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V. P. & R. P. T. P. SCIENCE COLLEGE, V. V. NAGAR.

INTERNAL TEST: MARCH-2019

T. Y. B. Sc. Semester-VI

Sub.:- Inorganic Chemistry, Course Code:-US06CCHE04

Date: 09/03/2019 **Total Marks:50**

Day: Saturday **Time: 10.00 A.M. To 12.00 Noon**

Note: (i) All questions are to be attempted.

(ii) Figures to the right of each question indicate full marks.

Q : 1Give the most correct choice to the following multiple choice questions. [8]

(i) _____corrosion is most common type of concentration cell corrosion.

(a) Oxidation (b) Under ground (c) Differential aeration (d) Under water

(ii) The mechanical passivity is due to formation of .....

(a) visible, insoluble and comparatively thick oxide film.

(b) visible, soluble, porous and non protective oxide film.

(c) invisible, insoluble and very thin oxide film. (d) non of above.

(iii) The advantageous method for the preparation of alloys is _____ method.

(a) electro-deposition (b) compression (c) fusion (d) reduction

(iv) _____ alloy finds use for casting printing type.

(a) Sholder (b) Light metal (c) Fine metal (d) Type metal

(v) Amongst inter-halogen compounds the _____ are maximum in number.

(a) iodides (b) chlorides (c) bromides (d) fluorides

(vi) The central I-atom of IF_5 molecule undergoes _____ hybridization.

(a) sp^3d^3 (b) sp^3d (c) sp^3d^2 (d) d^2sp^3

(vii) The raw material for manufacture of NaOH by casticizing process is ____.

(a) $Na_2CO_3 + CaO$ (b) Na_2CO_3 + milk of lime

(c) $Na_2CO_3 + NaCl$ (d) Na_2CO_3 + milk of lime stone

(viii) Nitric acid produces nitroso compound with _____.

(a) $FeSO_4$ (b) $MgSO_4$ (c) $Fe_2(SO_4)_3$ (d) $Fe(SO_4)_2$

Q : 2 Answers the following short questions(any five). [10]

i. Explain immersed corrosion by "acid-theory."

ii. What is the effect of nature of corrosion products on rate of chemical corrosion.

iii. Why alloy is harder and stronger than component metals?

iv. State the rules which determine the resistivity's of alloys.

v. IF_6^- ion is $AB_6(lp)$ type species. Explain on the basis of hybridization scheme.

vi. What are polyhalides? How are they classified?

vii. Complete the following reactions.

(i) $NaOH + S \rightarrow$? (ii) $NaOH + Zn \rightarrow$?

viii. Explain concentration of chamber acid by Gaillard tower?

Q : 3[A] Write note on "protective layer theory" . [4]

[B] Describe the factors determining rate of corrosion reaction for metal sheltered from rain. [4]

OR

Q : 3[A] Explain the term 'hot dipping'. [4]

[B] Corrosion starts from metal joints. Explain. [4]

Q : 4[A] Describe in detail the fusion method for the preparation alloys. [4]

[B] Discuss non-ferrous alloys with suitable examples. [4]

OR

Q : 4[A] How size and valency factors play an important role in formation of different type of alloys [4]

[B] Describe the effect of alloying process. [4]

Q : 5[A] Discuss the properties and preparation of iodine-monochloride. [4]

[B] Explain IF_4^+ ion is $AB_4(lp)$ type species on the basis of hybridization scheme. [4]

OR

Q : 5[A] Explain the structure of dimeric iodinetrichloride molecule. [4]

[B] What are inter-halogen compounds? Give their general properties. [4]

Q : 6[A] Describe the lead chamber process in detail for the manufacture of sulphuric acid. [4]

[B] Discuss the chemical properties of nitric acid under the headings:

(i) As and oxidizing agent for non metals

(ii) Action on more active metals [4]

OR

Q : 6[A] Discuss the chemical properties of sulphuric acid under headings:

(i) Affinity for the water (ii) Oxidizing action [4]

[B] Discuss the manufacture of nitric acid by Ostwald's process in detail. [4]

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