



## CHEMISTRY

# BOOKS - MHTCET PREVIOUS YEAR PAPERS AND PRACTICE PAPERS

## PRACTICE SET 13

### Paper I Objective Type

1.  $N_2$  gas is bubbled through water at  $293K$  and the partial pressure of  $N_2$  is  $0.987$  bar .If the henry's law constant for  $N_2$  at  $293K$  is  $76.84$  kbar, the number of millimoles of  $N_2$  gas that will dissolve in  $1L$  of water at  $293K$  is

A.  $0.129$  nV/mol

B.  $0.716$  m/mol

C.  $1.29$  m/mol

D. 7.16 m/mol

**Answer: B**

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2. Enthalpy of vaporisation of naphthalene is 48.5 kJ/mol and enthalpy of fusion of naphthalene is 22.5 kJ/mol, then enthalpy of sublimation of naphthalene will be

A.  $-48.5$  kJ/mol

B.  $+22.5$  kJ/mol

C. 26.0 kJ/mol

D. 71.0 kJ/mol

**Answer: D**

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3. When rusting starts,

A.  $Fe^{2+}$  ions pass into solution at cathodic area

B.  $H^+$  ions reduced to  $H_2$  gas at anodic area

C. oxygen in the presence of  $H^+$  ions, reduces to water at cathodic area

D. oxygen in the presence of  $H^+$  ions reduces of water at anodic area

Answer: C



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4. For a certain reaction, 10% of the reactant decomposes in one hour, 20% in two hours and 30% in three hours. The unit of rate constant will be

A. per hour

B. mol/Ls

C. L/mols

D. mol/s

**Answer: B**



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5. Which one has the highest melting point ?

A. Ionic crystal

B. Molecular crystal

C. Covalent crystal

D. Metallic crystal

**Answer: C**



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6. Nitrogen forms  $N_2$  but phosphorous when forms  $P_2$  gets readily converted into  $P_4$  because

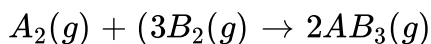
- A. triple bonding is present between phosphorus atom
- B.  $\rho\pi k - \rho\pi$  bond is weak
- C.  $\rho\pi - \rho\pi$  bonding is strong
- D. multiple bond is formed easily

**Answer: B**



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7. In a closed vessel, 5 moles of  $A_2(g)$  and 7 moles of  $B_2(g)$  are reacted in the following maner,



What is the total number of moles of gases present in the container at the end of the reaction?

A.  $22/3$

B.  $7/3$

C.  $14/3$

D.  $8/3$

**Answer: A**



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8. The correct order of  $E_{M^{2+}/M}^{\circ}$  Values with negative sign for the four successive elements *Cr*, *Mn*, *Fe* and *Co* is:

A.  $Mn > Cr > Fe > Co$

B.  $Cr > Fe > Mn > Co$

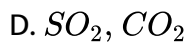
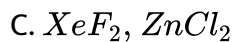
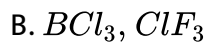
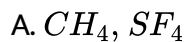
C.  $Fe > Mn > Cr > Co$

D.  $Cr > Mn > Fe > Co$

**Answer: A**

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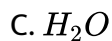
9. The pair of compounds having identical shapes for their molecules is:



**Answer: C**

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10. Diethyl ether undergoes  $C - O$  bond cleavage when treated with



D.  $KMnO_4$

**Answer: A**

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**11.** A real gas most closely approaches the behaviour of an ideal gas at:

A. 15 atm and 200K

B. 1 atm and 273 K

C. 0.5 atm and 500 K

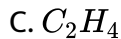
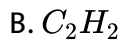
D. 15 atm and 500 K

**Answer: C**

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**12.** Household gaseous fuel (LPG) mainly contains

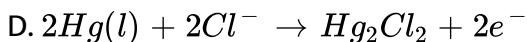
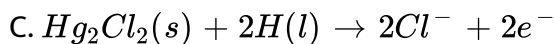
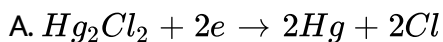




**Answer: D**

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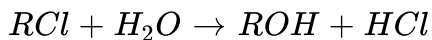
**13.** In a cell of NHE (Normal Standard Hydrogen Electrode) and calomel electrode, the reaction taking place at calomel electrode will be



**Answer: A**

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14. In hydrolysis of organic chloride with excess of water



- A. molecularity is 2 and order of reaction is also 2
- B. molecularity is 2 and order of reaction is 1
- C. molecularity is 1 and order of reaction is 2
- D. molecularity is 1 and order of reaction is 1

**Answer: B**

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15. Which of the following statements for crystals having Frenkel defect is /are not correct?

- A. Frenkel defects are observed where the difference in sizes of cations and anions is large
- B. The density of crystals having Frenkel defect is lesser than that of a pure perfect crystal
- C. In an ionic crystal having Frenkel defect may also contain Schottky defect.
- D. Pure alkali halides do not have Frenkel defect

**Answer: B**

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**16.** Identify the process when an ore is heated in the presence of oxygen.

- A. Smelting
- B. Roasting
- C. Calcination

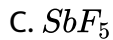
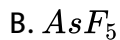
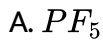
D. Liqutation

**Answer: B**



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17. Which one of the following pentafluorides cannot be formed?



**Answer: D**



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18. The alloy of zinc that does not contain copper in good percentage is

A. bronze

B. gun metal

C. die casting

D. muniz metal

**Answer: C**



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**19.** Photochemical chlorination is initiated by a process of

A. pyrolysis

B. substitution

C. homolysis

D. peroxidation

**Answer: C**



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20. Which of the following compounds exists in the gaseous state at room temperature?

- A. Formaldehyde
- B. Dimethyl ether
- C. Both a and b
- D. None of these

**Answer: C**



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21. Oxidation number of P in  $PO_4^{3-}$ , of S in  $SO_4^{2-}$  and that of  $Cr_2O_7^{2-}$  are respectively

- A. +5 + 6 and +6
- B. +3 + 6 and +5

C.  $+5 + 3$  and  $+6$

D.  $-3 + 6$  and  $+6$

**Answer: A**

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22. Blackened oil painting can be restored into original form by the action of

A. chlonne

B.  $BaO_2$

C.  $H_2O_2$

D.  $MnO_2$

**Answer: C**

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23. If standard electrode potential of  $Cu^{2+} / Cu$  is  $0.34V$  then potential of  $Cu$  dipped in  $0.1 M$  solution of  $CuSO_4$  will be

- A.  $0.34V$
- B.  $-0.34V$
- C.  $0.31V$
- D.  $-0.31V$

Answer: C



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24. The rate constants  $k_1$  and  $k_2$  for two different reactions are  $10^{25} e^{-4000/T}$  and  $10^{25} e^{-1000/T}$ , respectively. The temperature at which  $k_1 = k_2$  is

- A.  $\frac{2000}{2.303} K$
- B.  $2000K$



C.  $\frac{3000}{2.303}K$

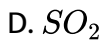
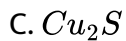
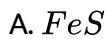
D.  $1000K$

**Answer: C**



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25. In the extraction of Cu from its sulphide ore, the metal is formed by reduction of  $Cu_2O$  with



**Answer: C**



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26. The geometry of ozone molecule is

- A. linear
- B. V-shaped
- C. Any of these
- D. None of these

**Answer: B**



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27. The noble gas which shows abnormal behaviour in liquid state and behave as super fluid is

- A. *He*
- B. *Xe*
- C. *Ar*
- D. *Ne*

**Answer: A**



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**28. Lanthanoids are-**

- A. 14 elements in the seventh periods (atomic number 58 to 71) that are filling 4f-orbital
- B. 14 elements in the sixth period (atomic number 90 to 103) that are filling 4f-orbital
- C. 14 elements in seventh period (atomic number 90 to 103) that are filling 5f-orbital
- D. 14 elements in the sixth period (atomic number 58 to 71) that are filling 4f-orbital

**Answer: D**



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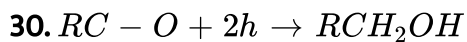
29. Reduction of carbon tetrachloride by moist iron gives



**Answer: B**



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for the above reaction, the catalyst used is



D. All of these

**Answer: D**

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**31.** Electron affinity of group -16 elements varies as

A.  $O > S > Se > Te$

B.  $O < S < Se < Te$

C.  $S > O > Se > Te$

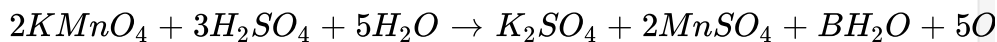
D.  $Se > O > S > Te$

**Answer: A**

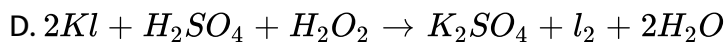
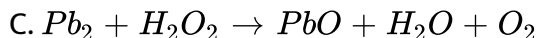
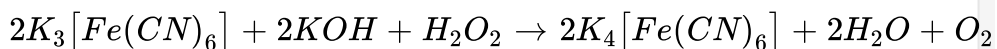
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32. Which one of the following reactions represent the oxidising property of  $H_2O_2$ ?

A.



B.

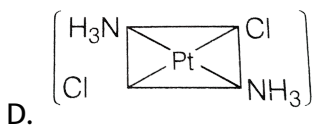
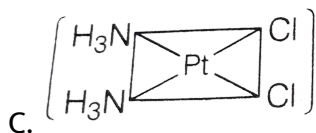
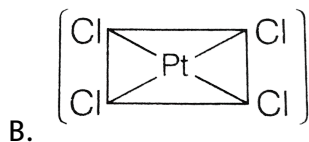
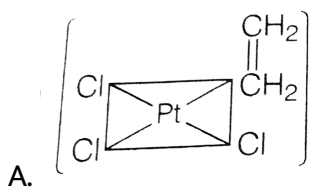


**Answer: D**



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33. Which of the following is considered to be an anticancer species?



**Answer: C**

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**34.** Which one of the following is an optically active compound?

A. n-propanol

B. butan-2-ol

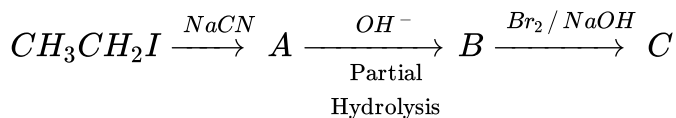
C. n-butanol

D. 4-hydroxyheptane

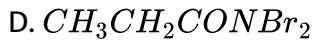
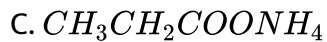
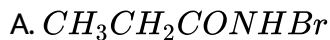
Answer: B

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35. Given the following sequence of reaction



The major product 'C' is



Answer: B

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36. On heated ammonium formate, the compound formed is

- A. ammonia
- B. formamide
- C. formic acid
- D. ammonium carbonate

**Answer: B**

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37. t-butyl isocyanide on reduction gives

- A. t-butylamine
- B. t-butylmethylamine
- C. t-butylethylamine
- D. None of the above

**Answer: B**

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**38.** Glycogen on hydrolysis gives

- A. starch
- B. Bmylopectin
- C. amylose
- D. glucose

**Answer: D**

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**39.** Bakelite is a product of the reaction between:

- A. formaldehyde and NaOH

B. aniline and urea

C. phenol and methanal

D. phenol and chlorolom

**Answer: C**

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40. What kind of isomerism exists between  $[Cr(H_2O)_6]Cl_3$  (violet) and  $[Cr(H_2O)_5Cl] \cdot H_2O$  (greyish-green)?

A. coordination isomerism

B. solvate isomerism

C. ionisation isomernsm

D. linkage isomerism

**Answer: B**

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41. The reaction between sodium and water can be made less vigorous by

- A. adding a little alcohol
- B. amalgamated sodium
- C. adding a little acetic acid
- D. lowering the temperature

**Answer: B**



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42. What is the  $K_{sp}$  of  $AgCl$  if it is given that solubility of  $AgCl$  at  $20^\circ C$  is  $1.435 \times 10^{-5} g/L$ ?

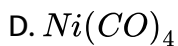
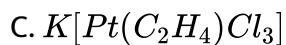
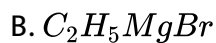
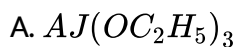
- A.  $1 \times 10^{-14}$
- B.  $1 \times 10^{-10}$
- C.  $1.435 \times 10^{-12}$

D.  $1.08 \times 10^{-3}$

**Answer: A**

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**43.** Which of the following does not have a metal carbon bond?



**Answer: A**

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**44.** Next higher homologue of phenol is-

- A. hydroxy toluene
- B. hydroxycy benzene
- C. dihydroxy benzene
- D. None of the above

**Answer: A**

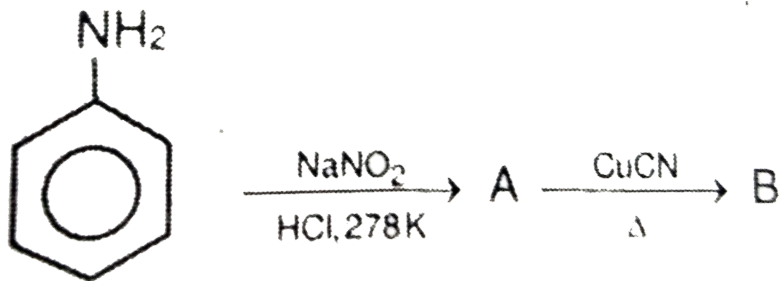
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**45.** After detaching H-atom from the carboxylic acid, the remainder portion is called

- A. acyl group
- B. acetyl group
- C. acyloxy group
- D. Nonke of these

**Answer: C**

46. In the following chemical reactions, the compounds A and B are respectively :



- A. fluorobenzene and phenol
- B. benzene diazonium chloride and benzonitrile
- C. nitrobenzene and chlorobenzene
- D. phenol and bromobenzene

**Answer: B**

47. जब RNA का जलअपघटन किया जाट है तो प्राप्त श्रारको की मात्राओ के मध्य कोई सम्बन्ध नहीं होता । यह RNA की सरचना के विषय में संकेत देता है ?

- A. A double strand helix
- B. A single strand helix
- C. An equal mixture of double and single strand helix
- D. Unequal mixture of double and single strand

**Answer: B**



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48. Synthetic rubber (Neoprene) is:

- A. polyster
- B. polyamide
- C. polysaccharide
- D. poly (halodiene)



**Answer: D**

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**49.** Fractional distillation is a process by which the separation of different fractions from mixture of solution is carried by making use of the following property of the fractions.

A. freezing point

B. boiling point

C. melting pont

D. solubility

**Answer: B**

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**50.** Which of the following is not correct?

- A. Milk is a naturally occurring emulsion
- B. Gold sol is a lyophilic sol
- C. Physical adsorption decreases with rise in temperature
- D. Chemical adsorption is unlayered

**Answer: B**



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