



CHEMISTRY

BOOKS - NTA MOCK TESTS

JEE MOCK TEST 20

Chemistry

1. Compared with the alkaline earth metals, the alkali metals exhibit

- A. Greater hardness
- B. Smaller ionic radii
- C. Lower ionisation energies
- D. Highest boiling points

Answer: C



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2. For the reaction

$N_2 + 3H_2 \rightarrow 2NH_3$ The rate of change of
concentration for hydrogen is

$0.3 \times 10^{-4} M s^{-1}$ The rate of change of concentration of ammonia is :

A. $-0.2 \times 10^{-4} M s^{-1}$

B. $0.2 \times 10^{-4} M s^{-1}$

C. $0.1 \times 10^{-4} M s^{-1}$

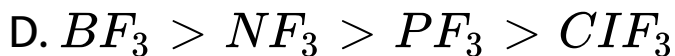
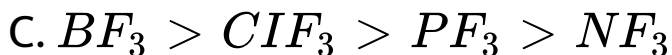
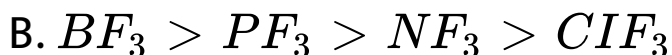
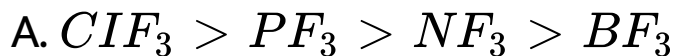
D. $0.3 \times 10^4 M s^{-1}$

Answer: B



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3. The correct increasing bond angles order is :



Answer: D



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4. If the uncertainty in the position of a particle is equal to its de-Broglie wavelength, the minimum uncertainty in its velocity should be

A. $\frac{1}{4\pi}$

B. $\frac{v}{4\pi}$

C. $\frac{v}{4\pi m}$

D. $\frac{mv}{4\pi}$

Answer: B



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5. $C_5H_{10}O$ is carbonyl compound. The number of structural isomers possible for this molecular formula are

A. 5

B. 8

C. 6

D. 7

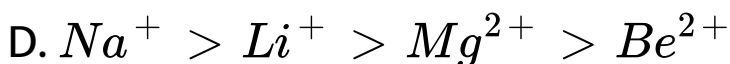
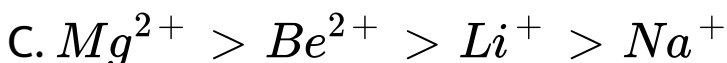
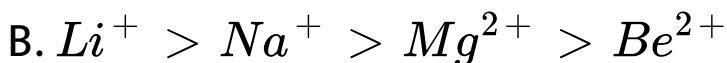
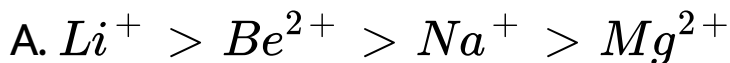
Answer: D





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6. The set representing the correct order of ionic radii is



Answer: D



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7. Gem dihalides on treatment with alcoholic KOH give

A. Alkyne

B. Alkene

C. Alkane

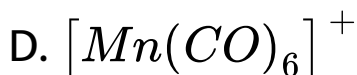
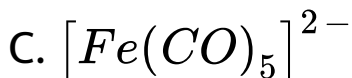
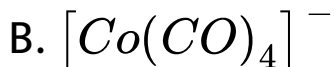
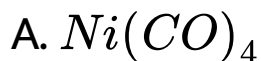
D. All of these

Answer: A



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8. Which of the following has longest C- O bond length? (Free C - O bond length in CO is 1.128 Å).



Answer: C



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9. $MF + XeF_4 \rightarrow M^+ A^-$ (M^+ – alkali metal cation) The state of hybridisation of the central atom in A and sphere of the species are:

A. sp^3d , *TBP*

B. sp^3d^3 , distorted octahedral

C. sp^3d^3 , pentagonal planar

D. No compound formed at all

Answer: C



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10. Polystyrene , dacron and orlon are classified respectively as

A. Chain growth, step growth , step growth

B. Chain growth , step - growth , step growth

C. Chain growth, step - growth , chain growth

D. Step growth, step growth , chain growth

Answer: C



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11. Which of the acids cannot be prepared by Grignard reagent?

- A. Acetic acid
- B. Succinic acid
- C. Formic acid
- D. All of these

Answer: C



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12. pH of a 100 cc solution is 2. It will not change if

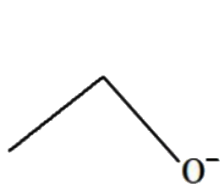
- A. 100 cc of water is added to it
- B. 100 cc of 0.1 M HCl is added to it
- C. 100 cc (N/100) HCl is added to it
- D. 1 cc of 0.1 M HCl is added to it

Answer: C

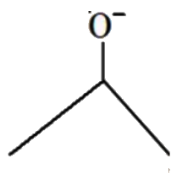


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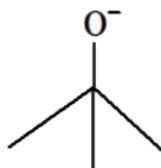
13. Determine the order of basic strength of the given molecules



i.



ii.



iii.

A. $i > iii > ii$

B. $ii > i > iii$

C. $iii > i > i$

D. $i > ii > iii$

Answer: C



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14. Four successive members of the first row transition elements are listed below with their atomic number. Which one of them is expected to have the highest third ionisation enthalpy ?

A. Vanadium ($Z = 23$)

B. Chromium ($Z = 24$)

C. Manganese ($Z = 25$)

D. Iron ($Z = 26$)

Answer: C



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15. The concentration in g/L of a solution of cane sugar (Molecular weight = 342) which is

isotonic with a solution containing 6 g of urea

(Molecular weight = 60) per litre is

A. $3.42g / L$

B. $34.2g / L$

C. $5.7g / L$

D. $19g / L$

Answer: B



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16. CsCl crystallises in body centred cubic lattice. If 'a' its edge length then which of the following expressions is correct ?

A. $r_{Cs^+} + r_{Cl^-} = 3a$

B. $r_{Cs^+} + r_{Cl^-} = \frac{3a}{2}$

C. $r_{Cs^+} + r_{Cl^-} = \frac{\sqrt{3}}{2}a$

D. $r_{Cs^+} + r_{Cl^-} = \sqrt{3}a$

Answer: C



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17. Phenol can be distinguished from ethanol by the following reagents except

A. Sodium

B. Neutral $FeCl_3$

C. Phthalic anhydride/conc.

H_2SO_4 and $NaOH$

D. Br_2 / H_2O

Answer: A



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18. Which of the following is an intensive property?

A. Volume

B. Enthalpy

C. Surface tension

D. Free energy

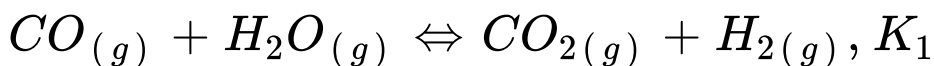
Answer: C



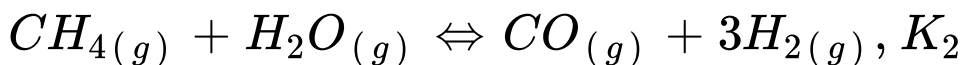
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19. For the following three reaction 1, 2 and 3, equilibrium constants are given:

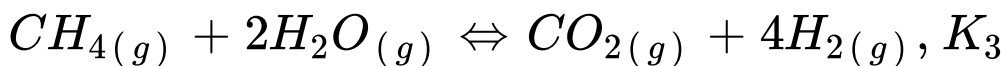
(1)



(2)



(3)



Which of the following relations is correct ?

A. $K_1 \sqrt{K_2} = K_3$

B. $K_2 K_3 = K_1$

$$C. K_3 = K_1 K_2$$

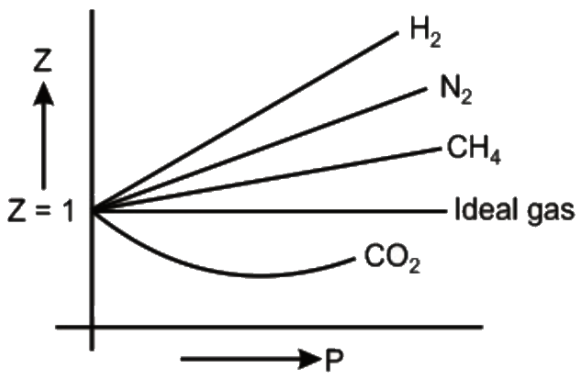
$$D. K_3 K_2^3 = K_1^2$$

Answer: C

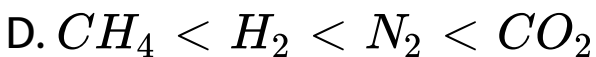
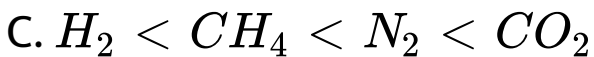
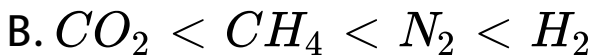
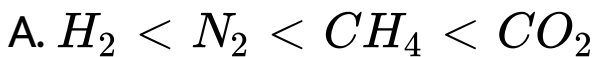


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20. Consider the graph between compressibility factor Z and pressure P ,



The correct increasing order of ease of liquefaction of the gases shown in the above graph is



Answer: A



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21. How many of the following species are related to Hall's process of purification of bauxite? White bauxite , Na_2CO_3 , CO_2 , cryolite, red bauxite , NaOH



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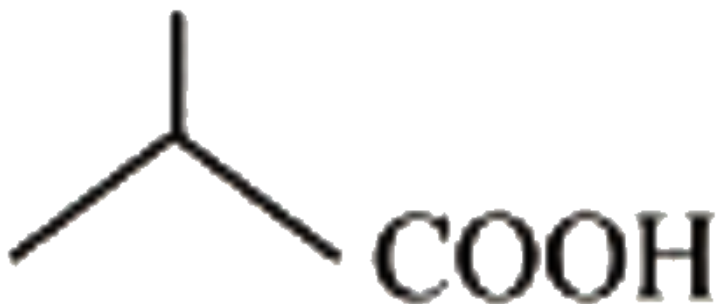
22. The dipole moment of HBr is $1.6 \times 10^{-30} cm$ and interatomic spacing is 1\AA .

The % ionic character of HBr is



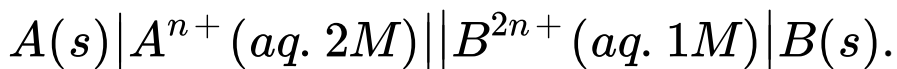
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23. How many of the following acids will show higher reactivity towards esterification reaction as compared to acetic acid?



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24. Consider an electrochemical cell :

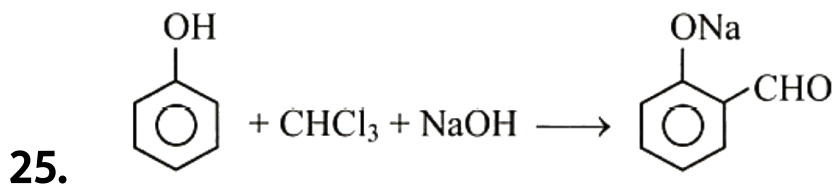


The value of ΔH° for the cell reaction is twice that of ΔG° at 300 K. If the amf of the cell is zero, the ΔS° (in $JK^{-1}mol^{-1}$) of the cell reaction per mole of B formed at 300 K is _____.

(Given : $\ln(2) = 0.7$, R (universal gas constant) = $8.3 J K^{-1}mol^{-1}$. H , S and G are enthalpy, entropy and Gibbs energy, respectively.)



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The electrophile involved in above reaction has _____ lone pair of electrons on central carbon atom.



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