



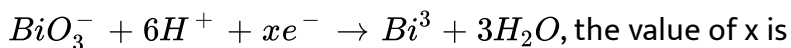
CHEMISTRY

BOOKS - MHTCET PREVIOUS YEAR PAPERS AND PRACTICE PAPERS

PRACTICE SET 16

Paper 1 Physics Chemistry

1. In the ionic equation,



- A. 6
- B. 2
- C. 4
- D. 3

Answer: B

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2. The Kirchoff's equation can be represented by

A. $\Delta H_2 + \Delta H_{-}(1) = \int_{T_1}^{T_2} \Delta C_p dT$

B. $\Delta H_2 - \Delta H_1 = \int_{T_1}^{T_2} \Delta C_p dT$

C. $\frac{\Delta H_2}{\Delta H_1} = \int_{T_1}^{T_2} \Delta C_p dT$

D. $H_2 = H_1 + \int_{T_1}^{T_2} \Delta C_p dT$

Answer: B

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3. Normal aluminium electrode coupled with normal hydrogen electrode gives an emf of $1.66V$. So the standard electrode potential of aluminium is ,

A. $-1.66V$

B. $+1.66V$

C. $-0.83V$

D. $+0.83V$

Answer: A



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4. Which of the following are example of Pseudo unimolecular reaction?

I. Inversion of cane sugar

II. Decomposition of ozone

III. Decomposition of N_2O_5

IV. Acid catalysed hydrolysis of ester

Mark the correct option from the codes given below.

A. II and IV

B. I and IV

C. I, II and IV

D. All of these

Answer: B

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5. The C - C and Si - C interatomic distances are 154 pm and 188 pm respectively. The atomic radius of Si is

A. 77 pm

B. 94 pm

C. 114 pm

D. 111 pm

Answer: D

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6. Which of the following statements is wrong?

- A. Thermal stability of hydrides increases from NH_3 to BiH_3 in group 15 of the periodic table
- B. Nitrogen cannot form $d\pi - p\pi$ bond
- C. N-N single bond is weaker than the P-P single bond
- D. N_2O_4 has two resonance structures

Answer: A



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7. Fluorine reacts with cold dilute NaOH to give

- A. NaF and O_2
- B. NaF and OF_2
- C. NaF and H_2O_2
- D. NaF , H_2O and OF_2

Answer: B



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8. The bonds present in the structure of dichromate ion are

- A. four equivalent Cr-O bonds
- B. six equivalent Cr-O bonds and one O-O bond
- C. six equivalent Cr-O bonds and one Cr-Cr bond
- D. six equivalent Cr-O bonds and one Cr-O-Cr bond

Answer: D



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9. Chain isomers for C_5H_{12} represents how many compounds ?

- A. Three

B. Two

C. Four

D. Only one

Answer: A



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10. Some statements are given below about ethers. They can be regarded as

I. alkyl derivatives of alcohols

II. dialkyl derivatives of water

III. anhydrides of monohydric alcohols

IV. alkoxy derivatives of alkanes

Among the above, the true statements are

A. II, III and IV

B. II and III

C. I, II and IV

D. All of these

Answer: D

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11. The vapour pressure of benzene at $90^{\circ}C$ is 1020 torr. A solution of 5g of a solute in 58.5 g benzene has a vapour pressure of 990 torr. The molecular weight of the solute is

A. 78.2

B. 148.3

C. 204.2

D. 226.66

Answer: D

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12. If 111 mg of $CaCl_2$ and 12 mg of $MgSO_4$ are present in 2L of water, what is its hardness (in gram $CaCO_3$ / ppm) ?

- A. 5
- B. 10
- C. 15
- D. 203

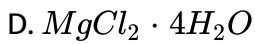
Answer: B



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13. On strong

- A. $MgCl_1$
- B. MgO
- C. $MgCl_2 \cdot 2H_2O$



Answer: B



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14. "The greater the charge on an ion, the greater its coagulating power" is a statement of

- A. Tyndall's effect
- B. Faraday's law
- C. Mosley's law
- D. Hardy-Schulze law

Answer: D



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15. In chromium chloride ($CrCl_3$), Cl^- ions have cubic close packed arrangement and Cr^{3+} ions are present in the octahedral holes. The fraction of the total number of holes occupied is

A. $1/3$

B. $1/6$

C. $1/9$

D. $\frac{1}{12}$

Answer: C



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16. The process of bringing the metal or its ore into solution by the action of a suitable chemical reagent followed by extraction of the metal either by electrolysis or by a suitable precipitating agent, is called

A. electrometallurgy

- B. electrorefining
- C. hydrometallurgy
- D. zone refining

Answer: C

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17. Oxidation no. of P in $H_4P_2O_5$, $H_4P_2O_6$, and $H_4P_2O_7$ are respectively

- A. +3, +5 and +4
- B. +5, +3 and +4
- C. +5, +4 and +3
- D. +3, +4 and +5

Answer: D

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18. When a sulphur sol is evaporated, solid sulphur is left. On mixing with water no colloidal sol is formed. The sulphur sol is :

- A. lyophilic
- B. reversible
- C. hydrophobic
- D. hydrophilic

Answer: C



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19. In case of solid which geometrical isomer of but-2-ene has greater melting point?

- A. cis-2-butene
- B. trans-2-butene
- C. Both have same melting point

D. None of the above

Answer: B

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20. Which of the following is oxidised to ketone?

A. 2-Propanol

B. 1-butanol

C. 1-Pentanol

D. t-butyl alcohol

Answer: A

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21. Which of the four colligative properties, is most often used for molecular mass determination?

- A. Relative lowering of vapour pressure
- B. Elevation in boiling point
- C. Osmotic pressure
- D. Depression in freezing point

Answer: C



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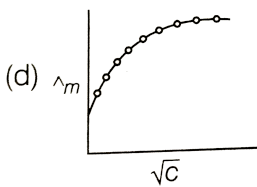
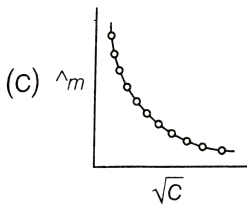
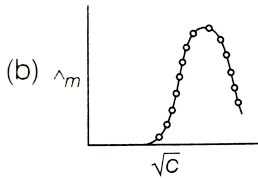
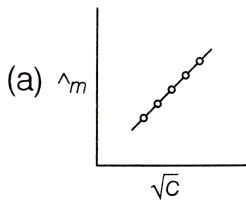
22. In thermodynamics, a process is called reversible when

- A. surroundings and system change into each other
- B. the surroundings are always in equilibrium with the system
- C. there is no boundary between the system and surroundings
- D. the system changes into surroundings spontaneously

Answer: B

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23. The variation of \wedge_m of acetic acid with concentration is correctly represented by



Answer: C

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24. According to collision theory, collision rate = Z (reactants), where Z is

- A. activation energy
- B. packing frequency
- C. collision frequency
- D. potential energy

Answer: C

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25. How many moles of lead (II) chloride will be formed from a reaction between 6.5 g of PbO and 3.2 g of HCl?

A. 0.044

B. 0.333

C. 0.011

D. 0.029

Answer: A



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26. Among group -16 elements, +6 oxidation state is possible with

A. S and Se

B. S and Te

C. Se and Te

D. S, Se and Te

Answer: D



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27. Ionisation energy and electron affinity of noble gases respectively are

A. very high and very low

B. very low and very high

C. very high and zero

D. None of these

Answer: C



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28. Which of the following species does not exist under normal condition

?

A. Li_2

B. Be_2^+

C. Be_2

D. B_2

Answer: C



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29. Pyrene(a fire extinguisher) is:

A. CO_2

B. CS_2

C. CCl_4

D. $CHCl_3$

Answer: C



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30. Reduction of a keto group to a methylene group by $Zn/Hg/HCl$, is known as

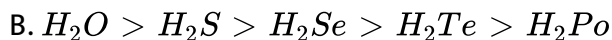
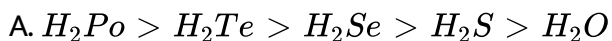
- A. Sabatier - Senderens reduction
- B. Birch reduction
- C. Wolff-Kishner reduction
- D. Clemmensen reduction

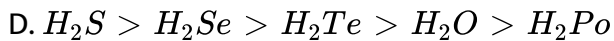
Answer: D



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31. Write the order of the thermal stability of the hydrides of group 16 elements.





Answer: B

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32. When SO_2 is passed through an acidified $K_2Cr_2O_7$ solution, the oxidation state of sulphur changes from

A. 0 to +2

B. +4 to +6

C. -1 to +2

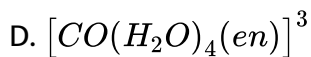
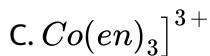
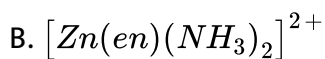
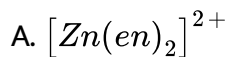
D. 0 to -1

Answer: B

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33. Which of the following has an optical isomer?

(en=ethylenediamine) ?



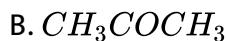
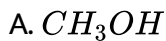
Answer: C

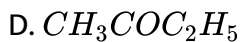
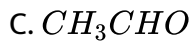


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34. The compound X on treatment with acidified $K_2Cr_2O_7$ gives compound Y which reacts with I_2 and Na_2CO_3 to form tri-iodomethane.

The compound X is :





Answer: B

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35. The reaction of Br_2/P or Cl_2/P with carboxylic acid to form α -halogenated acid, is called

A. Hell-Volhard Zelinsky reaction

B. Kolbe's reaction

C. Claisen reaction

D. Hunsdiecker reaction

Answer: A

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36. The compound which on reaction with aqueous nitrous acid at low temperature produces an oily nitrosamine, is

- A. ethyl amine
- B. diethyl amine
- C. methyl amine
- D. triethyl amine

Answer: B



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37. In which case formation of butane nitrile is possible ?

- A. $C_3H_7Br + KCN$
- B. $C_4H_9Br + KCN$
- C. $C_3H_7OH + KCN$
- D. $C_4H_9OH + KCN$

Answer: A



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38. Isoelectric point of an amino acid is the pH at which the amino acid molecules

A. migrate to the anode

B. migrate to the cathode

C. would not migrate either to the anode or to the cathode and exist as neutral dipolar ions

D. move alternatively to the anode and the cathode

Answer: C



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39. On increasing pressure, melting point of ice

- A. decreases
- B. increases
- C. remains unchanged
- D. changes in regular manner

Answer: B

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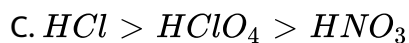
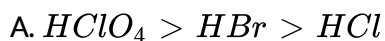
40. Which of the following is not a broad spectrum antibiotic?

- A. Tetracycline
- B. Chloromycetin
- C. Penicillin
- D. None of these

Answer: C

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41. $HClO_4$, HNO_3 and HCl are all strong acids in aqueous solution. In glacial acetic acid medium, their acid strength is such that-

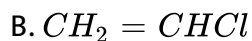
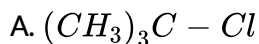


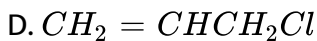
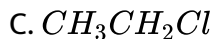
Answer: A



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42. Which of the following is least reactive in a nucleophilic substitution reaction?



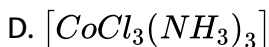
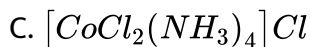
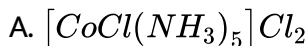


Answer: B



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43. A solution containing 2.675 g of $CoCl_3 \cdot 6NH_3$ (molar mass = 267.5 g mol^{-1}) is passed through a cation exchanger. The chloride ions obtained in solution are treated with excess of $AgNO_3$ to give 4.78 g of $AgCl$ (molar mass = 143.5 g mol^{-1}). The formula of the complex is (At.mass of $Ag = 108$ u) .



Answer: B



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44. Phenol reacts with Br_2 in H_2O to give

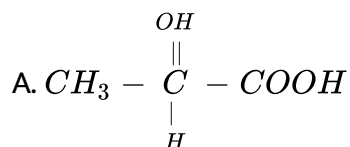
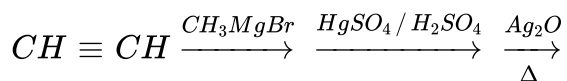
- A. m-bromophenol
- B. o and p-bromophenol
- C. p-bromophenol
- D. 2, 4, 6-tribromophenol

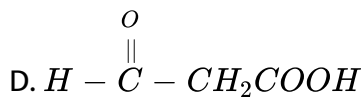
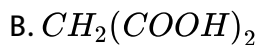
Answer: D



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45. End product of the following sequence of reactions is

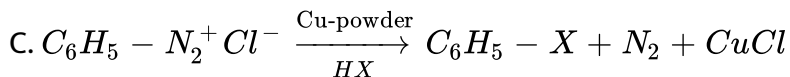
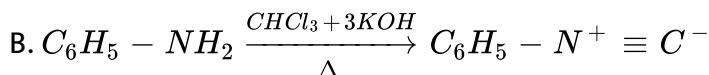
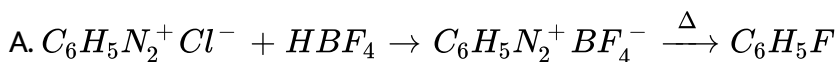




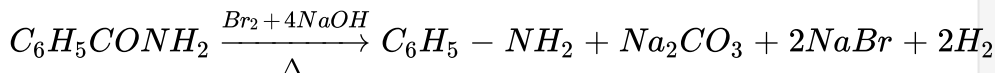
Answer: B

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46. Which of the following reactions is known as Balz-Schiemann reaction?



D.



Answer: A



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47. Mutarotation of glucose is observed in

- A. p -cresol
- B. pyridine
- C. equimolar mixture of p-cresol and pyridine
- D. None of the above

Answer: C



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48. Match of Column I with Column II and mark the correct option from the codes given below.

Column I	Column II
A. Fibres	1. Bakelite
B. Elastomers	2. Buna-N
C. Thermosetting polymers	3. PVC
D. Thermoplastic polymers	4. Nylon-6, 6

A. *A B C D*
4 2 1 3

B. *A B C D*
3 1 4 2

C. *A B C D*
4 1 2 3

D. *A B C D*
1 2 3 4

Answer: A



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49. Sulpha drugs used as antibiotics are derivatives of

A. benzene sulphonic acid

B. sulphanilic acid

C. sulphanilamide

D. p-aminobenzoic acid

Answer: C

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50. Aromatisation of n-heptane by passing over ($Al_2O_3 + Cr_2O_3$) catalyst at 773 K gives

A. benzene

B. toluene

C. mixture of both

D. heptylene

Answer: B

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