



CHEMISTRY

BOOKS - SAI CHEMISTRY (TELUGU ENGLISH)

SAMPLE PAPER 2017

Chemistry

1. Which of the following conditions are correct for real solutions showing negative deviation from Raoult's law?

A. $\Delta H_{Mix} < 0, \Delta V_{Mix} > 0$

B. $\Delta H_{Mix} > 0, \Delta V_{Mix} > 0$

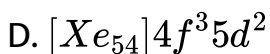
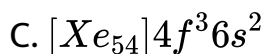
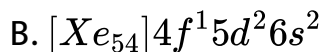
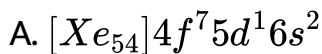
C. $\Delta H_{Mix} > 0, \Delta V_{Mix} < 0$

$$D. \Delta H_{Mix} < 0, \Delta V_{Mix} < 0$$

Answer: D

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2. The electronic configuration of Pr_{59} (praseodimium) is



Answer: C

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3. Which of the following is the most basic oxide?



Answer: C



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4. The element that forms stable compounds in low oxidation state is



B. Al

C. Ga

D. Tl

Answer: D



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5. Atomic radius (pm) of Al, Si, N and F respectively is

A. 117,143,64,74

B. 143,117,74,64

C. 143,47,64,74

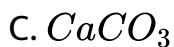
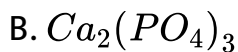
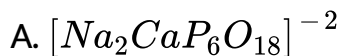
D. 64,74,117,143

Answer: B



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6. Reaction of calgon with hard water containing Ca^{2+} ions produce



Answer: A



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7. which of the following statement is true

- A. The pressure of a fixed amount of an ideal gas is proportional to its temperature only
- B. Frequency of collisions increases in proportion to the square root of temperature
- C. The value of van der waals' constant 'a' is smaller for ammonia than for nitrogen
- D. If a gas is expanded at constant temperature, the kinetic energy of the molecule decrease

Answer: B



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8. Conversion of esters to aldehydes can be accomplished by

- A. stephen reduction
- B. Rosenmund reduction
- C. reduction with lithium aluminium hydride
- D. reduction with diisobutyl aluminium hydride

Answer: D



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9. Consider the following electrode processes of a cell,



If EMF of the cell is -1.140 V and E° value of the cell is -0.55V

at 298K, the value of the equilibrium constant of the sparingly soluble salt MCl is in the order of

A. 10^{-10}

B. 10^{-8}

C. 10^{-7}

D. 10^{-11}

Answer: A



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10. Which of the following is true for spontaneous adsorption of H_2 gas without dissociation on solid surface

A. Process is exothermic and $\Delta S < 0$

B. Process is endothermic and $\Delta S > 0$

C. Process is exothermic and $\Delta S > 0$

D. Process is endothermic and $\Delta S < 0$

Answer: A

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11. Consider the single electrode process $4H^+ + 4e^- = 2H_2$ catalyzed by platinum black electrode in HCl electrolyte. The potential of the electrode is $-0.059V$ Vs. SHE. What is the concentration of the acid in the hydrogen half cell if the H_2 pressure is 1 bar?

A. 1M

B. 10M

C. 0.1M

D. 0.01M

Answer: C



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12. Which of the following elements has the lowest melting point?

A. Sn

B. Pb

C. Si

D. Ge

Answer: A



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13. The number of complementary Hydrogen bond(s) between a guanine and cytosine pair is

A. 2

B. 1

C. 4

D. 3

Answer: D



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14. Given ΔH_r° for $CO_2(g)$, CO_g and $H_2O(g)$ are -393.5, -110.5 and -241.8 $KJmol^{-1}$ respectively. The ΔH_r° ($\in KJmol^{-1}$] for the reaction $CO_2(g) + H_2(g) \rightarrow CO_g + H_2O(g)$ is

- A. 524.1
- B. -262.5
- C. -41.7
- D. 41.2

Answer: D



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15. Which one of the following is the strongest acid?

A. HF

B. HCL

C. HBr

D. HI

Answer: D



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16. The species having pyramidal shape according to VESPR theory is

A. SO_3

B. BrF_3

C. SiO_3^{-2}

D. OsF_2

Answer: D

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17. The bonding in diborane (B_2H_6) can be described by

- A. 4 two centre - two electron bonds & 2 three centre two electron bonds
- B. 3 two centre - two electron bonds & 3 three - centre - two electrons bonds
- C. 2 two centre - two electron bonds and 4 three centre - two electron bonds

D. 4 two centre - two electron bonds and 4 two centre - two electron bonds

Answer: D

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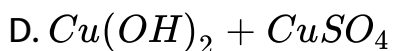
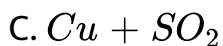
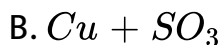
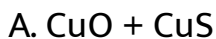
18. The monomers of Buna -S rubber are

- A. Isopropene and butadiene
- B. Butadiene and phenol
- C. Styrene and butadiene
- D. Vinyl chloride and sulphur

Answer: A

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19. Heating a mixture of Cu_2O and Cu_2S will give



Answer: C



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20. Which of the following corresponds to the energy of the possible excited state of hydrogen?

A. -13.6eV

B. 13.6eV

C. -3.4eV

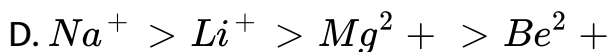
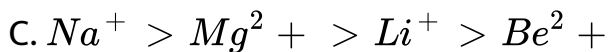
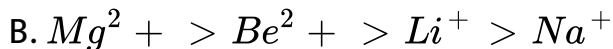
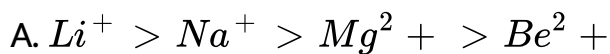
D. 3.4eV

Answer: C



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21. The set representing the right order of ionic radius is



Answer: D

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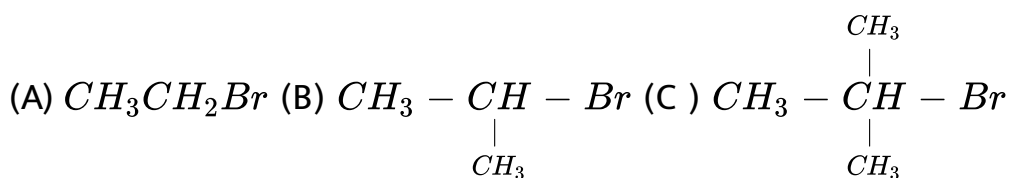
22. Which one of the following statement is correct for d^4 ions [P = pairing energy]

- A. When $\Delta_o > P$, low - spin complex form
- B. When $\Delta_o < P$, low - spin complex form
- C. When $\Delta_o > P$, high- spin complex form
- D. When $\Delta_o < P$, both high-spin and low-spin complexes form

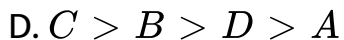
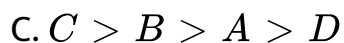
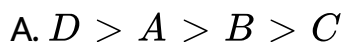
Answer: A

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23. The reactivity of alkyl bromides



towards iodide ion in dry acetone decrease in the order .

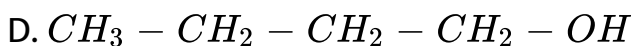
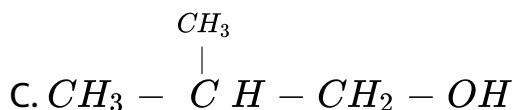
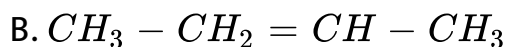
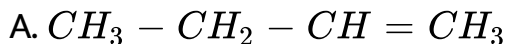


Answer: A



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24. Optically active $CH_3 - CH_2 - \overset{OH}{\underset{|}{C}}H - CH_3$ was found to have lost its optical activity after standing in water containing a few drops of acid, mainly due to the formation of



Answer: B



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25. Commercially available H_2SO_4 is 98 gms by weight of H_2SO_4 and 2gms by weight of water. It's density is

1.83gcm⁻³. Calculate the molality (m) of H₂SO₄ (molar mass of H₂SO₄ is 98mol⁻¹)

A. 500 m

B. 20 molal

C. 50 m

D. 200m

Answer: A



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26. Cyclohexylamine and aniline can be distinguished by

A. Hinsberg test

B. Carbylamine test

C. Lassaigne test

D. Azo dye test

Answer: D



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27. - is a potent vasodilator.

A. Histamine

B. Serotonin

C. Codeine

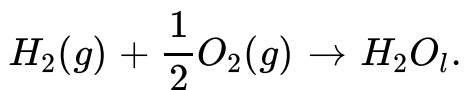
D. Cimetidine

Answer: A



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28. Standard Enthalpy (Heat) of formation of liquid water at $25^{\circ}C$ is around



A. -237 KJ/mol

B. 237 kJ/mol

C. -286KJ/mol

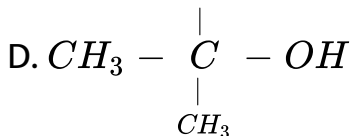
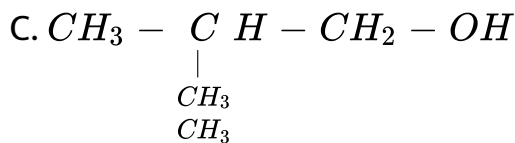
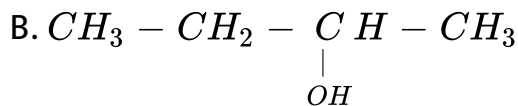
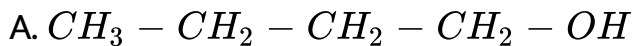
D. 286 KJ/mol

Answer: C



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29. The alcohol that reacts faster with Lucas reagent is

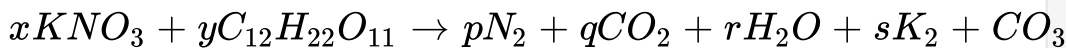


Answer: D



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30. Balance the following equation by choosing the correct option



.

A. x y p q r s

36 55 24 24 5 48 .

B. x y p q r s

48 5 24 36 55 24 .

C. x y p q r s

24 24 36 55 48 5 .

D. x y p q r s

24 48 36 24 5 55.

Answer: B



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31. Which of the following element is purified by vapour phase refining?

A. Fe

B. Zr

C. Cu

D. Au

Answer: B

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32. When helium gas is allowed to expand into vacuum, heating effect is observed. The reason for this is (Assume He as a non ideal gas)

- A. He is an inert gas
- B. The inversion temperature of Helium is very high
- C. The inversion temperature of helium is very low
- D. He has the lowest boiling point

Answer: C



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33. Cyclopentadienyl anion is

- A. benzenoid and aromatic
- B. non - benzenoid and aromatic
- C. non - benzenoid and non - aromatic
- D. non - benzenoid and anti - aromatic

Answer: B



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34. Oxidation of cyclohexene in presence of acidic potassium permanganate leads to

A. glutaric acid

B. adipic acid

C. pimelic acid

D. succinic acid

Answer: B



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35. How many emission spectral lines are possible when hydrogen atom is excited to n^{th} energy level?

A. $(n(n+1))/2$

B. $(n+1)/2$

C. $(n-1)n/2$

D. $\frac{n^2}{4}$

Answer: C



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36. The bond length (pm) of F_2 , H_2 , Cl_2 and I_2 , respectively is

A. 144, 74, 199, 267

B. 74, 144, 199, 267

C. 74, 267, 199, 144

D. 144, 74, 267, 199

Answer: A



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37. The number of tetrahedral and octahedral voids in CCP unit cell are respectively

A. 4,8

B. 8,4

C. 12,6

D. 6,12

Answer: B



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