



CHEMISTRY

BOOKS - MHTCET PREVIOUS YEAR PAPERS AND PRACTICE PAPERS

PRACTICE SET 18

Paper 1 Physics Chemistry

1. The volume of 10N and 4N HCL required to make 1L of 7N HCl are

- A. 0.50 L of 10 N HCl and 0.50 L of 4N HCl
- B. 0.60 L of 10 N HCl and 0.40 L of 4N HCl
- C. 0.80 L of 10N HCl and 0.20 L of 4N HCl
- D. 0.75 L of 10 N HCl and 0.25 L of 4N HCl

Answer: A



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2. Solid carbon dioxide is an example of

- A. metallic crystal

B. covalent crystal

C. molecular crystal

D. ionic crystal

Answer: C



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3. A redox reaction is spontaneous in a given direction, if

A. emf is zero

B. emf is negative

C. emf is positive

D. emf has nothing to do with spontaneity

Answer: C



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4. Which statement is correct ?

A. Law of mass action and rate law

expressions are same for single step

reactions

B. Order of the slowest elementary

reaction of a complex reaction gives the

order of the complex reaction

C. Both order and molecularity have

normally maximum value of 3

D. All of the above

Answer: D



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5. When an acid cell is charged, then:

- A. Voltage of cell increases
- B. resistance of cell increases
- C. electrolyte of cell dilutes
- D. None of the above

Answer: A



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6. Dissociation of H_3PO_4 occurs in following stages

A. 1

B. 2

C. 3

D. 4

Answer: C



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7. Which of the following is not an oxyacid of chlorine ?

A. HCl

B. $HClO_5$

C. $HClO_2$

D. $HClO_2$

Answer: A



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8. In 3d-transition series with increase in nuclear charge, the screening effect

A. increases

B. decreases

C. first decreases and then increases

D. first increases and then decreases

Answer: B



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9. The prussian blue colour obtained during the test of nitrogen by lassaigine's test is due to the formation of:

- A. iron (II) hexacyanoferrate (II)
- B. iron (III) hexacyanoferrate (II)
- C. iron (III) hexacyanoferrate (III)
- D. iron (II) hexacyanoferrate (III)

Answer: B



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10. Which one of the following cannot be considered as use of ether?

A. inert solvent

B. Solvent of oils, fats and resins

C. Anaesthetic

D. Antipyretic

Answer: D



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11. On mixing, heptane and octane form an ideal solution. At $373K$ the vapour pressure of the two liquid components (heptane and octane) are $105kPa$ and kPa respectively. Vapour pressure of the solution obtained by mixing 25.0 of heptane and $35g$ of octane will be (molar mass of heptane = $100gmol^{-1}$ and of octane = $114gmol^{-1}$):-

A. 72 kPa

B. 36.1 kPa

C. 96.2 kPa

D. 144.5 kPa

Answer: A



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12. The maximum work obtained by an isothermal reversible expansion of 1 mol of an ideal gas at $27^{\circ}C$ from 2.24 to 22.4 L is ($R=2$ cal)

A. -1381.8 cal

B. – 600 cel

C. – 138.18 cel

D. – 690.6 cel

Answer: A



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13. The reagent commonly used to determine hardness of water titrimetrically is :

A. oxalic acid

B. disodium salt of EDTA

C. sodium citrate

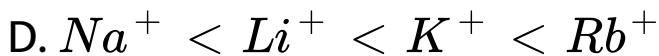
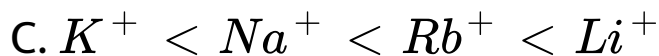
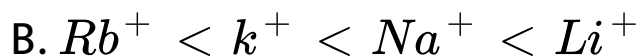
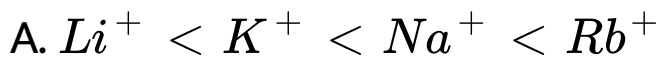
D. sodium thiosulphate

Answer: B



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14. The ease of adsorption of the hydrated alkali metal ions on ion-exchange resins follows the order:

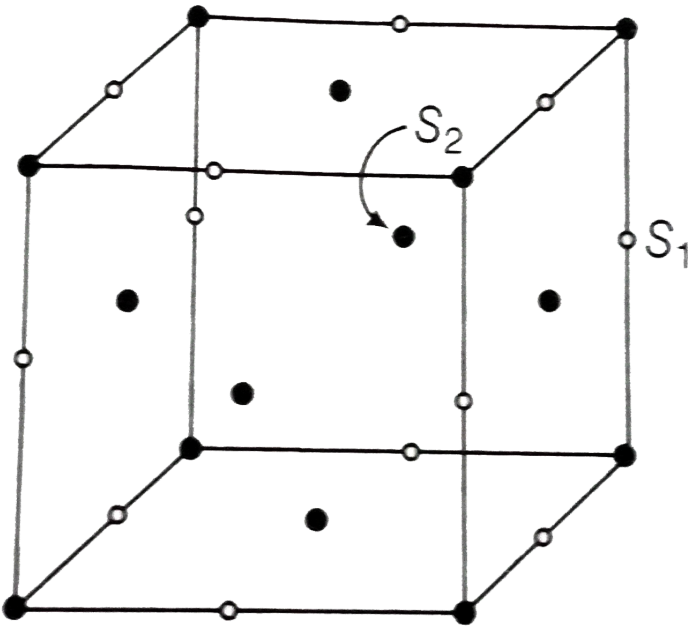


Answer: B



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15. In the structure given below, the sites S_1 and S_2 represent



A. Both octahedral voids

B. Both tetrahedral voids

C. S_1 – octahedral void, S_2 tetrahedral

void

D. S_1 – tetrahedral void, S_2 – octahedral void

Answer: C



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16. Which one of the following is/are correct statement for physisorption

A. It is a reversible reaction

B. Reaction requires an energy of activation

C. The value of adsorption enthalpy is low

D. It generally occurs at a low temperature

Answer: B



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17. Which of the following form a mixed anhydride?

A. NO

B. NO_2

C. N_2O_5

D. N_2O

Answer: B



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18. One of the characteristic of transition metals to form the complex ion is

- A. having unpaired electrons in d-subshell
- B. having paired electrons in d-subshell
- C. providing empty d-orbitals
- D. having small charge/size ratio

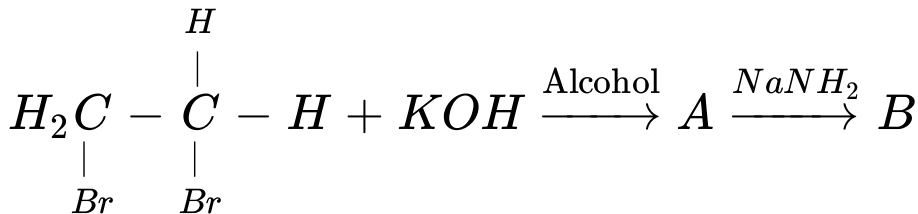
Answer: C



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19. What are A and B in the following reaction

?



- A. $\begin{array}{cc} A & B \\ H_2C = CH_2 & CH = CH \end{array}$
- B. $\begin{array}{cc} A & B \\ CH_2 = CHBr & CH \equiv CH \end{array}$
- C. $\begin{array}{cc} A & B \\ CH_2 = CHBr & CH_2 = CH_2 \end{array}$
- D. $\begin{array}{cc} A & B \\ CH_2 = CH_2 & CH = CBr \end{array}$

Answer: B



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20. Methyl ketones are usually characterised through

- A. Tollen's reagent
- B. Iodoform test
- C. Schiff's test
- D. Benedict's reagent

Answer: B



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21. Solubility curve of $Na_2SO_4 \cdot 10H_2O$ in water with temperature is given as



A. solution process is exothermic

B. solution process is exothermic till $34^\circ C$

and endothermic after $34^\circ C$

C. solution process is endothermic till

$34^\circ C$ and exothermic thereafter

D. solution process is endothermic

Answer: C



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22. How many moles of magnesium phosphate, $Mg_3(PO_4)_2$ will contain 0.25 mole of oxygen atoms?

A. 0.02

B. 3.125×10^{-2}

C. 1.25×10^{-2}

D. 2.5×10^{-2}

Answer: B



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23. The reduction potential of a hydrogen electrode at $pH=10$ at $298K$ is : ($p = 1 \text{ atm}$)

A. 0.51 V

B. 0.00 V

C. -0.59 V

D. 0.059 V

Answer: A



24. The rate of reaction:

$2NO + Cl_2 \rightarrow 2NOCl$ is given by the rate,

equation rate = $k[NO]_2[Cl_2]$. The value of

the rate constant can be increased by

- A. increasing the temperature
- B. increasing the concentration of NO
- C. increasing the concentration of the Cl_2
- D. All of the above

Answer: C



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25. Liquation method is used to refine following crude metal

A. silver

B. lead

C. mercury

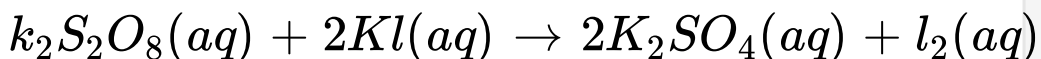
D. copper

Answer: B



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26. The stoichiometry of the following reaction is



A. 2 : 2

B. 1 : 1

C. 1 : 2

D. 2 : 1

Answer: C



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27. Noble gas which forms interstitial compounds with metals is

A. neon

B. argon

C. helium

D. xenon

Answer: C



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28. Although zirconium belongs to 4d transition series and hafnium to 5d transition series even then they show similar physical and chemical properties because

- A. belong to d-block
- B. have same number of electrons
- C. have similar atomic radius

D. belongs to the same group of periodic table

Answer: C



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29. Which of the following compounds is formed when



A. Chlorobenzene

B. ρ – dichlorobenzene

C. Hexachlorobenzene

D. Benzene hexachloride

Answer: D



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30. Oxidation of acetaldehyde with selenium dioxide produces:

A. ethanoic acid

B. methanoic acid

C. glyoxal

D. oxalic acid

Answer: C

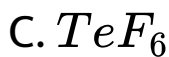


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31. Which has greater reactivity

A. $TeCl_6$

B. SF_6

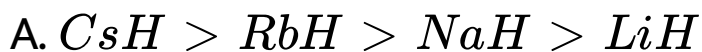


Answer: C



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32. The alkali metals form salt like hydrides by the direct synthesis at elevated temperature. The thermal stability of these hydrides decreases in which of the following orders ?

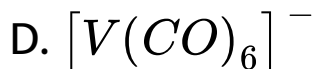
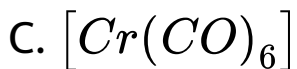
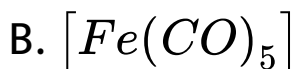
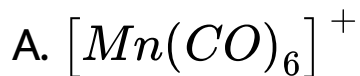


Answer: D



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33. Among the following metal carbonyls, the $C - O$ bond order is lowest in



Answer: D



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34. Reaction of acetaldehyde with a Grignard reagent followed by hydrolysis yields

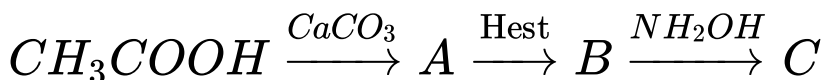
- A. a primary alcohol
- B. a secondary alcohol
- C. a tertiary alcohol
- D. a phenol

Answer: B



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35. The end product C in the following sequence of chemical reactions is



A. acetaldehyde oxime

B. formaldehyde ocime

C. methyl nitrate

D. acetoxime

Answer: D



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36. Anils are formed by the condensation of aniline with

A. aldehydes or ketones

B. phenols

C. alkyl halides

D. acyl halides

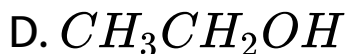
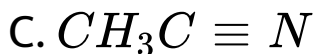
Answer: A



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37. An organic compound 'A' having molecular formula C_2H_3N on reduction gave another compound 'B' Upon treatment with nitrous

acid gave ethyl alcohol and on warming with chloroform and alcoholic KOH, it formed an offensive smelling compound 'C'. The compound 'C' is :



Answer: B



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38. Enzymes are basically or All enzymes contain

A. fatty acids

B. vitamins

C. proteins

D. None of these

Answer: C



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39. Among the following , the compound that contains ionic, covalent and coordinate linkage is

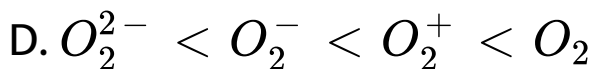
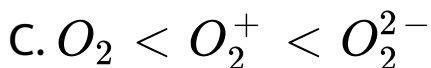
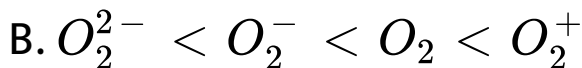
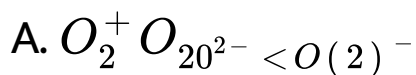


Answer: A



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40. Which of the following have been arranged in increasing bond order as well as bond dissociation energy ? .



Answer: B



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41. In which one of the following, does the given amount of chlorine exert the least pressure in a vessel of capacity 1 d m^3 at 273 K ?

A. 0.0355 g

B. 0.071 g

C. 6.023×10^{21} molecules

D. 0.02 mol

Answer: A



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42. Many body fluids e.g. ...(X)... have definite pH and any deviation in their pH indicates malfunctioning of the body. The control of... (Y)... is also very important in many chemical and ...(Z)... processes. Here (X), (Y) and (Z) refer to

A. blood, pH, physical

B. blood, pOH, biochemical

C. blood or urine, pH, biochemical

D. blood or urine, pOH, physical

Answer: C



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43. If Z is atomic number of a metal, X is number of electrons lost during the formation of the metal ion from its atom, and Y is the number of electrons donated by the ligands, then effective atomic number (EAN) is

$$\text{A. EAN} = Z + X + Y$$

$$\text{B. EAN} = Z - X + Y$$

$$\text{C. EAN} = Z - X - Y$$

$$\text{D. EAN} = Z + X - Y$$

Answer: B



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44. Phenol reacts with bromine in carbon disulphide at low temperature to give

A. m-bromophenol

B. o and p-bromophenol

C. p-bromophenol

D. 2,4 6-tribromophenol

Answer: B



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45. Which of the following is the strongest acid ?

A. $BrCH_2COOH$

B. FCH_2COOH

C. ICH_2COOH

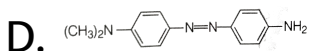
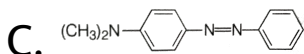
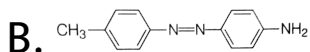
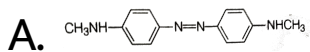
D. $CICH_2COOH$

Answer: B



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46. Aniline when diazotized in cold and then treated with dimethyl aniline gives a coloured product. Its structure would be



Answer: C



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47. Which of the statements about "Denaturation" given below are correct ?

(1) Denaturation of proteins causes loss of

secondary and tertiary structures of the protein.

(2) Denaturation leads to the conversion of double strand of DNA into single strand.

(3) Denaturation affects primary structure which gets distorted.

A. II and III

B. I and II

C. I and II

D. I, II and III

Answer: C

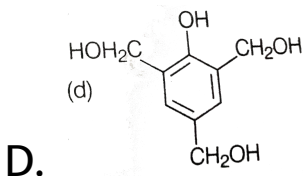
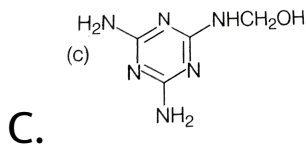


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48. When melamine and formaldehyde polymerise, a resin intermediate is formed. Identify the structure of this intermediate.

A. 

B. 



Answer: C



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49. Which of the following is a tranquiliser ?

A. Seconal

B. Streptomycin

C. Morphine

D. Phenacetin

Answer: A

D. 3,5-dimethyl-6-ethylheptane

Answer: B



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