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| **PT1/CHAK/1123/A 16-MAY-2023** | | | |
| **PERIODIC TEST - I (2023-2024)** | | | |
| **Subject: Chemistry**  **Grade: XI** | | Max. Marks: 35Time:1 hour 10min | |
| 1. | b) Hyperconjugation effect | | 1 |
| 2 | d) BF3 | | 1 |
| 3 |  | | 1 |
| 4 | d) Same molecular weight | | 1 |
| 5 | Both Assertion and Reason are correct statements and Reason is the correct explanation of the Assertion. | | 1 |
| 6 | 1. 3 – Bromo – 3 – chloroheptane 2. 3 – Chloropropanal | | 2 |
| 7 | a) Condensed formula (CH3)2CHCH2C(CH3)3    b) Condensed Formula (COOH)CH2C(OH) (COOH)CH2(COOH) | | 2 |
| 8 | a) OH – Nucleophile  b) CN - : Nucleophile  c) CH3CO+ Electrophile  d) H+ Electrophile | | 2 |
| 9 |  | | 2 |
| 10 | 1. 2 - Methylbutane 2. Propanal and propanone. | | 2 |
| 11 | Write structural formulae of the following compounds  a) CH3CH2CH=CHCH2COOH  b) CH3CH(NO2)CH2C≡CH  c) CH2=CHCH(CHO)CN | | 3 |
| 12 | Explain the Hyperconjugationin ethyl carbocation and ethyl free radical -  Chemistry - Organic Chemistry Some Basic Principles and Techniques -  8780261 | Meritnation.com | | 3 |
| 13 | a)Carbocation: a species having sextet of electrons and a positive charge on carbon atom. Formed during heterolysis. Example : CH3+  b)Carbanion: a species having octet of electrons and a negative charge on carbon atom. Formed during heterolysis. Example :CH3  -  c) Free radicals: neutral species (atom/molecule) having an odd electron. Formed during homolysis. Example : Cl. | | 3 |
| 14 | Explain the following:  a) Hyperconjugation interaction in (CH3) 3C + is greater than in CH 3CH 2+ as the (CH3) 3C + has nine C-H bonds. In CH3+ , vacant p orbital is perpendicular to the plane in which C-H bonds lie; hence cannot overlap with it.Thus, + CH3 lacks hyperconjugative stability.  b) In Chloro-ethanoic acid, due to – I effect of Cl, the polarity of COOH increases making the loss of H+ easy whereas in ethanoic acid, loss of H+ is difficult due to +I effect of alkyl group.  c) In O2NCH2CH2O– there is effective dispersal of negative charge due to electron withdrawing NO2 group but in CH3CH2O– the electron density on oxygen increases due to +I effect of alkyl group. | | 3 |
| 15 | Which of the following represents the correct IUPAC name for the compounds concerned ?  a) 2,2-Dimethylpentane  b) 2,4,7- Trimethyloctane  c) 2-Chloro-4-methylpentane | | 3 |
| 16 | 1. Expand each of the following condensed formulas into their complete structural formulas. 3. Using curved-arrow notation, show the formation of reactive intermediates when the following covalent bonds undergo heterolytic cleavage. | | 5 |

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