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| **PT1/CHQP/1123/A 16-MAY-2023** | | | | | |
| **PERIODIC TEST - I (2023-2024)** | | | | | |
| **Subject: Chemistry**  **Grade: XI** | | Max. Marks: 35Time:1 hour 10 min | | | |
| **Name:** | | | **Section:** | **Roll No:** | |
| 1. | The kind of delocalization involving sigma bond in conjugation with pi electrons is called:  a) Inductive effect  b) Hyperconjugation effect  c) Electromeric effect  d) Resonance effect | | | | 1 |
| 2 | Which of the following can act as an electrophile?  a) CN– b) OH– c) H2O d) BF3 | | | | 1 |
| 3 | The most stable free radical among the following is: | | | | 1 |
| 4 | Isomers of a compound must have :  a) Same physical properties  b) Same chemical properties  c) Same structural properties  d) Same molecular weight | | | | 1 |
| 5 | Assertion: Tertiary carbocations are generally formed more easily than primary carbocations. Reason: Hyperconjugation as well as inductive effect due to additional alkyl groups stabilize tertiary carbocations.   1. Both Assertion and Reason are correct statements and Reason is the correct explanation of the Assertion. 2. Both Assertion and Reason are correct statements, but Reason is not the correct explanation of the Assertion. 3. Assertion is correct, but Reason is incorrect statement. 4. Assertion is incorrect but Reason is correct statement. | | | | 1 |
| 6 | Give the IUPAC names of the following compounds : | | | | 2 |
| 7 | Give condensed and bond line structural formulas for:  (a) 2,2,4-Trimethylpentane  (b) 2-Hydroxy-1,2,3-propanetricarboxylic acid | | | | 2 |
| 8 | Identify the reagents shown in bold in the following equations as nucleophiles or electrophiles:    (d) | | | | 2 |
| 9 | Draw the resonance structures for C6H5NO2. Show the electron shift using curved-arrow notation. | | | | 2 |
| 10 | 1. Name the chain isomer of C5H12 which has a tertiary hydrogen atom. 2. Name the functional group isomers of a compound having molecular formula C3H6O. | | | | 2 |
| 11 | Write structural formulae of the following compounds  a) 3 – Hexenoic acid  b) 4 – Nitropent - 1 – yne  c) 2 – Formylbut – 3 – ene nitrile | | | | 3 |
| 12 | Draw the orbital diagram showing hyperconjugation in ethyl cation. | | | | 3 |
| 13 | What are the different types of reaction intermediates formed by homolytic and heterolytic fission of a covalent bond? Explain with examples. | | | | 3 |
| 14 | Explain the following:  a) (CH3)3C + is more stable than CH3CH2 + and CH3 +  b) Chloro-ethanoic acid is stronger than ethanoic acid.  c) O2NCH2CH2O– is expected to be more stable than CH3CH2O– | | | | 3 |
| 15 | Which of the following represents the correct IUPAC name for the compounds concerned?  a) 2,2-Dimethylpentane or 2-Dimethylpentane  b) 2,4,7- Trimethyloctane or 2,5,7-Trimethyloctane  c) 2-Chloro-4-methylpentane or 4-Chloro-2-methylpentane | | | | 3 |
| 16 | 1. Expand each of the following condensed formulas into their complete structural formulas. 2. CH3CH2COCH2CH3 3. CH3CH=CH(CH2)3CH3 4. Using curved-arrow notation, show the formation of reactive intermediates when the following covalent bonds undergo heterolytic cleavage.   (i) CH3–SCH3, (ii) CH3–CN, (iii) CH3–Cu | | | | 5 |

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