



CHEMISTRY

BOOKS - MHTCET PREVIOUS YEAR PAPERS AND PRACTICE PAPERS

PRACTICE SET 11

Paper 1 Chemistry

1. A solution containing components A and B follows Raoult's law, when

- A. A-B attraction force is greater than that of A-A and B-B
- B. A-B attraction force is less than that of A-A and B-B
- C. A-B attraction force is same as that of A-A and B-B
- D. None of the above

Answer: C

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2. When $22.4L$ of $H_2(g)$ is mixed with 11.2 of $Cl_2(g)$, each at STP, the moles of $HCl(g)$ formed is equal to

- A. 1 mole of $HCl(g)$

B. 2 moles of HCl (g)

C. 0.5mole of HCl (g)

D. 1.5 mole of HCl(g)

Answer: B



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3. During discharge in the case of lead storage batteries density of sulphuric acid

A. increases

B. decreases

C. remains unchanged

D. may decrease or increase

Answer: B



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4. Specific reaction rate for the first order reaction depends upon

A. pressure

B. temperature

C. concentration of the reactants

D. concentration of the products

Answer: B



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5. When n and p-type semiconductors are allowed to come into contact

- A. some electrons will flow from n to p
- B. some electrons will flow from p to n
- C. the impurity element will flow from n to p
- D. the impurity element will flow from p to n

Answer: A



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6. The oxidation state(s) of nitrogen in ammonium nitrate is/are

A. only -3

B. only +5

C. -3, -5

D. -3, +5

Answer: D



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7. $R - CH_2COOH \xrightarrow{SO_2Cl_2} (A) \xrightarrow{H_3O^+} (B) \xrightarrow{\Delta} (C)$ The product C is

- A. carboxylic acid
- B. acetic anhydride
- C. alkane
- D. alkyne

Answer: C



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8. Melting point and metallic bond strength of zinc, cadmium and mercury in respective transition series is minimum because

- A. they contain fully filled d-orbitals

B. they occupy terminal end of the series

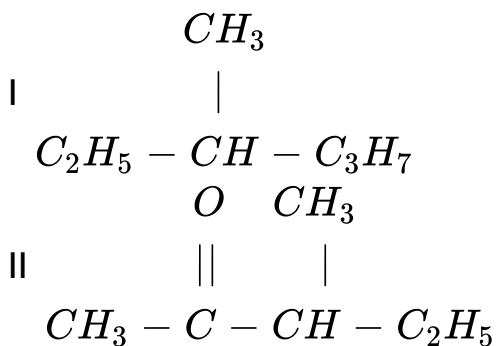
C. They do not show variable oxidation state

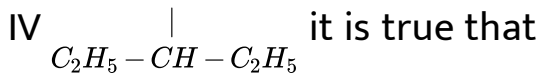
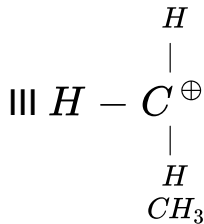
D. they show diamagnetism

Answer: A

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9. Among the following four structures I to IV





- A. all four are chiral compounds
- B. I and II are chiral compounds
- C. III is a chiral compound
- D. only II and IV are chiral compounds

Answer: B

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10. In the Williamson's synthesis for diethyl ether, which species works as a nucleophile-

- A. Halide ion
- B. Ethyoxide ion
- C. Ethyl ion
- D. Hydride ion

Answer: B

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11. Which one is most ionic ?

- A. P_2O_5
- B. MnO_2
- C. Mn_2O_7

D. P_2O_3

Answer: D



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12. Which one is incorrect statement of the second law of thermodynamics ?

A. It is impossible for a cyclic process to transfer heat from a system at a lower temperature to one at a higher temperature without converting some work to heat

- B. It is impossible to convert heat completely into equivalent amount of work without producing changes elsewhere
- C. Every perfect machine working reversibly between the same temperature of source and sink have the same efficiency whatever be the nature of the substance used
- D. Heat engine can be made 100% efficient

Answer: D



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13. The conductance of 0.1 M HCl solution is greater than that of 0.1 M NaCl. This is because (

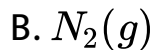
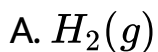
- A. HCl is more ionised than NaCl
- B. HCl is an acid whereas NaCl solution is neutral
- C. H^+ ions have greater mobility than Na^+ ions
- D. interionic forces in HCl are weaker than those in NaCl

Answer: C



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14. Maximum deviation from ideal gas is expected from



Answer: D



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15. The percentage of free space in a body centred cubic unit cell is

A. 0.22

B. 0.32

C. 0.42

D. 0.34

Answer: B



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16. In the extraction of copper from its sulphide ore, the metal is finally obtained by the reduction of cuprous oxide with

A. SO_2

B. FeS

C. CO

D. Cu_2S

Answer: D



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17. Which of the following oxoacids acts as a reducing agent ?

A. H_3PO_3

B. H_3PO_4

C. $H_2P_2O_6$

D. $H_4P_2O_7$

Answer: A



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18. Due to $4d^{10}$ structure

- A. Ag^{2+} is more stable than Ag^+
- B. Ag^+ and Ag^{2+} both are stable
- C. Ag^+ is more stable than Ag^{2+}
- D. Ag^+ and Ag^{2+} both are unstable

Answer: C



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19. When a manganous salt is fused with a mixture of KNO_3 and solid NaOH, the oxidation number of Mn change from +2 to:

A. +4

B. +3

C. +6

D. +7

Answer: C



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20. The best method for the purification of carbonyl compound is

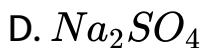
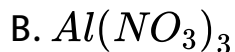
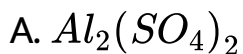
- A. steam distillation
- B. hydrolysis of sodium bisulphite adduct
- C. fractional distillation
- D. sublimation

Answer: B



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21. Which of the salts has the same value of van't Hoff factor 'i' as $K_3[Fe(CN)_6]$?



Answer: B



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22. Hydrogen is prepared from H_2O by adding

A. Ca, which acts as reducing agent

B. Al, Which acts as oxidising agent

C. Ag, which acts as reducing agent

D. Au, which acts as oxidising agent

Answer: A



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23. The cell constant of a given cell is 0.47 cm^{-1} . The resistance R of a solution placed in this cell is measured to be 31.6 ohm . The conductivity of the solution (in S cm^{-1}) is

A. 0.15

B. 1.5

C. 0.015

Answer: C



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24. For a reaction $A_2 + B_2 \rightleftharpoons 2AB$ the figure shows the path of the reaction in absence and presence of a catalyst. What will be the energy of activation for forward (E_f) and backward (E_b) reaction in presence of a catalyst and ΔH for the reaction? The dotted curve is the path of reaction in presence of a catalyst.



•

$$E_f = 60\text{KJ/mol}, E_b = 70\text{KJ/mol}, \Delta H = 20\text{KJ/mol}$$

- $E_f = 20\text{KJ/mol}, E_b = 20\text{KJ/mol}, \Delta H = 50\text{KJ/mol}$

- $E_f = 70\text{KJ/mol}, E_b = 20\text{KJ/mol}, \Delta H = 10\text{KJ/mol}$

- $E_f = 10\text{KJ/mol}, E_b = 20\text{KJ/mol}, \Delta H = -10\text{KJ/mol}$

Answer: D



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25. Magnetic separation is used for increasing concentration of the following

A. horn silver

B. calcite

C. haematite

D. magnesite

Answer: C



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26. Ozone is readily soluble in

A. turpentine oil

B. glacial acetic acid

C. water

D. Both (a) and (b)

Answer: D



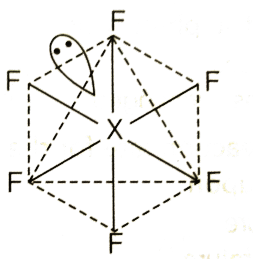
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27. Which of the following is not correct about xenon hexafluoride ?

A. It has oxidation state of +6

B. The hybridisation involved in XeF_6 is sp^3d^3

C. The shape of XeF_6 is distorted octahedral and can be represented as



D. On hydrolysis it gives Xe , HF and O_2

Answer: D



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28. In context of the lanthanoids, which of the following statements is not correct?

- A. There is a gradual decrease in the radii of the members with increasing atomic number in the series
- B. All the members exhibit +3 oxidation state
- C. Because of similar properties the separation of lanthanoids is not easy
- D. Availability of 4f-electrons results in the formation of compounds in +4 state for all members of the series

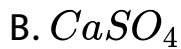
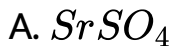
series

Answer: D



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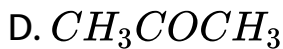
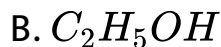
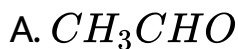
29. Which one of the following alkaline earth metal sulphates has its hydration enthalpy greater than its lattice enthalpy?



Answer: C

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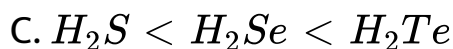
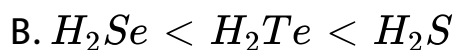
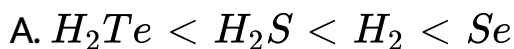
30. Which of the following compounds forms brown-black resinous compound with KOH?



Answer: A

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31. Acidity of diprotic acids in aqueous solutions increases in the order



Answer: C



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32. A metal M reacts with N_2 to give a compound ' A ' (M_3N). ' A ' on heating at high temperature gives back ' M ' and ' A ' on reacting with H_2O gives a gas ' B '. ' B ' turns $CuSO_4$ solution blue on passing through it. A and B can be

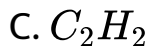
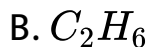
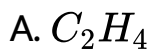
- A. Al and NH_3
- B. Li and NH_3
- C. Na and NH_3
- D. Mg and NH_3

Answer: B



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33. Which of the following is called marsh gas?



Answer: A



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34. Compound 'X' with the molecular formula C_3H_8O on vigorous oxidation yields an acid $C_3H_6O_2$.

A. p-alcohol

B. s-alcohol

C. an aldehyde

D. t-alcohol

Answer: A



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35. In Carius method, $0.099g$ organic compound gave $0.287g AgCl$. The percentage of chlorine in the compound will be

A. 28.6

B. 71.7

C. 35.4

D. 64.2

Answer: B



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36. Hinsberg reagent is used to distinguish between

A. (a) $-\text{CHO}$, $>\text{C}=\text{O}$

B. (b) $-\text{CH}_2\text{OH}$, CHOH , $-\text{C}\equiv\text{OH}$

C. $-\text{O}-$, $-\text{H}-$



Answer: D



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37. Toluene is nitrated and the resulting product is reduced with tin and hydrochloric acid. The product so obtained is diazotised and then heated with cuprous bromide. The reaction mixture so formed contains

- A. mixture of o and p-bromotoluenes
- B. mixture of o and p-dibromobenzenes
- C. mixture of o and p-bromoanilines

D. mixture of o and m-bromotoluenes

Answer: A



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38. Which of the following amino acid has the highest iso-electric point ?

A. Glycine

B. Glutamic acid

C. Praline

D. Lysine

Answer: D



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39. The element present in teflon is

- A. fluorine
- B. chlorine
- C. nitrogen
- D. oxygen

Answer: A



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40. Select the correct statement(s).

- A. A drug which kills the organism in the body is called bactericidal
- B. A disease causing organism is called a pathogen
- C. Both (a) and (b)
- D. None of the above

Answer: C

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41. Which of the following has the highest electron affinity?

A. F_2

B. Cl_2

C. Br_2

D. I_2

Answer: B



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42. The random motion of colloidal particles in the dispersion medium is known as

A. Tyndall effect

B. Coagulation

C. Adsorption

D. Brownian movement

Answer: D



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43. Ferrocene is an example of

A. sandwiched complex

B. pi-bonded complex

C. a complex in which all the five carbon atoms of cyclopentadiene anion are bonded to the metal

D. All of the above

Answer: D

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44. The considerably greater acidic strength of PhOH ($pK_a = 10$) than of ROH ($pK_a = 18$) is due to the fact that

- A. PhO⁻ (phenoxide ion) is a stronger base than RO⁻ (alkoxide ion)
- B. PhO⁻ (phenoxide ion) is weaker base than RO⁻ (alkoxide ion)
- C. ROH is soluble in water
- D. PhOH is aromatic in nature

Answer: B

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45. Which group is capable of reducing the acidic strength of the parent acid

A. $-OH$

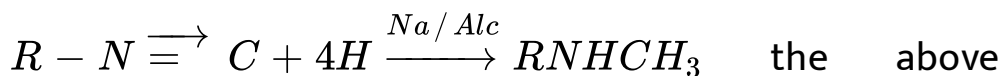
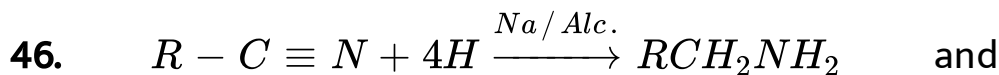
B. $-CH_3$

C. $-OCH_3$

D. All of these

Answer: B

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reactions confirm the following point .

- A. stability of cyanide
- B. stability of isocyanide
- C. structural difference of cyanide and isocyanide
- D. isomerism between cyanide and isocyanide

Answer: C



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47. Match List I with List II and select the correct answer using the codes given below :

List I	List II
I. Anti beri-beri factor	A. Vitamin C
II. Pancreas	B. Glycerides
III. Palm oil	C. Vitamin B ₁
IV. L(+)-Ascorbic acid	D. Insulin

Codes

A. I- C, II-D, III-B, IV-A

B. I-C, II-D, III-A, IV-B

C. I-A, II-B, III-D, IV-C

D. I-C, II-B, III-C, IV-D

Answer: A



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48. Consider the following facts.

I. Weakest intermolecular forces are present in elastomers.

II. Fibres possess crystalline nature.

III. Ionic bonds are present in thermoplastic polymers.

Identify the option with correct statements.

A. I and II

B. II and III

C. I and III

D. I,II and III

Answer: D



49. Which compound is used as a preservation in foods ?

A. Salt of sorbic acid

B. Citric acid

C. Ascorbic acid

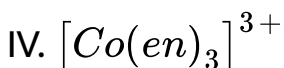
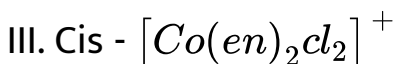
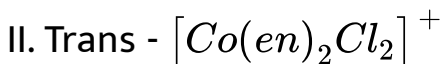
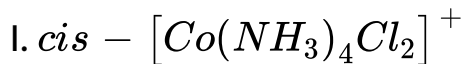
D. Saccharin

Answer: A



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50. Which of the following compounds show optical isomerism?



Choose the correct answer form the codes given below.

A. I and II

B. II and III

C. III and IV

D. I, III and IV

Answer: C



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