



# CHEMISTRY

## BOOKS - AIIMS PREVIOUS YEAR PAPERS

### AIIMS 2019 25 MAY MORNING SHIFT

#### Chemistry

1. Which is incorrect for paper chromatography

- A. it is a part of partition chromatography
- B. It is a stationary phase
- C.  $R_f$  value decrease when rate of adsorption increase
- D. None of these

**Answer: B**



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2. Assertion: Glucose does not give 2,4-DNP test.

Reason: Glucose exists in cyclic hemiacetal form

A. If both assertion and reason are true and reason is the correct explanation of assertion.

B. If both assertion and reason are true but reason is not the correct explanation of assertion.

C. if assertion is true but reason is false.

D. If both assertion and reason are false.

**Answer: A**



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**3.** Assertion: Phenol reacts with  $CH_3I$  in presence of NaOH to form methoxybenzene.

Reason: Phenoxide is better nucleophile than phenol.

A. If both assertion and reason are true and reason is the correct explanation of assertion.

B. If both assertion and reason are true but reason is not the correct explanation of assertion.

C. If assertion is true but reason is false.

D. If both assertion and reason are false.

**Answer: A**



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4. Assertion: Bromoacetic acid reacts with conc. NaOH to form  $\alpha$ -ethoxy acetic acid.

Reason: It is  $S_N1$  mechanism.

A. If both assertion and reason are true and reason is the correct explanation of assertion.

B. If both assertion and reason are true but reason is not the correct explanation of assertion.

C. if assertion is true but reason is false.

D. If both assertion and reason are false.

**Answer: D**



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5. Assertion:  $(C_2H_5)_3N$  is less basic than trimethylamine  $(CH_3)_3N$

Reason: Due to hyperconjugation of  $C_2H_5$  is less than methyl.

A. If both assertion and reason are true and reason is the correct explanation of assertion.

B. If both assertion and reason are true but reason is not the correct explanation of assertion.

C. if assertion is true but reason is false.

D. If both assertion and reason are false.

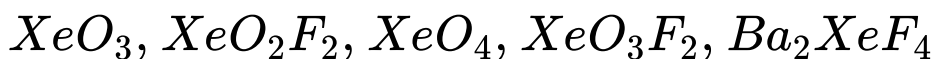
**Answer: C**



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6. Which of the following number of lone pair at central atom zero.



A. 2

B. 3

C. 4

D. zero

**Answer: A**



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7. Which of the following does not give ppt with  $CrO_4^{-2}$



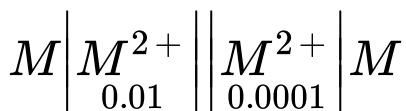
**Answer: A**



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8. Calculate emf of cell at  $25^\circ \text{C}$

Cell notation.



if value of  $E_{cell}^0$  is 4 volt (given  $\frac{RT}{F}$  in  $10=0.06$ )

A. 3.94 volt

B. 4.06 volt

C. 2.03 volt

D. 8.18 volt

**Answer: A**



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9. Find out time period of 1st order reaction.

When reaction complete  $\frac{2}{3}$  rd. if the value of rate constant is  $4.3 \times 10^{-4}$

A.  $0.0025 \times 10^3 \text{ sec}$

B.  $0.25 \times 10^3 \text{ sec}$

C.  $0.025 \times 10^3 \text{ sec}$

D.  $2.5 \times 10^3 \text{ sec}$

**Answer: D**



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10. The vapour pressure of pure  $CHCl_3$  and  $CH_2Cl_2$  are 200 and 41.5 atm respectively. The weight of  $CHCl_3$  and  $CH_2Cl_2$  are respectively 11.9 g and 17 gm. The vapour pressure of solution will be

A. 80.5

B. 79.5

C. 94.3

D. 105.5

**Answer: C**



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**11.** If  $n=2$  for  $He^+$  ion than find out the wave length

A.  $3.33 \text{ \AA}$

B.  $6.42 \text{ \AA}$

C.  $1.47 \text{ \AA}$

D. 2.37 Å

**Answer: A**



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**12. Second group anions reacts with**

A. dil  $H_2SO_4$

B. conc.  $H_2SO_4$

C. dil HCl

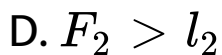
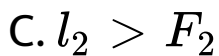
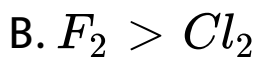
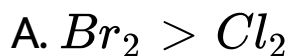
D.  $CH_3COOH$

**Answer: B**



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**13. Correct order of bond dissociation energy**



**Answer: D**





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14. When  $\text{Ag}^+$  reacts with excess of sodium-thio sulphate then the obtained species having charges & geometry respectively:

A.  $-3$ :Linear

B.  $-2$ ,tetrahedral

C.  $-$ ,square planer

D.  $-3$ ,square planar

**Answer: A**



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15. The correct relation is

A.  $\Delta G = -RT \ln K/Q$

B.  $\Delta G = +RT \ln K$

C.  $\Delta G = -RT \ln Q/K$

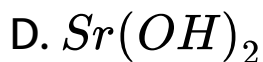
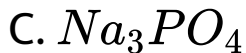
D.  $\Delta G = +RT \ln Q$

**Answer: A**



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16. Which of the following has max. solubility at low pH?



**Answer: D**



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17. Which of the following is correct order of packing efficiency?

A.  $HCP = FCC > BCC > SC$

B.  $SC > BCC > HCP = FC$

C.  $BCC > SC > HCP < FCC$

D.  $FCC = HCP > SC > BCC$

**Answer: A**



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18. Find empirical formula of the compound if

M=68%

(atomic mass=34) and remaining 32% oxygen.

A. MO

B.  $M_2O$

C.  $MO_2$

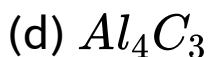
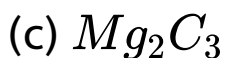
D.  $M_2O_3$

**Answer: A**



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19. Which of the following is a formula of methanides:



A. only a,d

B. only a,b

C. only c,d

D. only b,d

**Answer: A**



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20. Which of the following inert gas participate in chemical reaction.

A. Xe

B. He

C. Ne

D. None

**Answer: A**



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**21.** The hybridisation and magnetic behaviour of complex  $[Ni(CO)_4]$  is:

A.  $dsp^2$ , paramagnetic

B.  $dsp^2$ , diamagnetic

C.  $sp^3$ , paramagnetic

D.  $sp^3$ , diamagnetic



**Answer: D**



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**22.** The tetrahedral voids are present in 0.5 mole of hcp crystal structure.

A.  $3.6 \times 10^{23}$

B.  $9 \times 10^{23}$

C.  $3.6 \times 10^{24}$

D.  $6.02 \times 10^{23}$

**Answer: D**



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**23.** Which element can have oxidation state from 4 to 6?

A. Fe

B. Mg

C. Co

D. Cr

**Answer: D**



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**24.** Which of the following statement is incorrect about colloidal solution.

A. Lyophobic sols are more stable than lyophilic sols

B. Lyophilic colloids hve a unique property of protecting lyophobic colloids

C. Lyophilic colloids are more soluble than lyophobic colloids.

D. None of these

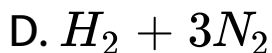
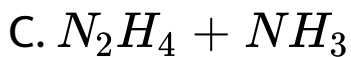
**Answer: A**



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**25.** On heating hydrazoic acid form





**Answer: D**



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**26.** Assertion:  $ZnO$  becomes yellow when it is heated.

Reason: The anionic sites occupied by unpaired electrons (due to F-centres)

A. If both assertion and reason are true and reason is the correct explanation of assertion.

B. If both assertion and reason are true but reason is not the correct explanation of assertion.

C. If assertion is true but reason is false.

D. If both assertion and reason are false.

**Answer: A**



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**27.** Assertion: The graph between  $P$  V/s  $\frac{1}{V}$  is a straight line.

Reason: For adiabatic process  $P \propto \frac{1}{V}$

A. If both assertion and reason are true and reason is the correct explanation of assertion.

B. If both assertion and reason are true but reason is not the correct explanation of assertion.

C. if assertion is true but reason is false.

D. If both assertion and reason are false.

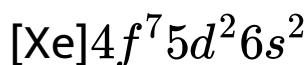
**Answer: C**



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**28.** Assertion:  $Yb^{+2}$  is more stable in compare to  $Gd^{+2}$

Reason: The electronic configuration of Gd is





A. If both assertion and reason are true and reason is the correct explanation of assertion.

B. If both assertion and reason are true but reason is not the correct explanation of assertion.

C. if assertion is true but reason is false.

D. If both assertion and reason are false.

**Answer: C**



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**29.** Assertion: The chemical properties of different isotope are same.

Reason: Isotopes having same number of neutron.

A. If both assertion and reason are true and reason is the correct explanation of assertion.

B. If both assertion and reson are true but reason is not the correct explanation of

assertion.

C. if assertion is true but reason is false.

D. If both assertion and reason are false.

**Answer: C**



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**30.** Which metals upon heating in presence of air followed by hydrolysis gives ammonia.

A. Li, K

B. Rb,Mg

C. Li,Mg

D. Ca,K

**Answer: C**



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**31.** At  $25^{\circ}C$  1 mole of butane is heated then

$CO_2$  and  $H_2O$  liquid is formed work done is

A. 75.6 L atm

B. 85.6 L atm

C. 50.3 L atm

D. None of these

**Answer: B**



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