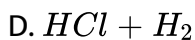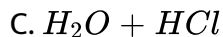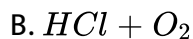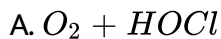# CHEMISTRY

BOOKS - NTA MOCK TESTS

JEE MOCK TEST 7

Chemistry Single Choice

1. What is the product of the reaction of H_2O_2 with Cl_2?

A. $O_2 + HOCl$

B. $HCl + O_2$

C. $H_2O + HCl$

D. $HCl + H_2$

Answer: B

2. Which of the following is a sink for CO?

A. Haemoglobin

B. Microorganisms present in the soil

C. Oceans

D. Plants

Answer: B

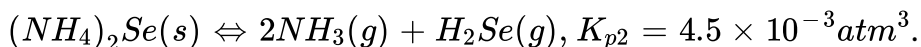**3.** Ammonium sulphide and ammonium selenide on heating dissociates as

$(NH_4)S(s) \Leftrightarrow 2NH_3(g) + H_2S(g), k_{p1} = 9 \times 10^{-3}atm^3$

$(NH_4)_2Se(s) \Leftrightarrow 2NH_3(g) + H_2Se(g), K_{p2} = 4.5 \times 10^{-3}atm^3.$
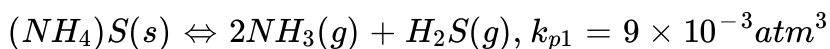
The total pressure over the solid mixture at equilibrium is

A. 0.15 atm
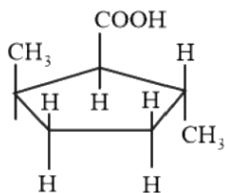
B. 0.3 atm

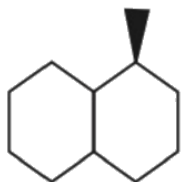C. 0.45 atm

D. 0.6 atm

Answer: C
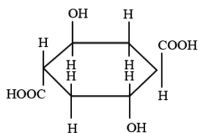
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4. Which species exhibits a plane of symmetry ?
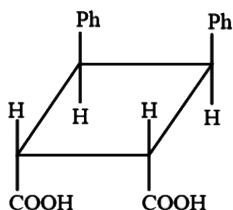

A.

B.

C.

D.

Answer: D

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5. What weight of the non-volatile solute urea' $(NH_2 - CO - NH_2)$ needs to be dissolved in $100g$ of water in order to decrease the vapour pressure of water by 25% ? What will be the molality of the solution?

A. 18.52

B. 62.45

C. 28.52

D. 35.64

Answer: A

6. Consider ΔG° for the following cell reaction :

$$Zn(s) + Ag_2O(s) + H_2O(l) \rightarrow Zn^{2+}(aq) + 2Ag(s) + 2OH^-(aq)$$
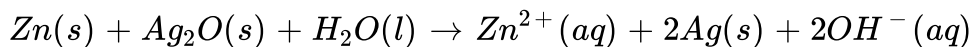
$$E^{\circ}_{Ag^+/Ag} = +0.80 \text{ and } E^{\circ}_{Zn^{2+}/Zn} = -0.76V$$

A. $-305kJ/mol$

B. $212kJ/mol$

C. $305kJ/mol$

D. $301kJ/mol$

Answer: B

7.

$$Ph - \underset{\underset{OH}{|}}{\overset{\overset{Ph}{|}}{C}} - \underset{\underset{OH}{|}}{\overset{\overset{H}{|}}{C}} - \xrightarrow[\text{Major}]{H\ominus} X \text{ identify X.}$$

A. $Ph - \underset{\underset{OH}{\overset{||}{}}}{C} - \underset{\underset{H}{|}}{\overset{\overset{Ph}{|}}{C}} - H$

B. $Ph - \underset{\underset{Ph}{|}}{\overset{\overset{H}{|}}{C}} - \underset{\underset{O}{\overset{||}{}}}{C} - H$

C. $Ph - \underset{\underset{Ph}{\overset{||}{O}}}{C} - \underset{\underset{H}{|}}{\overset{\overset{Ph}{|}}{C}} - OH$

D. $Ph - \underset{\underset{H}{|}}{\overset{\overset{Ph}{|}}{C}} - CH_2 - OH$
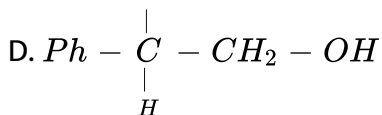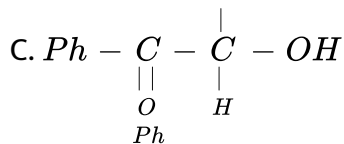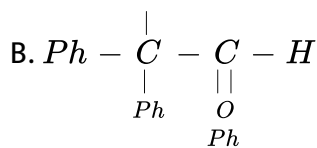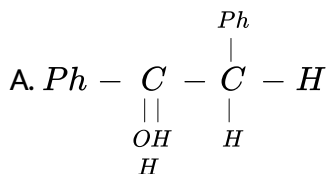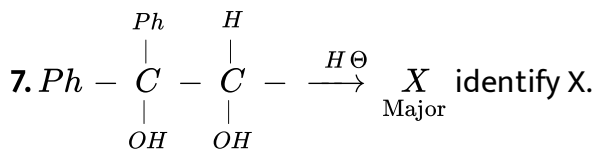
Answer: B

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8. Which of the following halides cannot be hydrolysed? (I) $TeF_6(II)SF_6(III)NCl_3(IV)NF_3$

Choose the correct code.

A. III and IV

B. I, II and III

C. I, II and IV

D. II and IV

Answer: D

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9. Calculate the heat produced (in kJ) when 224 gm of CaO is completely converted to $CaCO_3$ by reaction with CO_2 at $27°$ in a container of fixed volume.

Given :

$\Delta H_f^\circ (CaCO_3, s) = -1207kJ/mol,$ $\quad \Delta H_f^\circ (CaO, s) = -635kJ/mol$

$\Delta H_f^\circ (CO_2, g) = -394kJ/mol,$ $\left[\text{Use R} = 8.3 JK^{-1}mol^{-1}\right]$
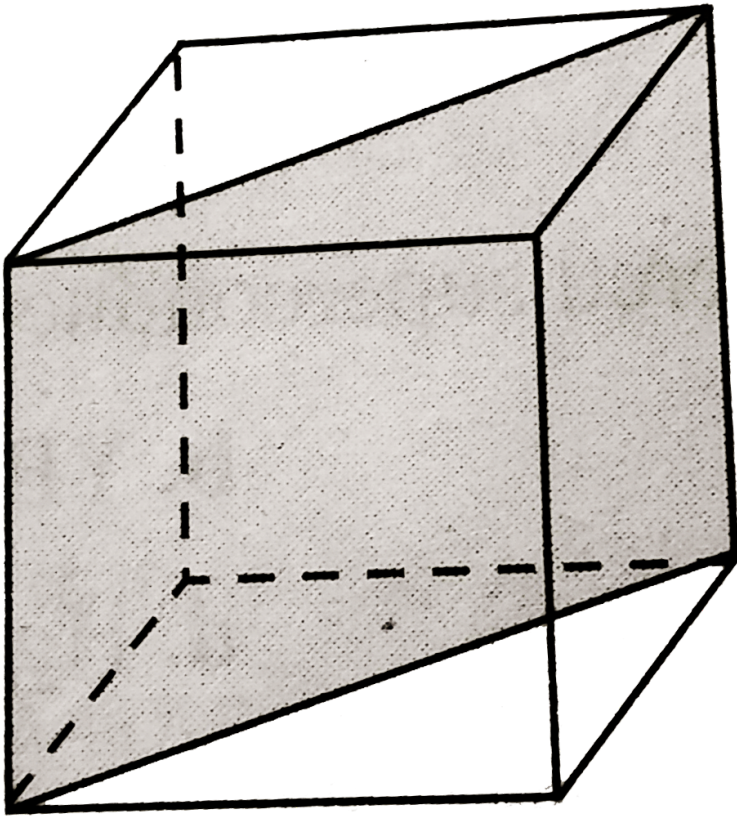
A. $-702.04kJ$

B. $721.96kJ$

C. $712kJ$

D. $721kJ$

Answer: A

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10. In a hypothetical solid, C atoms are found to form cubical close-packed lattice. A atoms occupy all tetrahedral voids and B atoms occupy all octahedrals voids.
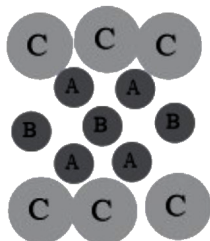
A and B atoms are of appropriate size, so that there is no distortion in the p lattice of C atoms. Now if a plane as shown in the following figure is cut, then the cross section of this plane will look like
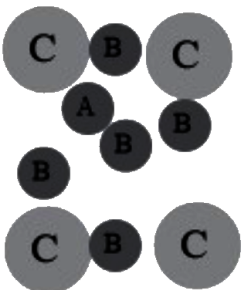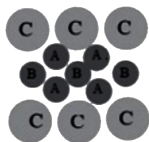

A.
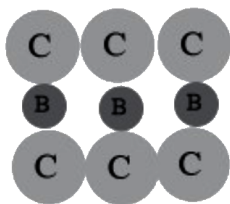
B.

C.

D.

Answer: C

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11. The π - bounded organometallic compound which has ethylene as one of its component is
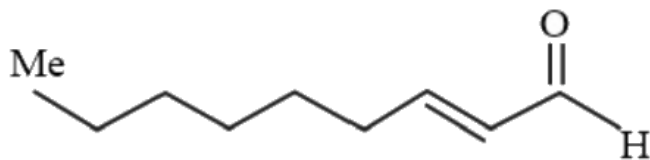
A. Dibenzene chromium

B. Zeise salt

C. Ferrocene

D. Tetraethyl tin

Answer: B

12. What is the IUPAC name of the following compounds?

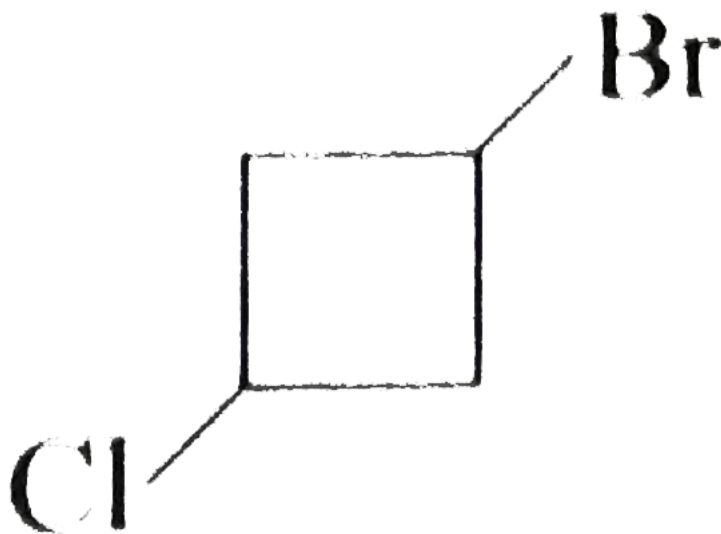A. Non-2-en-1-al (cockroach repellent found in cucumber)

B. Non-3-en-1-al (cockroach repellent found in cucumber)

C. Non-4-en-2-al (cockroach repellent found in cucumber)

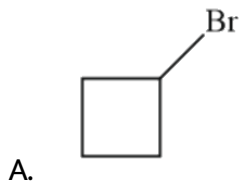D. Non-4-en-3-al (cockroach repellent found in cucumber)

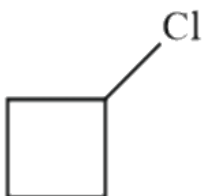**Answer: A**

13.

when treated with two equivalents of sodium in dry ether gives:

A.

B.

C.

D.

Answer: D

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14. The half-life period for catalytic decomposition of AB_3 at $50mm$ is found to be 4 hr and at $100mm$ it is $2.0hr$. The order of reaction is

A. 3

B. 1

C. 2

D. 0

Answer: B

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15. In blast furnace, iron oxide is reduced by
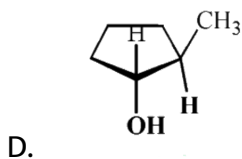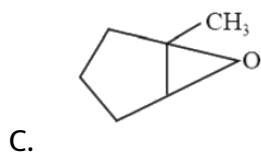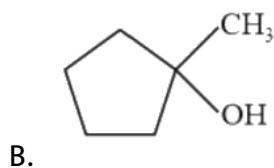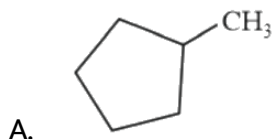
A. Silica

B. CO

C. NaOH

D. Lime Stone

Answer: B

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16. The major product formed during the hydroboration-oxidation of 1-methylcyclopentene is-

A.

B.

C.

D.

Answer: D

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17. An organic compound 'X' is oxidized by using acidified $K_2Cr_2O_7$. The product obtained reacts with phenyl hydrazine but does not answer silver mirror test. The possible structure of 'X' is :

A. CH_3COCH_3

B. $(CH_3)_2CHOH$

C. CH_3CHO

D. CH_3CH_2OH
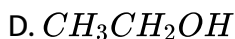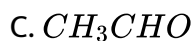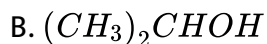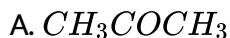
Answer: B

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18. A catalyst adsorb 100 mL of nitrogen gas at S.T.P. Per gram of catalyst surface and forms a monomolecular layer. The effective surface area occupied by one nitrogen molecules on the surface of catalyst is $0.16 \times 10^{14} cm^2$. What is the total surface area occupied by nitrogen

molecules per gram of catalyst?

(Given : Volume of gas at STP = 22.4 L)

A. $43.04 \times 10^5 cm^2$

B. $0.18 \times 10^{-15} cm^2$

C. $42 \times 10^5 cm^2$

D. $0.19 \times 10^{-15} cm^2$

Answer: A

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19. K_a for HCN is 5×10^{-10} at $25°C$. For maintaining a constant pH of 9.0, the volume of $5MKCN$ solution required to be added to $10mL$ of $2MHCN$ solution is

A. 4 mL

B. 7.95 mL

C. 9.3 mL

D. 2mL

Answer: D

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20. The polarity of (i) $(CH_3)_2P(CF_3)_3$ and (ii) $(CH_3)_3P(CF_3)_2$ respectively are?

A. (i) Non Polar(ii) Polar

B. (i) Polar (ii) Non Polar

C. (i) Non Polar (ii) Non Polar

D. (i) Polar (ii) Polar

Answer: B

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1. The number of metals that show passivity with concentrate HNO_3 among ltbr. $Cr, Fe, Ni, Cu, Zn, Al, Ag, Sn$

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2. How many resonance structures are possible for allyl carbocation?

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3. How many groups are ortho/para director in the electrophillic aromatic substitution?

(i) $-NH_2 (ii) -COH (iii) -N=O (iv) -COOH$

$(v) -Et (vi) -N=NH_2 (vii) -SO_3H$

(viii) $-O-\underset{\underset{O}{||}}{C}-Ome (ix)$

$-\underset{\underset{O}{||}}{C}-NH-Me$

4. Nitrogen gas is kept in an open beaker at 273 K and 1 atm pressure. If the pressure of the surrounding suddenly falls to 0.5 atm and the temperature increases to 546 K, then the percentage of nitrogen remaining in the beaker is $mn\ \%$ of the initial amount. Then the value of m+n is:

5. How many of the following nitrates of metal 'M' decompose on heating similar to as given below in the scheme? (where $M = Li, Be, Mg, K, Ca, Sr, Na, Rb, Ba$) Metal nitrate $\xrightarrow{\text{Heat}}$ metal oxide + nitrogen dioxide + oxygen gas.