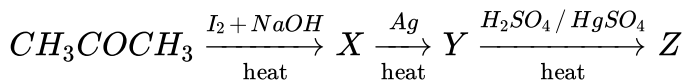
9. Which of the following alkyl halides is hydrolysed by  $S_{N1}$  mechanism?



Answer: D

 Watch Video Solution

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



Answer: C





Watch Video Solution

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

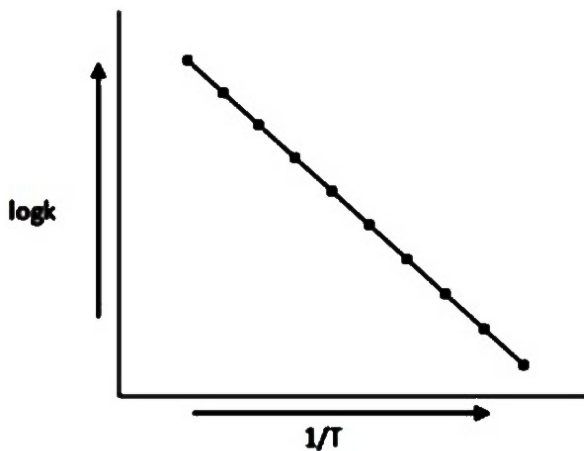
- A. 2, 3 - dimethyl - 1, 2 - butanediol
- B. 3, 3 - dimethyl - 1, 2 - butanediol
- C. 2, 3 - dimethyl - 1, 2 - butanediol
- D. 2 - methyl - 2, 3 - pentanediol

Answer: C



Watch Video Solution

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?

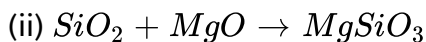
- A.  $\frac{E_a}{RT}$
- B.  $-\frac{E_a}{2.303R}$
- C.  $-\frac{E_a}{2.303RT} \log A$
- D.  $-\frac{E_a}{2.303} \frac{R}{T}$

**Answer: B**



[Watch Video Solution](#)

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

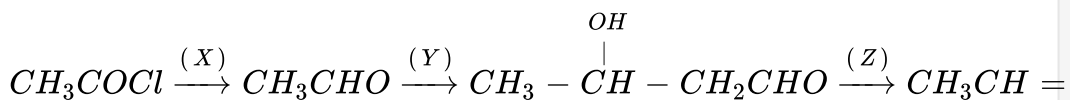
C. (i)  $SiO_2$  - Basic flux (ii)  $MgO$  - Basic flux

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

**Answer: A**

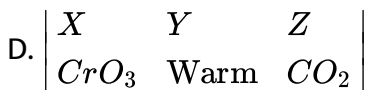
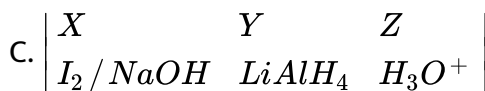
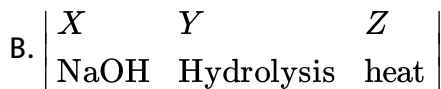
 [Watch Video Solution](#)

14. Fill in the reagents for the given conversion :



A. 

X	Y	Z
Pd / BaSO <sub>4</sub>	dil. NaOH	heat



**Answer: A**



**Watch Video Solution**

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

	Column I		Column II
(p)	3d-transition series	(i)	Z = 58 to Z = 71
(q)	Lanthanoid series	(ii)	Z = 39 to Z = 48
(r)	Actinoid series	(iii)	Z = 21 to Z = 30
(s)	4d-transition series	(iv)	Z = 90 to Z = 103

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

 [Watch Video Solution](#)

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

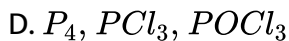
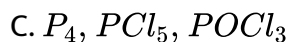
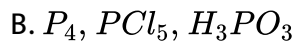
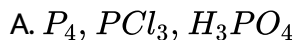
azeotrope, boiling point = 332.2 K

Answer: B



Watch Video Solution

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**



Watch Video Solution

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**



**Watch Video Solution**

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

	Column I		Column II
(p)	$\text{CH}_3\text{COONa}$	(i)	Almost neutral, pH > 7 or < 7
(q)	$\text{NH}_4\text{Cl}$	(ii)	Acidic, pH < 7
(r)	$\text{NaNO}_3$	(iii)	Alkaline, pH > 7
(s)	$\text{CH}_3\text{COONH}_4$	(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**



**Watch Video Solution**

20. Which of the following statements is not correct?



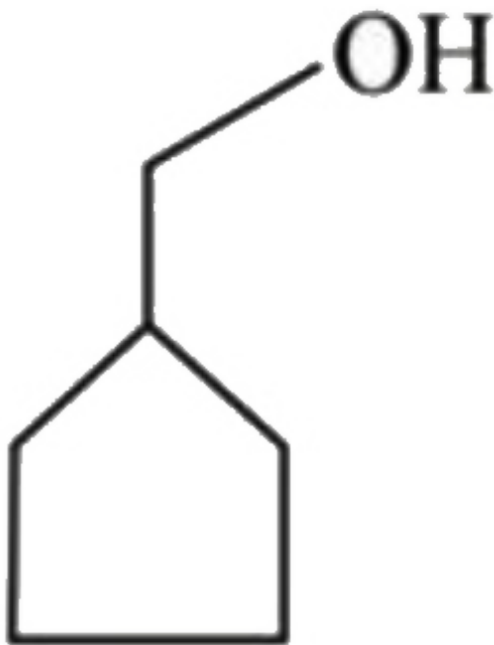
- A. Proteins are polyamides formed from amino acids
- B. Except glycine, all other amino acids show optical activity
- C. Natural proteins are commonly made up of L - isomer of amino acids
- D. In  $\alpha$  - amino acids,  $-NH_2$  and  $-COOH$  groups are attached to different carbon atoms

**Answer: D**



**Watch Video Solution**

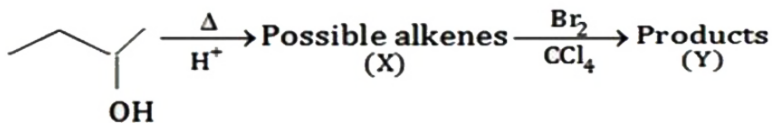
21. How many positional isomers are possible for this compound



[▶ Watch Video Solution](#)

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

[▶ Watch Video Solution](#)



23.

Here the sum of  $X + Y$  is equal to

 [Watch Video Solution](#)

24. The number of possible stereo isomers in  $Ma_3b_3$  is equal to

(Here a, b are different monodentate ligands).

 [Watch Video Solution](#)

25. The  $pK_a$  of acetic acid and  $pK_b$  of  $NH_4OH$  are 4.75 and 4.75 respectively. Find the pH of ammonium acetate solution?

 [Watch Video Solution](#)