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| **PT3/CHQP/1122/A 30-JAN-2023** | | | | | |
| **PERIODIC TEST 3 (2022-23)** | | | | | |
| **Subject: CHEMISTRY (ANSWER KEY)**  **Grade: XI** | | Max. Marks:35Time:1Hr15mts | | | |
| **Name:** | | | **Section:** | **Roll No:** | |
|  | **SECTION A** | | | | |
| 1 | c | | | | 1 |
| 2 | c | | | | 1 |
| 3 | c | | | | 1 |
| 4 | **a** | | | | 1 |
| 5 | b | | | | 1 |
|  | **SECTION B** | | | |  |
| 6 | The alkene A is 3-Ethyl-4-methylpent-2-ene. On ozoloysis, it gives a mixture of ethanal and 2 – methylpentan – 3 – one. Equation required | | | | 2 |
| 7 | 1. Enthalpy change for vaporizing 18g of water means 1 mol water. Given that the enthalpy change for 1 mole of water = 40.79 kJ/mol. Therefore, enthalpy change for 2 moles of water 2. Coffee held in a cup is an open system because it can exchange matter (water vapors) and energy (heat) with the surroundings. | | | | 2 |
| 8 | 1. In the presence of a few drops of concentrated sulphuric acid alkenes react with water to form alcohols, in accordance with the Markovnikov rule.      1. Phenol is reduced to benzene by passing its vapours over heated zinc dust | | | | 2 |
| 9 | 1. The change in internal energy during a process depends only upon the initial and final state of the system. Therefore it is a state function. But the work is related to the path followed. Therefore, it is not a state function rather it is a path function 2. **ΔU = UB – UA = q – w**   ΔU = 6000 J – 9000J = – 3000 J  Hence, the change in internal energy for the system is equal to – 3000 J | | | | 2 |
| 10 | A compound is said to be aromatic if it satisfies the following three conditions: (i) It should have a planar structure. (ii) The π - electrons of the compound are completely delocalized in the ring. (iii) The total number of π - electrons present in the ring should be equal to (4n + 2), where n = 0, 1, 2 … etc. This is known as Huckel’s rule.  e.g. benzene, naphthalene. | | | | 2 |
|  | **SECTION C** | | | |  |
| 11 | 1. It means 1 mole of CCl4 = 154 g.   154 g requires heat of vaporization = 30.5 kJ/mol.  Heat required for vapourisation of 284 g of CCl4  = 56.2 KJ | | | | 1  2 |
| 12 | 1. Step 1:  Formation of electrophile:  In HBr, Br is more electronegative than H. When bonded electron move towards Br, polarity is developed and it creates electrophile H+ which attacks to the double bond to form a carbocation.     Step 2 : Secondary carbonation is more stable than primary carbonation and it predominates over the primary carbonation. Step 3 : The Br-1 ion attack the 2°- carbocation to form 2- Bromo propane as the major product.   Lindlar catalyst is a heterogeneous catalyst that consists of palladium deposited on calcium carbonate or barium sulphate which is then poisoned with various forms of lead or sulphur like lead acetate or quinoline.It is used for the reduction of alkyne to cis-alkenes. | | | | 2  1 |
| 13 | = [2 X Hfo Fe2O3(s) ] – [4Hf oFe (s) + 3Hf oO2(g)]  = 2(-824.2kJ) – [ 4 x 0 + 3 x 0 ]  =    1. Hess law: It states that the total amount of heat evolved or absorbed in a reaction is the same whether the reaction takes place in one step or in several steps. | | | | 2  1 |
| 14 | 1. Acidic potassium permanganate or acidic potassium dichromate oxidises alkenes to ketones and/or acids depending upon the nature of the alkene and the experimental conditions      1. Identify **A** and **B** in the given reactions:   A-Ethyne  B-Benzene | | | | 2  1 |
| 15 | The reaction that takes place during the formation of  (*l*) can be written as:    The reaction (**1**) can be obtained from the given reactions by following the algebraic calculations as:  Equation (ii) + 2 × equation (iii) - equation (i) | | | | 3 |
|  | **SECTION D** | | | |  |
| 16 | 1. Halogens like Br and Cl add up to propene to form vicinal dihalides. The reddish orange colour of the bromine solution in CCl4 is discharged   Equations   1. i)   ii) The cis form will have higher boiling point due to more polar nature leading to stronger intermolecular dipole-dipole interaction, thus requiring more heat energy to separate them. | | | | 1  2  2 |

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