A close up of a sign

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| **FT/CHAK/1123/A 17-JUN-2023** | | | |
| **FIRST TERM EXAMINATION (2023-24)** | | | |
| **Subject: CHEMISTRY(Answer Key)**  **Grade: XI** | | **Max. Marks:70**  **Time: 3Hrs** | |
|  | **SECTION A** | | |
| 1 | a | | 1 |
| 2 | C | | 1 |
| 3 | C | | 1 |
| 4 | a | | 1 |
| 5 | b | | 1 |
| 6 | d | | 1 |
| 7 | b | | 1 |
| 8 | c | | 1 |
| 9 | c | | 1 |
| 10 | d | | 1 |
| 11 | c | | 1 |
| 12 | b | | 1 |
| 13 | a | | 1 |
| 14 | c | | 1 |
| 15 | d | | 1 |
| 16 | d | | 1 |
|  | SECTION B | |  |
| 17 |  | | 2 |
| 18 | (i) NO2CH2COOH, CI3C-COOH  (ii) F-CH2CH2CH2COOH, CH3CHFCH2COOH , CH3CH2CHFCOOH | | 2 |
| 19 |  | | 2 |
| 20 | 1. polarization of σ-bond caused by the polarisation of adjacent σ-bond is referred to as the inductive effect 2. Magnitude of inductive effect diminishes as the number of intervening bonds increases. Hence, the effect is least in the bond between carbon-3 and hydrogen.   **OR**  a) It is defined as the complete transfer of a shared pair of π-electrons to one of the atoms joined by a multiple bond on the demand of an attacking reagent.  b) Resonance hybrids have lower energy than resonating structures. | | 2 |
| 21 | Nucleophiles: H2O, C2H5O-  These species have unshared pair of electrons, which can be donated and shared with an electrophile.  Electrophiles: BF ,NO2+  Reactive sites have only six valence electrons; can accept electron pair from a nucleophile. | | 2 |
| 22 | 1. Molality, Malarity is temperature dependent.   2KClO3 → 2KCl+ 3O2  2×122.5=245g of KClO3 gives 3×22.4L of O2  3.36L of O2 is liberated from  245 ×3.36/3×22.4  =823.2/67.2=12.25g of KClO3 | | 3 |
| 23 |  | | 3 |
| 24 |  | | 3 |
| 25 | Law of multiple proportions  b)    **OR**   1. ***One atomic mass unit is defined as a mass exactly equal to one- twelfth the mass of one carbon - 12 atom*** | | 3 |
| 26 |  | | 3 |
| 27 | 1. CH3​CH2​OCH2​CH3 and CH3​OCH2​CH2​CH3 2. Due to resonance stabilization 3. Due to the presence of lone pair of electrons | | 3 |
| 28 |  | | 3 |
| 29 | 1. reaction 2A(g) + 4B(g) → 3C(g) +4D(g).   When 5 moles of A react with 6 moles of B, then   1. B is the limiting reagent 2. 4 moles of B gives 3 moles of C.   Hence 6 moles of B produce 4.5 moles of C.  b) Mole fraction  c) Molarity decreases with the increase of temperature because volume of the solution increases with the increase of temperature | | 4 |
| 30 | a)    b) | | 4 |
| 31 | 1. Any two points of differences between homolytic and heterolytic fission.   i))Butane- Chain  ii)) Pentene -Position  iii) C3H6O -Functional group  **OR**   1. A species having a carbon atom possessing sextext of electrons and a positive charge is called a carbocation.      1. carbocations have trigonal planar shape with positively charged carbon being sp2 hybridized. 2. greater the number of alkyl groups attached to a positively charged carbon atom, the greater is the hyperconjugation interaction and stabilisation of the cation. | | 5 |
| 32 | 0.5 mol Na2​CO3​ means the quantity of weight of Na2​CO3​ present whereas 0.5M Na2​CO3​ means 0.5 mol. Na2​CO3​ present in 1 L solution. it is a measure of quantity of Na2​CO3​ in the solution.   **OR**  **a)**   b) Ais more concentrated than B because 1 molar have more concentration than 1 molal  1. CH2Cl, C2H4Cl2 | | 5 |
| 33 | 1. I) 2-Phenylethanoic acid   ii) 2-Methoxypropanal 3-nitro benzaldehydeOR  1. I) Pent-2-enal   ii) 1-phenyl-propan-1-one  iii) Ethane dioic acid | | 5 |

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