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| **PERIODIC TEST 1 (2023-24)** | | | | | |
| **Subject: CHEMISTRY**  **Grade: XII** | | Max. Marks:35Time:1Hr15mts | | | |
| **Name:** | | | **Section:** | **Roll No:** | |
| ***General Instructions:***   * GENERAL INSTRUCTIONS: Read the following instructions carefully.   1. There are 16 questions in this question paper.  2. SECTION A - Q. No. 1 to 5 are multiple choice questions carrying 1marks each.  3. SECTION B - Q. No. 6 to 10 are short answer questions carrying 2 marks each.  4. SECTION C- Q. No. 11 to 15 are short answer questions carrying 3 marks each.  5. SECTION C- Q. No. 16 is a long answer question carrying 5 mark.  6. All questions are compulsory.  7. Use of calculators is not allowed | | | | | |
|  | **SECTION A** | | | | |
| 1 | Which one of the following halides contains Csp2–X bond?  (a) Allyl halide.  (b) Alkyl halide.  (c) Benzyl halide.  (d) Vinyl halide | | | | 1 |
| 2 | Consider the following compounds, the correct order of reactivity towards SN2 reaction is    (a) I > III > II  (b) II > III > I.  (c) II > I > III.  (d) III > I > II | | | | 1 |
| 3 | What is the class of the substitution product of LiAlH4 and an alkyl halide reaction?  a) Haloalkane  b) Alkyl nitrite  c) Nitroalkane  d) Hydrocarbon | | | | 1 |
| 4 | Which of the following is the right name for the compound H3C-CHCl2?  a) 1,2-Dichloroethane  b) Ethylene dichloride  c) Ethylidene chloride  d) Vic-dichloride | | | | 1 |
| 5 | What is the catalyst in the chloroalkane reaction of a primary alcohol with HCl?  a) red phosphorous  b) concentrated H2SO4  c) anhydrous ZnCl2  d) pyridine | | | | 1 |
|  | **SECTION B** | | | |  |
| 6 | 1. Out of (CH3)3C – Br and (CH3)3 C – I, which one is more reactive towards SN1 and why? 2. Write one stereochemical difference between SN1 and SN2 reactions. | | | | 2 |
| 7 | 1. Why is Butan-1-ol optically inactive but Butan-2-ol is optically active? 2. Although chlorine is an electron withdrawing group, yet it is ortho-, para- directing in electrophilic aromatic substitution reactions. Why? | | | | 2 |
| 8 | Draw the structures of major mono-halo products in each of the following reactions. | | | | 2 |
| 9 | What happens when ethyl chloride is treated with.   1. aqueous KOH 2. Alcoholic KOH. | | | | 2 |
| 10 | Write IUPAC names of the following:   1. (CH3 )3CCH2Br | | | | 2 |
|  | **SECTION C** | | | |  |
| 11 | Following compounds are given to you:  2-Bromopentane, 2-Bromo-2-methylbutane, 1-Bromopentane  (i)Write the compound which is most reactive towards SN2 reaction and why?  (ii) Write the compound which is optically active and why?  (iii) Write the compound which is most reactive towards β-elimination reaction. Give reason | | | | 3 |
| 12 | Give reason:   1. Why is sulphuric acid not used during the reaction of alcohols with KI? 2. Haloalkanes react with KCN to form alkyl cyanides as main product while AgCN forms isocyanides as the chief product. 3. Grignard reagents should be prepared under anhydrous conditions. | | | | 3 |
| 13 | Write equation for the preparation of 1-Iodobutane from  a)1 – butanol  b) 1-chlorobutane  c)but-1-ene | | | | 3 |
| 14 | i)What happens when:   1. bromobenzene is treated with Mg in the presence of dry ether 2. methyl bromide is treated with sodium in the presence of dry ether   ii) A hydrocarbon C5H10 does not react with chlorine in dark but gives a single monochloro compound C5H9Cl in bright sunlight. Identify the hydrocarbon. | | | | 3 |
| 15 | Explain the following;   1. Swartz reaction 2. Complete the following.   i)    ii) | | | | 3 |
|  | . **SECTION D** | | | |  |
| 16 | a) Give reasons :   1. n-Butyl bromide has higher boiling point than t-butyl bromide. 2. Racemic mixture is optically inactive. 3. The presence of nitro group (−NO2) at o/p positions increases the reactivity of haloarenes towards nucleophilic substitution reactions.   b) Convert the following:  (i) 1-Bromopropane to 2-bromopropane  (ii) Aniline to chlorobenzene | | | | 5 |