CHEMISTRY

BOOKS - NTA MOCK TESTS

NTA TPC JEE MAIN TEST 37

Chemistry

1. If the dipole moment of toluene and nitro-benzene are 0.43 D and 3.93 D respectively, then the expected dipole moment of p-nitrotoluene will be.
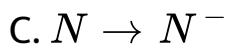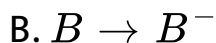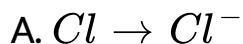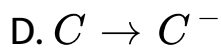
A. 3.50 D

B. 2.18 D

C. 4.36 D

D. 5.30 D

Answer: C

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2. Which of the following processes will release minimum energy ?

A. $Cl \rightarrow Cl^-$

B. $B \rightarrow B^-$

C. $N \rightarrow N^-$

D. $C \to C^-$

Answer: C

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3. Which of the following species is isoelectronic with CO ?

A. N_2^+

B. CN^-

C. O_2^+

D. O_2^-
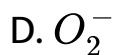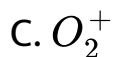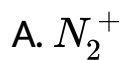
Answer: B

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4. What is the collector used in the froth-flotation process ?

A. NaCN

B. $CuSO_4$

C. Pine oil

D. Cresol

Answer: C

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5. Permanent hardness of water is due to the presence of :

    A. blcarbonates of sodium and potassium

    B. chlorides and sulphates of sodium and potassium

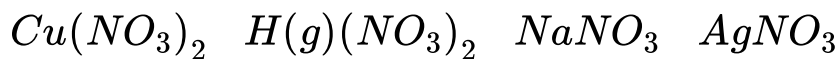   C. chlorides and sulphates of calcium and magnesium

    D. bicarbonates of calcium and magnesium

Answer: C

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6. Which of the following compounds when heated separately up to 500 °C, release brown colored gas ?

$Cu(NO_3)_2$ $H(g)(NO_3)_2$ $NaNO_3$ $AgNO_3$
I II III IV

   A. I and II
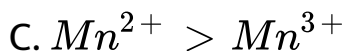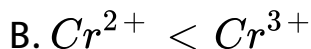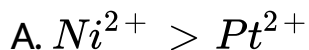
   B. II and III

   C. I, III and IV

   D. I, II and IV

Answer: D

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7. Among the following, which order is correct regarding the stability of oxidation state ?

A. $Ni^{2+} > Pt^{2+}$

B. $Cr^{2+} < Cr^{3+}$

C. $Mn^{2+} > Mn^{3+}$
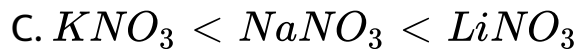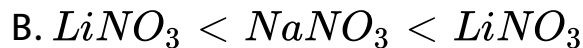
D. All of these

Answer: D

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8. Identify the correct order of hydration in the aqueous medium:

A. $LiNO_3 < NaNO_3 < KNO_3$

B. $LiNO_3 < NaNO_3 < LiNO_3$

C. $KNO_3 < NaNO_3 < LiNO_3$

D. $NaNO_3 < KNO_3 < LiNO_3$

Answer: C

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9. The reagents to be used to convert propene to 1-propanol are

A. H_2O and H_2SO_4

B. aqueous KOH

C. $MgSO_4$ and $NaBH_4/H_2O$

D. B_2H_6, H_2O_2 and OH^-

Answer: D

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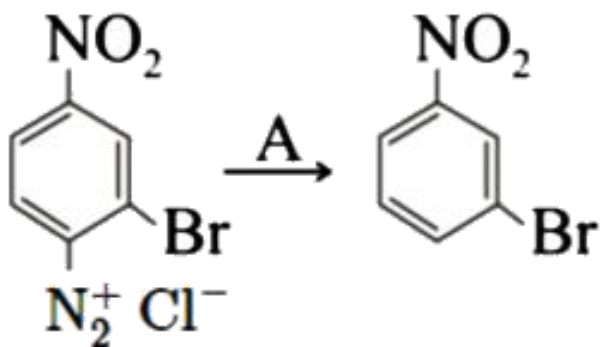**10.** Cannizzaro reaction is shown by which one of the following compounds?

A. $(CH_3)_2CHCHO$

B. CH_3CH_2CHO

C. C_6H_5CHO

D. HCHO

Answer: A

11. In the reaction,

A will be:

A. H^+ / H_2O

B. $HgSO_4 / H_2SO_4$

C. Cu_2Cl_2

D. H_3PO_2 and H_2O
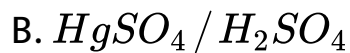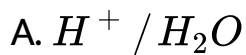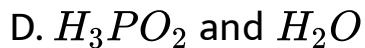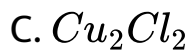
Answer: D

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12. Hydrolysis of which of the following carbides produce propyne ?

A. CaC_2

B. Al_4C_3

C. Mg_2C_3

D. SiC
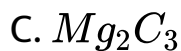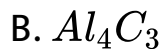
Answer: C

13. Which of the following can be an isomer of ethanol ?

A. Methanol

B. Dimethyl ether

C. Acetone

D. Diethyl ether

Answer: B

14. In a mixed oxide, O^{2-} is in the CCP arrangement (ABC... ABC) while A^{2+} is present in the 7th of the tetrahedral void and B^{3+} is present in the $\dfrac{1}{2}$ of the octahedral void. What is the formula of the oxide:

A. AB_2O_4

B. $A_3B_2O_6$

C. ABO_2

D. $A_5B_2O_8$

Answer: A

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15. Mwt. of H_2SO_4 is 98. What is the weight of H_2SO_4 in its 0. 1 M 400ml solution:

A. 2.45 g

B. 3.92 g

C. 4.9 g

D. 9.8 g

Answer: B

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16. 25 g of 80% pure calcium carbonate is treated with excess of HCl. What is the volume of CO_2 obtained at

NTP in the reaction ?

A. 2.24 L

B. 5.6 L

C. 11.2 L

D. 4.48 L

Answer: D

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17. The temperature at which the most probable speed of SO_2 gas is equal to the most probable speed of O_2 gas at 27°C is :

A. $327^\circ C$

B. $273^\circ C$

C. 723° C

D. 373° C

Answer: A

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18. The radius of the first orbit of the hydrogen atom is given as a_0. Calculate the value of the de-Broglie wavelength of an electron revolving in the fourth orbit of a hydrogen atom ?

A. $2\pi a_0$

B. $4\pi a_0$

C. $8\pi a_0$

D. $6\pi a_0$

Answer: C

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19. Which of the following acts as an emulsifier ?

A. Soap

B. Water

C. Oil

D. NaCl

Answer: A

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20. 16g oxygen gas expands at STP, to occupy double of its original volume. The work done during the process is:

A. 260 kcal
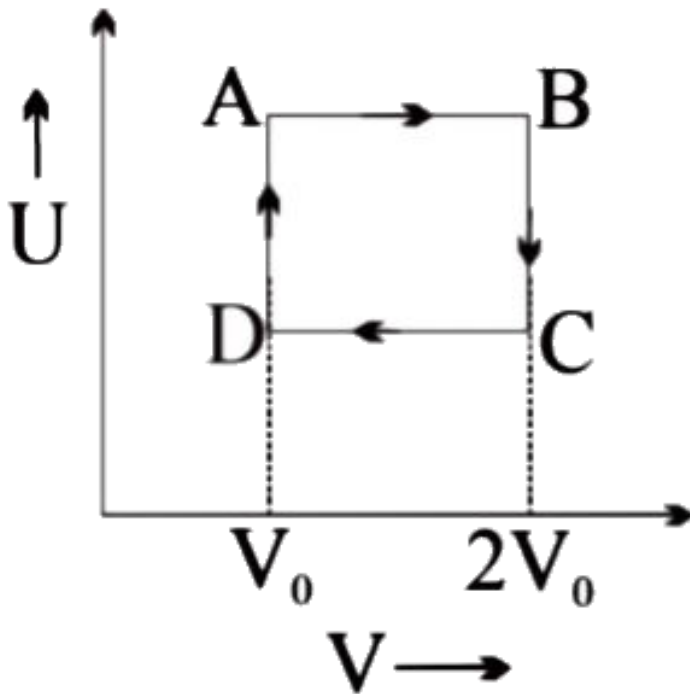
B. 180 kcal

C. 130 kcal

D. 272.8 kcal

Answer: D

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21. Number of Cr - O linkages in chromate ion= x Number of Cr - O linkages in dichromate ion= y Determine (x + y).

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22. The internal energy (U) of an ideal gas is plotted against volume for a cyclic process ABCDA, as shown in the figure.

The temperature of the gas at B and C are 500 K and 300 K, respectively. The heat absorbed by the gas (in cal/mol) in this cyclic process, is :

23. In open chain structure, how many chiral carbon atoms in D-(-)-Ribose ?

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24. Find the number of isomeric carboxylic acids having $C_5H_{10}O_2$ formula which give Hell-Volhard-Zeilinsky reaction? (Excluding stereoisomers)

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25. Identify total number of mono chlorinated products when 2-methyl pentane react with Cl_2 /hv ?

26. How many among the following are purely synthetic polymers?

Nylon, teflon, nucleic acid, bakelite, terylene, polyethylene, wool and polyvinyl chloride.

27. For the reaction. $A + 2B \rightarrow C$, the reaction rate is doubled if the concentration of A is doubled. The rate is increased by four times when the concentrations of both A and B are increased by four times. The order of the reaction is......

28. How many of the following metals can be obtained by electrolysis of aqueous solutions of their salts ?
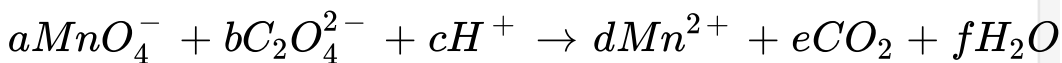
Ag, Ca, Cu, Mg, Na, Al.

29. How many of the following metals can be obtained by electrolysis of aqueous solutions of their salts ?

$BCl_3, F^-, OH^-, NH_3, H_2O, H^+, AlCl_3$

30. Given is the balanced chemical equation, for the oxidation of oxalate $(C_2O_4^{2-})$ by permanganate (MnO_4^-) in the presence of acid.

$$aMnO_4^- + bC_2O_4^{2-} + cH^+ \rightarrow dMn^{2+} + eCO_2 + fH_2O$$

What is the value of $c - (a + b)$?

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