

CLASS : XII s. manikandan 7708543401 TIME : 3.00 hrs
 SUBJECT : CHEMISTRY UNIT TEST - 2, 4, 8,12 MARKS : 70

PART-I

I. Choose and write the correct answer :

15X1=15

- The most common oxidation state of actinoids is
 a) +2 b) +3 c) +4 d) +6
- Which one of the following ions has the same number of unpaired electrons as present in V^{3+} ?
 a) Ti^{3+} b) Fe^{3+} c) Ni^{2+} d) Cr^{3+}
- Which of the following fluoro compounds is most likely to behave as a Lewis base?
 a) BF_3 b) PF_3 c) CF_4 d) SiF_4
- Which one of the following statements related to lanthanons is incorrect?
 a) Europium shows +2 oxidation state.
 b) The basicity decreases as the ionic radius decreases from Pr to Lu.
 c) All the lanthanons are much more reactive than aluminium.
 d) Ce^{4+} solutions are widely used as oxidising agents in volumetric analysis.
- The compound that is used in nuclear reactors as protective shields and control rods is
 a) Metal borides b) metal oxides c) Metal carbonates d) metal carbide
- Which of the following is not sp^2 hybridised?
 a) Graphite b) graphene c) Fullerene d) dry ice
- In diborane, the number of electrons that accounts for banana bonds is
 a) six b) two c) four d) three
- The pH of an aqueous solution is Zero. The solution is
 a) slightly acidic b) strongly acidic c) neutral d) basic
- The pH of $10^{-5}M$ KOH solution will be
 a) 9 b) 5 c) 19 d) none of these
- Which one of the following reduces tollens reagent
 a) formic acid b) acetic acid c) benzophenone d) none of these
- The formation of cyanohydrin from acetone is an example of
 a) nucleophilic substitution b) electrophilic substitution
 c) electrophilic addition d) Nucleophilic addition
- Which one of the following reaction is an example of disproportionation reaction
 a) Aldol condensation b) cannizaro reaction
 c) Benzoin condensation d) none of these
- In _____ carbon atoms are arranged in the shape of a football
 a) fullerenes b) graphene c) carbon nanotube d) diamond
- _____ show the highest oxidation state of +8
 a) Ru and Mn b) Os and Mn c) Mn and Cr d) Ru and Os
- The order of reactivity of carboxylic acid derivatives is _____
 a) Acid halide > Ester > Amide > Acid anhydrides
 b) Acid halide > Acid anhydrides > Ester > Amide
 c) Acid halide > Amide > Acid anhydrides > Ester
 d) Acid anhydrides > Ester > Amide > Acid halide

PART-II

II. Answer any six questions (Q.no.24 is compulsory)

6 x 2 =12

- What is inert pair effect ?
- How will you convert boric acid to boron nitride ?
- Which is more stable Fe^{2+} or Fe^{3+} ? why ?
- What are interstitial compounds ?
- Calculate the P^H of 0.04 M HNO_3 solution .
- what are Lewis acid and bases give one example for each ?
- How Malachitegreen is prepared from Benzaldehyde ?

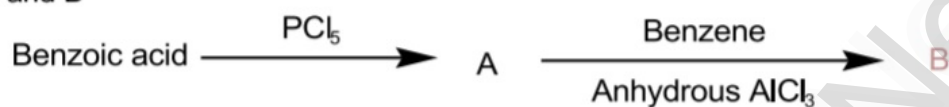
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23. Give one example for the following UNIT TEST - 2, 4, 8, 12
 i) icosagen ii) chalcogen iii) tetragen iv) Pnictogen

24. Write the expression for the solubility product of Hg_2Cl_2 and BaSO_4

PART-III**III. Answer any six questions (Q.no.33 is compulsory)****6 x 3 = 18**

25. Write ethyl borate test ?
 26. What is catenation ? Write any two conditions for catenation ?
 27. Write chromyl chloride test ?
 28. Write a note on Fischer tropesch synthesis ?
 29. Explain why Cr^{2+} is strongly reducing while Mn^{3+} is strongly oxidizing.
 30. Explain common ion effect with an example
 31. Write the test for carboxylic acid group ?
 32. Explain the reducing action of formic acid with example
 33. Identify A and B

**PART-IV****IV. Answer all the questions .****5x5=25**

- 34.a) i) AlCl_3 is more stable. TlCl_3 is less stable why ?(2)
 ii) Write the difference between graphite and diamond ?(3)
 (OR)
 b) Describe the structure of Diborane
35. a) What is lanthanoid contraction and what are the consequences of lanthanoid contraction ?
 (OR)
 b) i) What are the properties of interstitial compounds ? (3)
 ii) why d block elements exhibit variable oxidation state?(2)
36. a) Derive an expression for ostwald dilution law
 (OR)
 b) i) Derive henderson equation(3)
 ii) What are the limitations of Arrhenius concept ? (2)
37. a) i) What is formalin ? what is its use(2)
 ii) how will you convert benzaldehyde into the following compounds?(3)
 i) benzoin ii)cinnamic acid
 (OR)
 b) Write the mechanism of aldol condensation reaction
38. a) Compare properties of lanthanides and actinide
 (OR)
 b) i) Define buffer Index(2)
 ii) Write a note on Rosenmund reduction ?(3)

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