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| **PT3/CHQP/1122/A 30-JAN-2023** | | | | | |
| **PERIODIC TEST - III (2022-23)** | | | | | |
| **Subject: CHEMISTRY**  **Grade: XI** | | Max. Marks:35Time:1Hr15mts | | | |
| **Name:** | | | **Section:** | **Roll No:** | |
| ***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 | For an electrophilic substitution reaction, the presence of a halogen atom in the benzene ring **\_\_\_\_\_\_.**  a) activates the ring by inductive effect b) deactivates the ring by resonance c) increases the charge density at ortho and para position relative to meta position by resonance d) directs the incoming electrophile to meta position by increasing the charge density relative to ortho and para position. | | | | 1 |
| 2 | The enthalpies of elements in their standard states are taken as zero. The enthalpy of formation of a compound  a) is always negative  b) is always positive  c) may be positive or negative  d) is never negative | | | | 1 |
| 3 | Which of the following alkenes on ozonolysis give a mixture of ketones only?        iv) CH3-CH=CH2 | | | | 1 |
| 4 | **Assertion (A): The compound cyclooctane has the following structural formula:**    **It is cyclic and has conjugated 8π-electron system but it is not an aromatic compound.**  **Reason (R): (4n + 2) π electrons rule does not hold good and ring is not planar.**  a) Both A and R are correct and R is the correct explanation of A. b) Both A and R are correct but R is not the correct explanation of A. c) Both A and R are not correct. d) A is not correct but Incorrect. | | | | 1 |
| 5 | **Assertion (A):**Combustion of all organic compounds is an exothermic reaction.  **Reason (R):**The enthalpies of all elements in their standard state are zero.  a) Both A and R are true and R is the correct explanation of A.  b) Both A and R are true but R is not the correct explanation of A.  c) A is true but R is false.  d) A is false but R is true. | | | | 1 |
|  | **SECTION B** | | | |  |
| 6 | An alkene ‘A’ on ozonolysis gives a mixture of ethanal and 2 – methylpentan – 3 – one. Write the structure and IUPAC name of ‘A’ | | | | 2 |
| 7 | 1. 18.0 g of water completely vapourises at 1000C and 1 bar pressure and the enthalpy change in the process is 40.79 kJ mol-1. What will be the enthalpy change for vapourising two moles of water under the same conditions? What is the standard enthalphy of vapourisation for water? 2. What kind of system is the coffee held in a cup? | | | | 2 |
| 8 | How will you convert the following:   1. 2-methyl propene to 2-methyl propan-2-ol 2. Phenol to benzene | | | | 2 |
| 9 | 1. Change in internal energy is a state function while work is not, why? 2. In a certain process, 6000 J of heat is added to a system while the system does work equivalent to 9000 J by expanding against the surrounding atmosphere. What is the change in internal energy for the system? | | | | 2 |
| 10 | Explain with examples what are the necessary conditions for any system to be aromatic? | | | | 2 |
|  | **SECTION C** | | | |  |
| 11 | 1. The enthalpy of vapourisation of CCl4 is 30.5 kJ mol-1. Calculate the heat required for the vapourisation of 284 g of CCl4 at constant pressure. Ans**.**Given that enthalpy of vaporization of l mole of CCl4 = 30.5 kJ/mol. 2. Derive the relationship between Cp and Cv. | | | | 3 |
| 12 | 1. Give the mechanism of addition of HBr to propene. 2. What is Lindlar’s catalyst? | | | | 3 |
|  |  | | | |  |
| 13 | 1. The standard heat of formation of Fe2O3 (s) is 824.2kJ mol-1 Calculate heat change for the reaction.   4Fe(s) + 3O2 (g) 2Fe2O3(s)   1. Write the statement of Hess’s law. | | | | 3 |
| 14 | 1. How will you distinguish between 2-methyl propene and but-2-ene? 2. Identify **A** and **B** in the given reactions:   1,2-dibromo ethane (i) alcoholic KOH **A** Red hot Fe tube **B**  **\_\_\_\_\_\_\_\_\_\_\_\_\_> \_\_\_\_\_\_\_\_\_\_\_\_\_\_>**  (ii) NaNH2  873K | | | | 3 |
| 15 | **Calculate the standard enthalpy of formation of ) from the following data:** | | | | 3 |
|  | **SECTION D** | | | |  |
| 16 | 1. How will you distinguish between a) propane and propene using a chemical test? Give equation also. 2. Give a method of preparation of propene from i) an alkyne ii) from an alkyl halide. 3. Draw the cis and trans structures of hex-2-ene.Which isomer will have higher boiling point and why? | | | | 5 |

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