

Reg. No.:

Name:

Prepared By Chemistry Kollam Cluster Team 3
SECOND YEAR HIGHER SECONDARY EXAMINATION
SAMPLE QUESTION PAPER

Part III
CHEMISTRY

Time: 2Hr. 15 Min.
(Cool-off time: 15 Min.)

Maximum 60 Scores

General Instructions to Candidates.

- There is a ‘Cool off time’ of 15 minutes in addition to the writing time.
- Use the ‘Cool of time’ to get familiar with questions and to plan your answers
- Read questions carefully before answering.
- Read the instructions carefully.
- Calculations, figures and graphs should be shown in the answer sheet itself.
- Malayalam version of the questions is also provided.
- Give equations wherever necessary.
- Electronic devices except non programmable calculators are not allowed in the examination hall.

വിദ്യാർത്ഥികൾക്കുള്ള പൊതു നിർദ്ദേശങ്ങൾ

- നിർദ്ദിഷ്ട സമയത്തിന് പുറമെ 15 മിനിട്ടു ‘കൂൾ ഓഫ് ടൈം’ ഉണ്ടായിരിക്കും
- ‘കൂൾ ഓഫ് ടൈം’ ചോദ്യങ്ങൾ പരിചയപ്പെടാനും ഉത്തരങ്ങൾ ആസൂത്രണം ചെയ്യാനും ഉപയോഗിക്കുക
- ഉത്തരങ്ങൾ എഴുതുന്നതിനു മുമ്പ് ചോദ്യങ്ങൾ ശ്രദ്ധാപൂർവ്വം വായിക്കണം
- നിർദ്ദേശങ്ങൾ മുഴുവനും ശ്രദ്ധാപൂർവ്വം വായിക്കണം
- കണക്കു കുട്ടലുകൾ, ചിത്രങ്ങൾ , ഗ്രാഫുകൾ എന്നിവ ഉത്തരക്കടലാസിൽ തന്നെ ഉണ്ടായിരിക്കണം
- ചോദ്യങ്ങൾ മലയാളത്തിലും നൽകിയിട്ടുണ്ട്
- ആവശ്യമുള്ള സ്ഥലത്തു സമവാക്യങ്ങൾ കൊടുക്കണം
- പ്രോഗ്രാമുകൾ ചെയ്യാനാകാത്ത കാൽക്കുലേറ്ററുകൾ ഒഴികെയുള്ള ഒരു ഇലക്ട്രോണിക് ഉപകരണവും പരീക്ഷ ഹാളിൽ ഉപയോഗിക്കുവാൻ പാടുള്ളതല്ല

I. Answer any 4 questions from 1 to 5. Each carries 1 mark

1. Desalination of sea water is based on which of the following process?
(a) Osmosis (b) Reverse Osmosis (c) Elevation of boiling point (d) Depression of freezing point.
2. The electrode potential of standard hydrogen electrode is assumed to be:
(a) 1.1 V (b) Zero (c) 0.34 V (d) 0.81 V
3. What is the unit of rate constant for first order reaction?
4. Give an example for homoleptic complex.
5. Which is the poisonous gas produced by the oxidation of chloroform, when it is exposed to air?

II. Answer any 8 questions from 6 to 15. Each carries 2 mark.

6. Write Nernst equation for cell potential of the following cell: $\text{Mg}_{(s)}/\text{Mg}^{2+}_{(aq)}//\text{Ag}^{+}_{(aq)}/\text{Ag}_{(s)}$
7. Write any two differences between primary cell and secondary cell.
8. What are Pseudo first order reactions? Give one example.
9. Mention any four characteristics of transition elements.
10. Draw the geometrical isomers of $[\text{Pt}(\text{NH}_3)_2\text{Cl}_2]$.
11. How can you convert Phenol to Benzene?
12. Explain Wolf-Kishner reduction.
13. Which is more acidic: CH_3COOH or $\text{CH}_2\text{Cl-COOH}$? Justify.
14. Ethylamine is soluble in water, while Aniline is not. Give reason.
15. Explain Oligosaccharides with examples.

III. Answer any 8 questions from 16 to 27. Each carries 3 mark.

16. (a) Which colligative property can provide molar mass of proteins and polymers with great precision?
(b) When a raw mango is placed in distilled water and another one in sodium chloride solution, what will you observe? Explain.
17. The rate constant of a reaction at 500K and 700 K are 0.02s^{-1} and 0.07s^{-1} respectively. Calculate the energy of activation.

18. Derive the integrated rate equation for zero order reaction.

19. (a) $[\text{Co}(\text{CN})_6]^{3-}$ is a low spin complex but $[\text{CoF}_6]^{3-}$ is a high spin complex. Explain high spin and low spin complexes using these examples. (2)

(b) Write the ionization isomer of $[\text{Cr}(\text{H}_2\text{O})_5\text{Br}]\text{SO}_4$ (1)

20. Explain $\text{S}_\text{N}1$ reaction using an example.

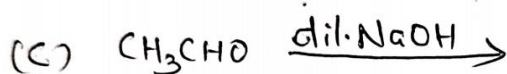
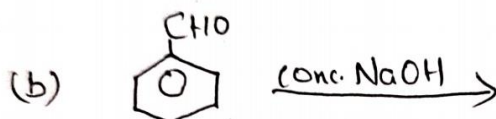
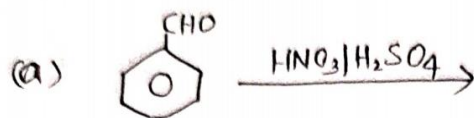
21. (a) What is Grignard reagent. How is it prepared? (2)

(b) Write the chemical equation for the reaction between Ethyl chloride and Sodium in presence of dry ether. (1)

22. Explain (a) Kolbe's reaction (b) Reimer-Tiemann reaction. (2 x 1 ½ = 3)

23. Explain Lucas test used for the distinction of three types of alcohols.

24. Predict the major products in the following reactions:



25. Compare the basicity of primary, secondary and tertiary amines with Ammonia.

26. (a) Explain secondary structure of proteins. (1)

(b) What is denaturation of proteins? Give an example. (2)

IV. Answer any 4 questions from 27-32. Each carries 4 marks

27. (a) What are non-ideal solutions? (1)

(b) Explain the two types of non-ideal solutions using graphical representation. (3)

28. (a) Give the anode and cathode reactions of $\text{H}_2\text{-O}_2$ fuel cell. (2)

(b) Draw and label the diagram of $\text{H}_2\text{-O}_2$ fuel cell. (2)

29. (a) Describe the preparation of $K_2Cr_2O_7$ from chromite ore. Write the chemical equations. (2)
(b) Represent the structure of dichromate ion. (1)
30. Explain the splitting of $[Fe(CN)_6]^{4-}$ based on crystal field theory.
31. How will you bring the following conversions? (Write the chemical equations also.)
- (a) Toluene to Benzaldehyde (2)
(b) Benzoic acid to Benzamide (2)
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