

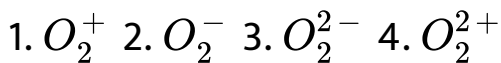
CHEMISTRY

BOOKS - NTA MOCK TESTS

NTA JEE MOCK TEST 108

Chemistry

1. Using molecular orbital theory predict the correct decreasing bond order of the following species



A. $1 > 2 > 3 > 4$

B. $4 > 1 > 2 > 3$

C. $4 > 1 > 3 > 2$

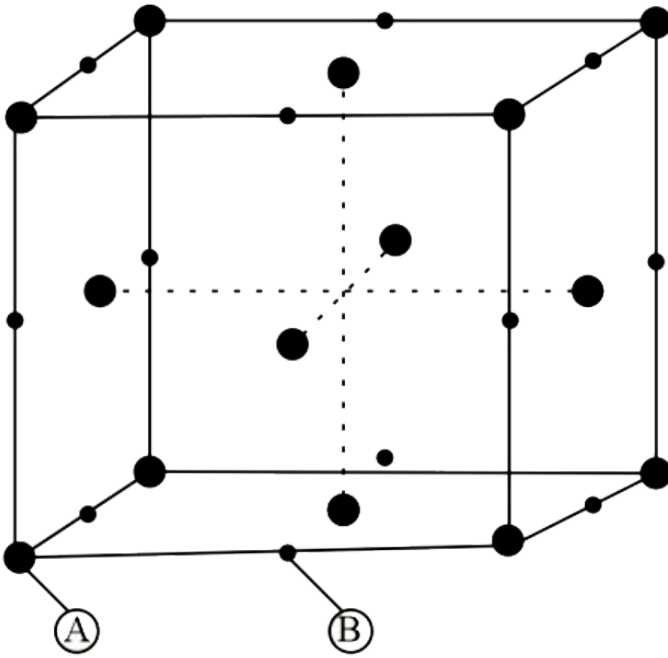
D. $1 > 4 > 2 > 3$

Answer: B



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2. For a solid with the following structure, the coordination number of the point B is



A. 3

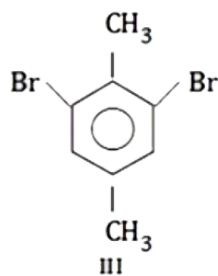
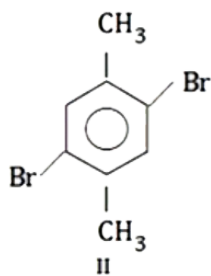
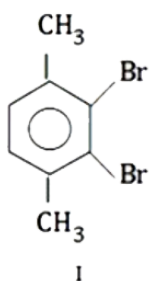
B. 4

C. 5

D. 6

Answer: D

3. Which of the following compounds will have the highest melting point here?



A. III

B. II

C. I

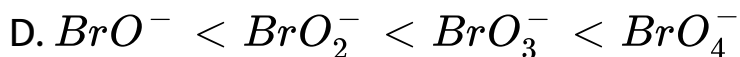
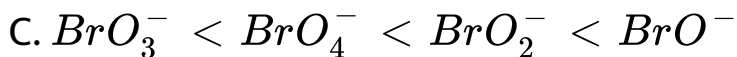
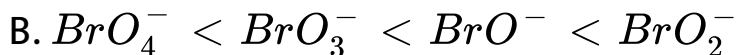
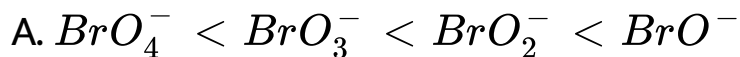
D. they have equal melting point

Answer: B



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4. The correct order of increasing hydration energy of the following conjugate bases of oxoacids of bromine is

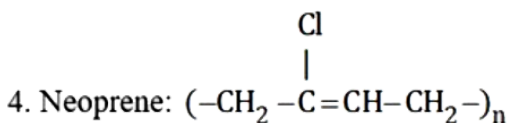
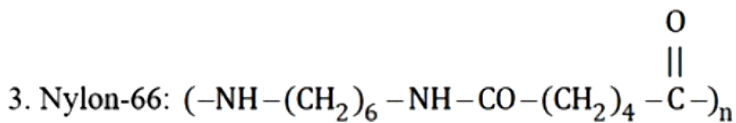
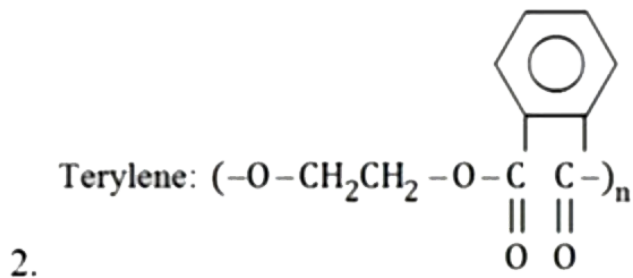
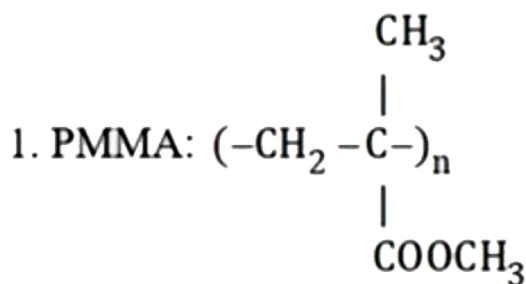


Answer: A

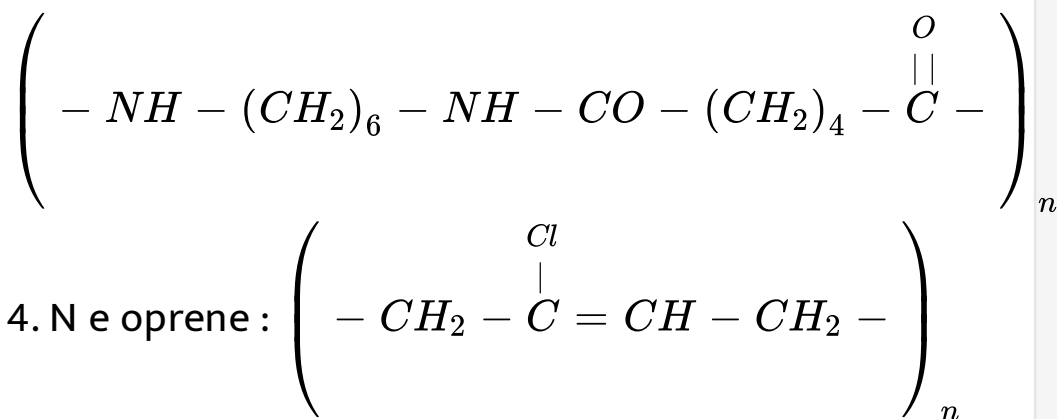


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5. Which of the following polymers are correctly matched ?



2. Nylon - 66 :



A. 1, 2

B. 3, 4

C. 1, 3, 4

D. 1, 2, 3, 4

Answer: C



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6. The ionization constant of NH_4^{\oplus} ion in water is 5.6×10^{-10} at $25^{\circ}C$. The rate constant the reaction of NH_4^{\oplus} and OH^{\ominus} ion to form NH_3 and H_2O at $25^{\circ}C$ is $3.4 \times 10^{10} Lmol^{-1}s^{-1}$. Calculate the rate constant for proton transfer form water to NH_3 .

A. 6.07×10^5

B. 0.607×10^5

C. 60.7×10^5

D. 6.07×10^{10}

Answer: A



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7. Match List I with List II and select the correct answer using the codes given below

	List I	List II
P.	$\text{CH}_2 = \text{CH}$ $- \text{CHO}$ $\xrightarrow{\text{NaBH}_4}$	1. Acetal
Q.	$\text{C}_6\text{H}_5\text{CHO}$ $+ \text{CH}_3$ $- \text{NH}_2 \xrightarrow{\text{H}^+}$	2. Schiff's base
R.	$\text{C}_6\text{H}_5\text{COCH}_3$ $+ \text{CH}_3$ $- \text{CH}_2$ $- \text{NH}$ $- \text{CH}_3 \xrightarrow{\text{H}^+}$	3. Unsaturated alcohol
S.	RCHO $+ 2\text{RCH}_2\text{OH}$ $\xrightarrow{\text{H}^+}$	4. Enamine

A. $P - 3, Q - 2, R - 4, S - 1$

B. $P = 3, Q = 2, R = 1, S = 4$

C. $P = 2, Q = 3, R = 4, S = 1$

D. $P = 4, Q = 1, R = 2, S = 3$

Answer: A



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8. When H_2 is added to two isomeric alkenes A and B having molecular formula C_5H_9Cl , A gives optically inactive compound while B gives a chiral compound.

The two isomers are

A. 3 - chloro -2- pentene and 1 - chloro -2- pentene

B. 4 - chloro -1- pentene and 2 - chloro -2- pentene

C. 3 - chloro -1- pentene and 4 - chloro -2- pentene

D. 1 - chloro -1- pentene and 5 - chloro -1- pentene

Answer: C



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9. Which of the following set is having correct statements here regarding both B and Al?

1. They react with HCl to form chlorides

3. They burn in oxygen to give oxides at high temperature

4. Their halides are Lewis acids

A. 1, 4

B. 3, 4

C. 2, 3, 4

D. 1, 2, 3, 4

Answer: C



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10. The heat of neutralisation of a strong base and a strong acid is 13.7 kcal. The heat released when 0.7 mole HBr solution is added to 0.35 mole of KOH is

A. 5.425 kcal

B. 13.7 kcal

C. 4.795 kcal

D. 8.795 kcal

Answer: C



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11. Approximate pH of $0.01M$ aqueous H_2S solution, when K_1 and K_2 for H_2S at $25^\circ C$ are 1×10^{-7} and 1.3×10^{-13} respectively:

A. 4

B. 2

C. 8

D. 6

Answer: A



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12. The ionization enthalpies of Li and Na are 520 kJ mol^{-1} and 495 kJ mol^{-1} respectively. The energy required to convert all the atoms present in 70 mg of Li vapours and 230 mg of sodium vapours of their respectively gaseous cations respectively are

A. 5200 J, 4950 J

B. 4950 J, 5200 J

C. 52 J, 49.5 J

D. 495 J, 520 J

Answer: A



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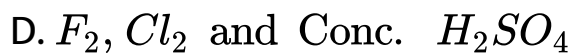
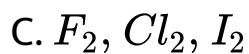
13. Which of the following given below can liberate

Br_2 from KBr ?

F_2 , Cl_2 , I_2 and Conc. H_2SO_4

A. F_2 , Cl_2 , I_2 and Conc. H_2SO_4

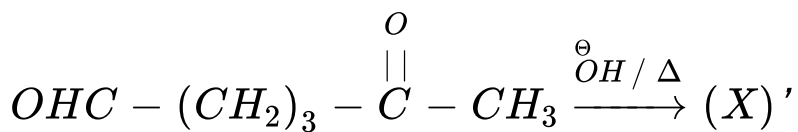
B. Cl_2 , I_2 and Conc. H_2SO_4



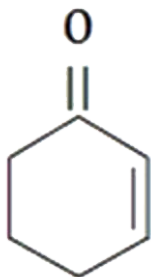
Answer: D

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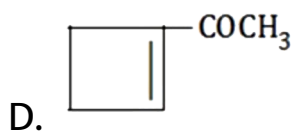
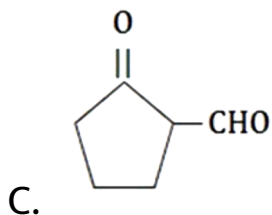
14. In the given reaction,



the major product 'X' will be



A.



Answer: A

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15. 5g sulphur is present in 100 g of CS_2 . ΔT_b of solution 0.954 and K_b is 4.88. The molecular formula of sulphur is

A. S_2

B. S_4

C. S_3

D. S_8

Answer: D



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16. The halides which can react with water or undergo hydrolysis are PCl_5 , $SiCl_4$, BCl_3 , CCl_4 and SF_6

A. PCl_5 , $SiCl_4$, BCl_3 , CCl_4 and SF_6

B. PCl_5 , $SiCl_4$, BCl_3 and CCl_4

C. PCl_5 , $SiCl_4$ and BCl_3

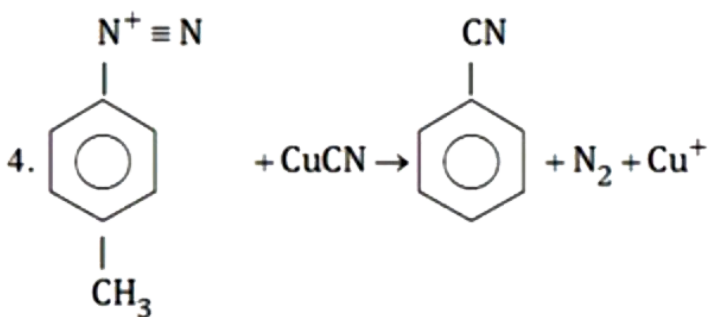
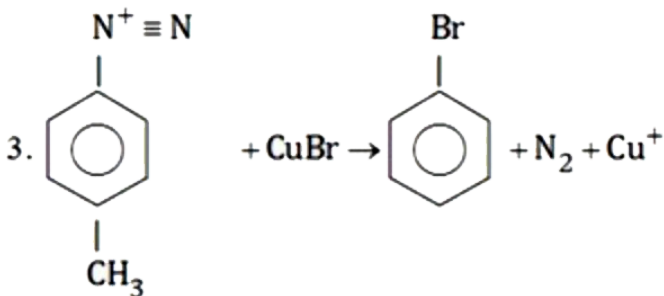
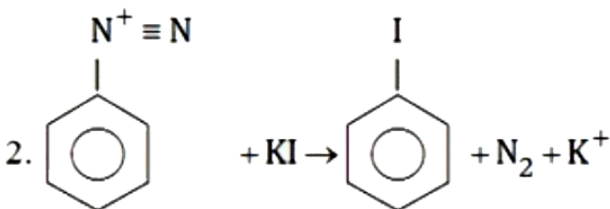
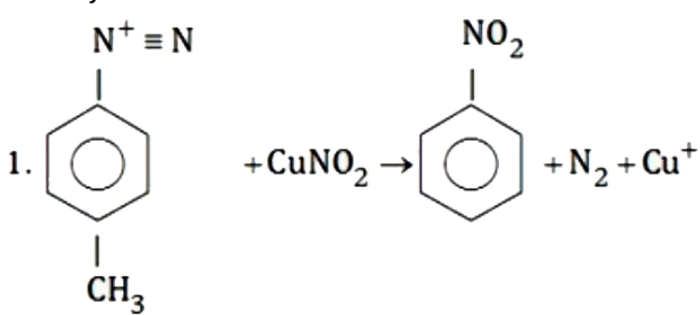
D. PCl_5 and $SiCl_4$

Answer: C



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17. Which one of the following are examples of Sandmeyer reaction?



A. 1, 2, 4

B. 1, 2, 3

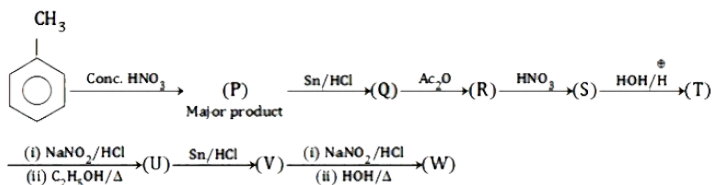
C. 1, 3, 4

D. 1, 2, 3, 4

Answer: C

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18. Identify the final product 'W' in the given reaction sequence



A. Ortho - methyl phenol

B. Meta - methyl phenol

C. Toluene

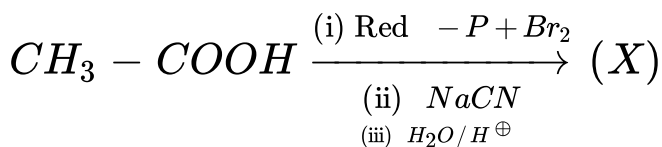
D. Meta - nitro toluene

Answer: B

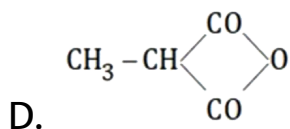
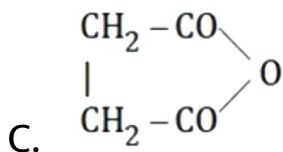
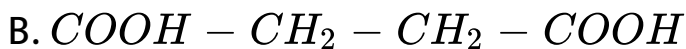
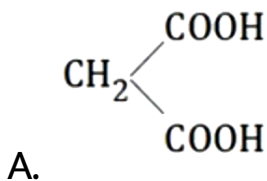


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19. In the given reaction



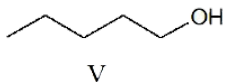
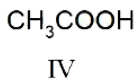
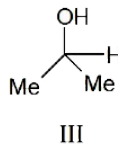
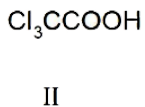
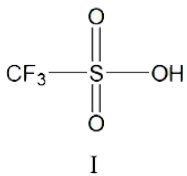
'X' will be



Answer: A

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20. Arrange the following in increasing order of acidic strength



A. III < V < IV < II < I

B. V < IV < III < II < I

C. III < II < IV < I < V

D. I < II < III < IV < V

Answer: A



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21. An organic compound (P) having molecular mass 180 is acylated with CH_3COCl to get a new compound with molecular mass 348. The number of amino groups present per molecule of compound (P) is



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22. A sample of H_2SO_4 (density 1.787gmL^{-1}) is labelled as 86% by weight. What is the molarity of acid? What volume of acid has to be used to make 1L of $0.2MH_2SO_4$?

A. 12.75

B. 13.5

C. 14

D. 18.85

Answer: 12.75



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23. The possible number of structural and stereo isomers for the complex $[MBr_2Cl_2]SO_2$ is



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24. An electrolytic cell is constructed for preparing hydrogen. For an average current of 1 ampere in the circuit, the time required to produce 450mL of hydrogen at NTP is appr.



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25. For the equilibrium:



$$K_p = 9\text{atm}^2$$

at 40°C . A 5litre vessel contains 0.1 mole of $\text{LiCl} \cdot \text{NH}_3$. How many mole of NH_3 should be added

to the flask at this temperature to derive the backward reaction for completion?



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