



CHEMISTRY

BOOKS - MHTCET PREVIOUS YEAR PAPERS AND PRACTICE PAPERS

PRACTICE SET 17

Physics Chemistry

1. 50cm^3 of 0.2 N HCl is titrated against 0.1 N NaOH solution. The titration is discontinued after adding 50cm^3 of NaOH solution. The remaining titration is completed by adding 0.5 N KOH solution. What is the volume of KOH required for completing the titration ?

A. 12 cm^3

B. 10cm^3

C. 25cm^3

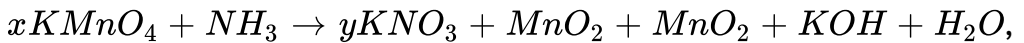
D. 10.5cm^3

Answer: B



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2. In the redox reaction,



x and y are

A. $x = 4, y = 6$

B. $x = 3, y = 8$

C. $x = 8, y = 6$

D. $x = 8, y = 3$

Answer: C



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3. Which of the following statement is correct ? Dielectric constant of H_2O_2

- A. increases with dilution
- B. decreases with dilution
- C. is unaffected on dilution
- D. None of these

Answer: A

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4. The concentration of reactants is increased by x , then equilibrium constant K becomes

- A. $\ln k/x$

B. k/x

C. $k + x$

D. k

Answer: D

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5. $NaOH$ is prepared by the method

A. Dow cell

B. Castner cell

C. Solvay process

D. Caster-Kellner cell

Answer: D

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6. P_4O_{10} is not used to dry NH_3 gas because

- A. P_4O_{10} reacts with moisture
- B. P_4O_{10} is not a drying agent
- C. P_4O_{10} is acidic and NH_3 is basic
- D. P_4O_{10} is basic and NH_3 is acidic

Answer: C



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7. The number of allotropic forms of oxygen and sulphur respectively are

- A. 3, 2
- B. 2, 3

C. 1, 0

D. 1,1

Answer: B

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8. I. The most durable metal plating on iron to protect against corrosion is zinc plating.

II. German silver is an alloy of copper, Zn and Ni.

III. Bordeaux used as fungicide is a mixture of $CuSO_4 + Ca(OH)_2$

IV. Turns bull's blue is a compound called ferrous ferricyanide.

The incorrect statements are (mark the appropriate option)

A. I, II and III

B. II, III and IV

C. ALL of these

D. None of these

Answer: D

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9. Which group is denoted at the terminals in bond line structure representations ?

A. Methyl group ($CH_3 -$) or a functional group

B. Ethyl group ($CH_3CH_2 -$)

C. NO group

D. Free radical group

Answer: A

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10. Diethyl ether is used as

- A. antibiotic
- B. antiseptic
- C. anaesthetic
- D. analgesic

Answer: C



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11. Ionic compounds are readily soluble in polar solvents because

- A. they have high solubility in water
- B. water molecules are polar in nature
- C. ionic crystals are easily broken down in polar solvents

D. of strong electrostatic forces of attraction between ions of crystals and polar solvent molecules.

Answer: A

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12. For a reaction R_1 , $\Delta G = x \text{ kJ/mol}$. For a reaction R_2 , $\Delta G = y \text{ kJ/mol}$. Reaction R_1 , is non-spontaneous but along with R_2 it is spontaneous. This means that

- A. x is negative, y is positive but in magnitude $x > y$
- B. x is positive, y is negative but in magnitude $y > x$
- C. Both x and y are negative but not equal
- D. Both x and y are positive but not equal

Answer: B

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13. The equivalent conductances at infinite dilution (A_0) for electrolytes BA and CA are 140 and 120 S cm^2/eq . For equivalent conductance at infinite dilution for BX is 198 S cm^2/eq . The A_0 (in S cm^2/eq) of CX is

A. 178

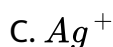
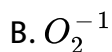
B. 198

C. 218

D. 130

Answer: A

14. When dilute aqueous solution of $AgNO_3$ (excess) is added to KI solution, positively charged sol of AgI is formed due to adsorption of



Answer: C

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15. Which is not the correct statement for ionic solid in which positive and negative ions are held by strong electrostatic attractive forces ?

A. The radius ratio $\frac{r_+}{r_-}$ increases as coordination number increases

B. As the difference in size of ions increases, coordination number increases

C. When coordination number is eight $\frac{r_+}{r_-}$ ratio lies between 0.225 to 0.414

D. In ionic solid of the type AX (ZnS and Wurtzite), the coordination number of Zn^{2+} and $S^{(2-)}$ respectively are 4 and 4

Answer: C

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16. Which one is incorrect statement.

A. $KMnO_4$ is used for the decolourisation of oils

B. MnO_4^{2-} is green coloured compound

C. MnO_4^- is paramagnetic in nature

D. $K_2Cr_2O_7$ is used in chromyl chloride test

Answer: C

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17. Most unstable hydride is

A. NH_3

B. PH_3

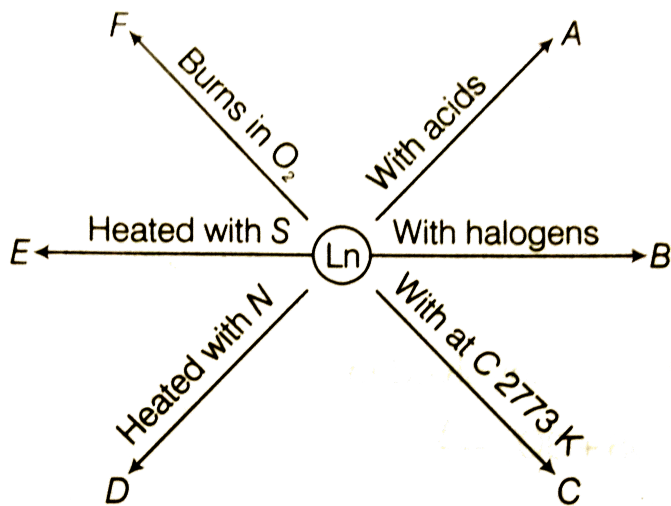
C. AsH_3

D. BiH_3

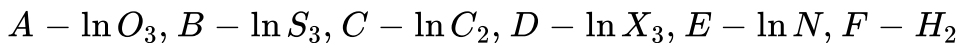
Answer: D

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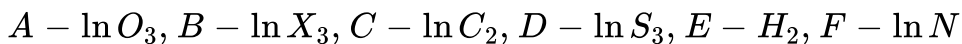
18. Most A, B, C, D, E and F refer to



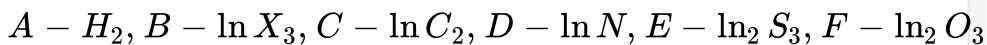
A.



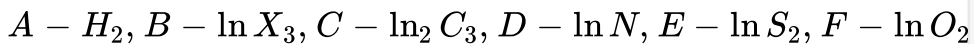
B.



C.



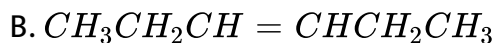
D.



Answer: C

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19. Which alkene on ozonolysis gives CH_3CH_2CHO and CH_3CHOCH_3 ?



D.

Answer: A

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20. When dihydroxy acetone reacts with HIO_4 , the product is /are

A. HCHO

B. HCOOH

C. HCHO and HCOOH

D. HCHO and CO_2

Answer: D

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21. When a crystal of the solute is introduced into a super saturated solution of the solute

A. the solute dissolves

B. the excess solute crystallise out

C. the solution becomes unsaturated

D. the solution remains super saturated

Answer: B

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22. If $H^+ + OH^- \rightarrow H_2O + 13.7Kcal$, the heat of neutralisation for complete neutralisation of 1 mole of H_2SO_4 by base will be

A. 13.7 kcal

B. 27.4 kcal

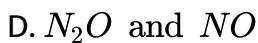
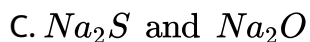
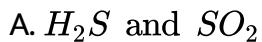
C. 6.85 kcal

D. 3.42 kcal

Answer: B

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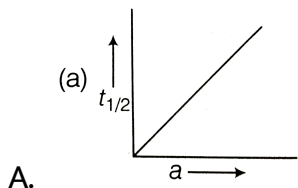
23. Law of multiple proportions is illustrated by one of the following pairs.

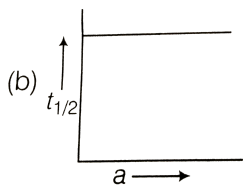


Answer: D

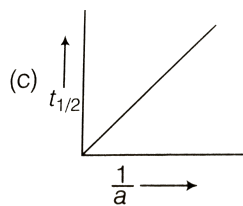
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24. Which of the following graphs formed plotted between $t_{1/2}$ and initial concentration (a) represents a zero order reaction ?

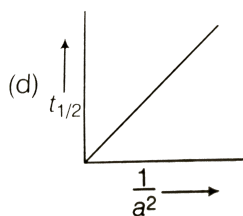




B.



C.

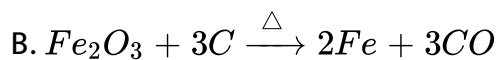
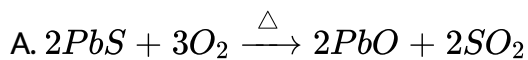


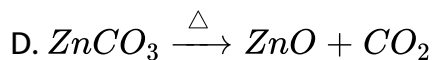
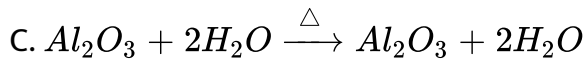
D.

Answer: A

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25. Smelting is involved in





Answer: B

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26. The peroxy linkage is present in

A. Marshall's acid

B. sulphuric acid

C. oleum

D. None of these

Answer: A

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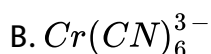
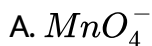
27. Which of the following is not the correct uses of clathrates ?

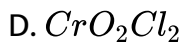
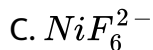
- A. Used in the separation of noble gases
- B. Used in transporting of isotopes of noble gases
- C. Kr-85 clathrate provide a useful source of β -radiations
- D. Clathrates compounds are used for producing compounds of noble gases

Answer: D

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28. Among these, identify the species with an atom in +6 oxidation state: .





Answer: D

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29. A sample of chloroform before using as an anaesthetic is tested by :

A. Tollen's reagent

B. ammonical solution of cuprous chloride

C. aqueous silver nitrate solution

D. potassium nitrate solution after boiling with alc. KOH

Answer: C

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30. When acetaldehyde is heated with Fehling's solution it gives a precipitate of

A. Cu

B. Cu_2O

C. CuO

D. $Cu + Cu_2O + CuO$

Answer: B



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31. Pick out the incorrect statement.

A. The oxides of fluorine are properly called oxygen fluorides

B. In SF_4 , S-atom is in the state of sp^2d^2 -hybridisation

C. SF_6 is highly unreactive towards hydrolysis

D. SF_4 is a gas and has regular tetrahedral structure

Answer: D

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32. Chemical A is used for water softening to remove temporary hardness. A reacts with sodium carbonate to generate caustic soda. When CO_2 is bubbled through a solution of A, it turns cloudy. What is the chemical formula of A ?

A. $CaCO_3$

B. CaO

C. $Ca(OH)_2$

D. $Ca(HCO_3)_2$

Answer: C

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33. The octahedral complex of a metal ion M^{3+} with four monodentate ligands L_1, L_2, L_3 and L_4 absorb wavelengths in the region of red, green, yellow and blue, respectively. The increasing order of ligand strength of the four ligands is

A. $L_1 < L_2 < L_4 < L_3$

B. $L_4 < L_3 < L_2 < L_1$

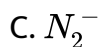
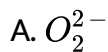
C. $L_1 < L_3 < L_2 < L_4$

D. $L_3 < L_2 < L_4 < L_1$

Answer: C

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34. Which of the following molecules /ions does not contain unpaired electrons ?

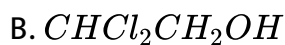
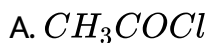


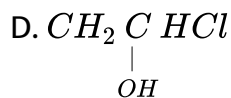
Answer: A



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35. What is the product of following reaction,

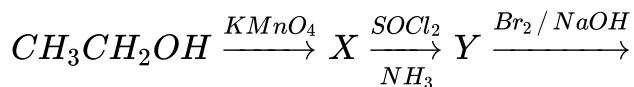




Answer: B

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36. In the following sequence of reactions,



the end product (Z) is

A. acetic acid

B. acetone

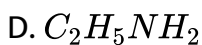
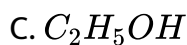
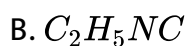
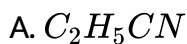
C. methyl amine

D. ethyl amine

Answer: C

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37. $CHCl_3$ and KOH on heating with a compound form a bad smelling product compound is



Answer: D

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38. The ultimate product of the hydrolysis of starch is

A. glucose

B. fructose

C. amylose

D. amylopectin

Answer: A

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39. Which of the following polymers contains nitrogen ?

A. Nylon

B. Teflon

C. Terylene

D. PVC

Answer: A

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40. A substance which can act both as an antiseptic and disinfectant is :

- A. aspirin
- B. chloroxylenol
- C. bithional
- D. phenol

Answer: D

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41. Halogen prepared from sea-weeds is

- A. F_2
- B. Cl_2

C. Br_2

D. I_2

Answer: D

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42. Critical temperature of H_2O , NH_3 , CO_2 and O_2 are 647 K, 405.6 K, 304.10 K and 154.2 K respectively. If the cooling starts from 500 K to their critical temperature, the gas that liquefies first is

A. H_2O

B. NH_3

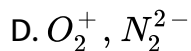
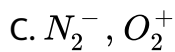
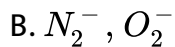
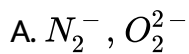
C. CO_2

D. O_2

Answer: B



43. IN which of the following pairs, the two species have identical bond order ?



Answer: C

44. The synthesis of PhOH from PhCl is called

A. Dow's process

B. Cumene process

C. Williamson's synthesis

D. Kolbe-Schmidt process

Answer: A

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45. Consider the following acids.

(i) $Cl_2CHCOOH$

(ii) CH_3COOH

(iii) $Cl - CH_2 - COOH$

(iv) $HCOOH$

The acid strengths of these acids are such that

A. $(iii) > (iv) > (ii) > (i)$

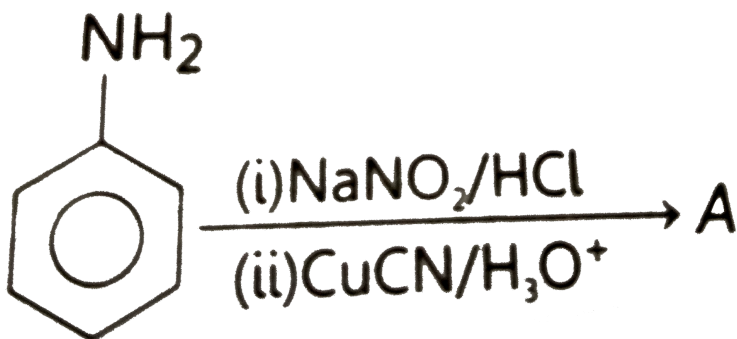
B. $(iv) > (ii) > (i) > (iii)$

C. (iii) > (iv) > (i) > (ii)

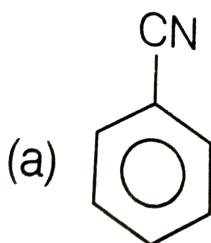
D. (i) > (iii) > (iv) > (ii)

Answer: D

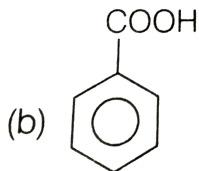
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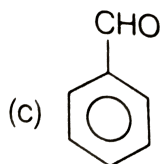
46.



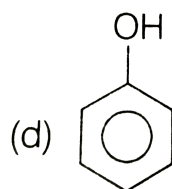
A.



B.



C.



D.

Answer: B

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47. Dinucleotide is obtained by joining two nucleotides together by phosphodiester linkage. Between which carbon atoms of pentose sugars of nucleotides are these linkages present ?

A. 5' and 3'

B. 1' and 5'

C. 5' and 5'

D. 3' and 3'

Answer: A

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48. The IUPAC name of
$$\begin{array}{ccccccc} & & CH_2 = CH & - & CH & - & CH_2 & - & CH_3 \\ & & & & | & & & & \\ & & & & CH_2 - CH_2 - CH_3 & & & & \end{array}$$
 is

A. 3-propyl pentene -1

B. 3-ethyl-penten -1

C. 4-ethyl-hexene-1

D. 3-ethyl-hexene-1

Answer: D

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49. Cleansing action of cationic detergent is due to

- A. hydrophobic part of cation
- B. hydrophilic part of cation
- C. hydrophobic part of anion
- D. hydrophilic part of anion

Answer: D

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50. When a mixture of CS_2 and steam (H_2O) or H_2S is passed over red hot copper, the product obtained is

A. CH_4

B. C_2H_6

C. Both (a) and (b)

D. C_2H_2

Answer: A

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