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HALF YEARLY EXAMINATION - 2022

Std: 12

CHEMISTRY

Marks : 70

Time : 3.00 hr

PART-A

15 x 1 = 15

I. Answer all the questions, choose the correct answer.

- Zinc is obtained from ZnO by
a) Carbon reduction b) Reduction using silver c) Electrochemical process d) Acid leaching
- The molarity of given orthophosphoric acid solution is 2M its normality is
a) 6N b) 4N c) 2N d) none of these
- According to Hume-Rothery rule to form a substitute alloy the difference between the atomic radii of solvent and solute is
a) greater than 15% b) less than 15% c) equal to 15% d) None these
- Assertion : Ce_4+ is used as an oxidizing agent in volumetric analysis
Reason : Ce_4+ has the tendency of attaining +3 oxidation state
a) Both assertion and reason are true and reason is the correct explanation of assertion.
b) Both assertion and reason are true but reason is not the correct explanation of assertion.
c) Assertion is true but reason is false. d) Both assertion and reason are false.
- A magnetic moment of 1.73BM will be shown by one among the following
a) $[TiCl_4]$ b) $[CoCl_4]^{4-}$ c) $[Cu(NH_3)_4]^{2+}$ d) $[Ni(CN)_4]^{2-}$
- The vacant space in bcc lattice unit cell is
a) 48% b) 23% c) 32% d) 26%
- If 75% of a first order reaction was completed in 60 minutes, 50% of the same reaction under the same conditions would be completed in
a) 20 minutes b) 30 minutes c) 35 minutes d) 75 minutes
- Which of the following can act as Lowry – Bronsted acid as well as base?
a) HCl b) SO_4^{2-} c) HPO_4^{2-} d) Br^-
- During electrolysis of molten sodium chloride, the time required to produce 0.1mole of chlorine gas using a current of 3A is
a) 55 minutes b) 107.2 minutes c) 220 minutes d) 330 minutes
- Paint is a
a) Gel b) Emulsion c) solid sol d) colloidal solution.
- Williamson synthesis of preparing dimethyl ether is a / an /
a) SN^1 reactions b) SN^2 reaction c) electrophilic addition d) electrophilic substitution
- Benzoic acid $\xrightarrow[\text{HCl}]{\text{NH}_3}$ A $\xrightarrow{\text{NaOH}}$ B $\xrightarrow{\text{HCl}/\text{HNO}_2}$ C 'C' is
a) anilinium chloride
b) o - nitro aniline c) benzene diazonium chloride d) m - nitro benzoic acid
- Which of the following amines does not undergo acetylation?
a) t - butylamine b) ethylamine c) diethylamine d) trimethylamine
- In a protein, various amino acids linked together by
a) Peptide bond b) Dative bond c) α - Glycosidic bond d) β - Glycosidic bond
- Aspirin is a/an
a) acetylsalicylic acid b) benzoyl salicylic acid c) chlorobenzoic acid d) anthranilic acid

Std : 12 Chemistry

2

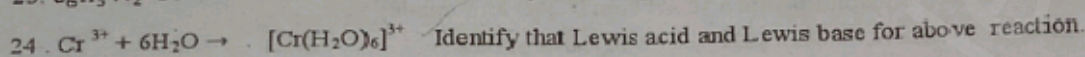
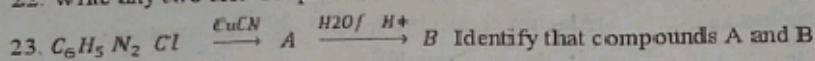
PART - B

Answer any six questions. Question number 24 is compulsory.

6 x 2 = 12

16. Write the limitation of a Elingam diagram.
 17. How will you prepare bleaching powder?
 18. Write biological important coordination compounds.
 19. Write the characteristics of Ionic- crystals.
 20. What are antibiotics?

21. Water promoters give an example.
 22. Write any two test for phenols.



PART-C

III. Answer any six questions question number 33 is compulsory.

6x3 = 18

25. Write the preparation and uses of pottash alum.

26. Write the properties of interstitial compounds.

27. $[Cu(NH_3)_4]SO_4$ Write the above compound's

- (i) IUPAC name (ii) Central metal atom/ion (iii) Ligand
 (iv) Coordination number (v) Charge on the coordination sphere

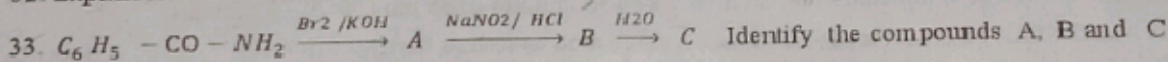
28. Explain the schotky defect.

29. Differentiate order of reaction and molecularity.

30. Explain common ion effect with an example.

31. How will you prepare phenolphthalein from phenol.

32. Explain Rosemund's Reduction.



PART - D

IV. Answer to all the questions

5x5 = 25

34. a) (i) Explain mond's process. (3)

(ii) Write any two uses of borax. (2)

b) (i) Write the chromyl chloride Test (3) (ii) What is the inert pair effect. (2)

35. a) Write the difference between Lanthanides and Actinides. (or)

b) Explain the shape, hybridisation and magnetic property of the following compounds using VB theory
 $[Fe(CN)_6]^{4-}$ and $[CoF_6]^{3-}$

36. a) Derive the rate constant for the first order reaction (5) (or)

b) i) Explain Ostwald's dilution law (3) (ii) Define Buffer index number (2)

37. Derive Nernst Equation (5) (or)

a) Write notes on i) Williamson's ether synthesis (2)

ii) Write the mechanism of aldol condensation. (3)

38. a) Write note on

i) Carbylamine reaction (2 ½) ii) Coupling reaction (2 ½) (or)

b) Elucidate the structure of glucose molecule. (5)

Std : 12 Chemistry