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Sig. of Candidate: _____

2ND YEAR CHEMISTRY Chapter 17 TEST

CHEMISTRY HSSC-II

Time allowed: 15 minutes

SECTION-A (MARKS 17)

NOTE: Section-A is compulsory All parts of the section are to be answered on the separately provided OMR answer sheet should be completed in the first 15 minutes and handed over to the Center Superintendent. Deleting/overwriting is not allowed. Do not use lead pencil.

Q.1 Choose the correct answer i.e. A/B/C/D by filling the relevant bubble for each question on the OMR answer sheet according to the instructions given there. Each part carries one mark.

- 1) Which one of the following alkyl halide has highest C-X bond energy
A. R - I B. R - F C. R - Br D. R - Cl
- 2) Which of these can give both S_N1 and S_N2 reaction mechanism
A. Primary alkyl halide B. Secondary halide alkyl
C. Tertiary alkyl halide D. All of these
- 3) In the following given group which one is good leaving group
A. NH₃ B. NH₂⁻ C. H₂O D. OH⁻
- 4) Which one of the following is an electrophile
A. AlCl₃ B. H₂S C. H₂O D. NH₃
- 5) Functional group of tertiary amines may be
A. -NH₂ B. -NH- C. -N- D. All of these
- 6) In a carbocation positively charged carbon is _____ hybridized
A. sp³ B. sp C. sp² D. d²sp³
- 7) In S_N1 mechanism rate of reaction is dependent on
A. Alkyl halide B. Nucleophile
C. Both a and b D. None of these
- 8) Which one of the following alkyl halide is least reactive
A. R - I B. R - F C. R - Br D. R - Cl
- 9) S_N2 reaction is best carried out with
A. Primary alkyl halide B. Secondary halide alkyl
C. Tertiary alkyl halide D. All of these
- 10) Nucleophilic addition of a primary amine gives
A. Imine B. Urea C. Ammonia D. Nitrobenzene
- 11) Grignard reagent gives alkene with
A. Water B. Ethylamine C. Ethanol D. All
- 12) In the primary amines molecules the hybridization of nitrogen atom is
A. sp³ B. sp C. sp² D. d²sp³
- 13) IUPAC name of tertiary butyl bromide
A. 2-Bromo-2-methyl propane B. 1-Bromo-2-methyl propane
C. 2-Bromo-2-methyl butane D. 2-Bromo-1-methyl propane
- 14) Double bond is formed as a result of
A. Substitution reaction B. Elimination Reactions
C. Addition Reaction D. Rearrangement reaction
- 15) Primary alkyl halide reacts with KOH(C₂H₅OH) the reaction is
A. First order B. Second order
C. third order D. may be 1st or 2nd order
- 16) S_N1 mechanism which one is correct
A. Only 50% retention of configuration
B. 100% inversion of configuration
C. Mostly Tertiary alkyl halides are involved
D. Mostly alkyl halide with sodium metal yield
- 17) Which statement is true about functional group of alkyl halides
A. sp² hybridized carbon is attached to X
B. Quite polar due to electronegativity difference between C and X
C. sp³ hybridized carbon is attached to X
D. Both B. and C. are correct

Time Allowed: 1:05 Hour

CHEMISTRY HSSC-I

Total Marks Sections B and C: 28

NOTE: Section 'B' AND 'C' comprise page 1 only and questions therein are to be answered on the separate answer book. Answer ALL parts from Section 'B' and Section 'C'. Write your answers neatly and legibly.

SECTION-B (MARKS 15)

Q.2 ATTEMPT ALL THE QUESTIONS

(5× 3 = 15)

- (i) How will you synthesize the following compounds starting from $\text{CH}_3 - \text{CH}_2 - \text{Mg} - \text{Br}$?
- a. Propanoic acid b. 1-Propanol c. 2-Butanol
- (ii) Which factors decide the reactivity of alkyl halide? Give order of reactivity of alkyl halides at C-X bond.
- (iii) Tertiary alkyl halide show $\text{S}_{\text{N}}1$ reactions mostly why? Give mechanism.
- (iv) Give classification of mono-haloalkanes.
- (v) Why tertiary carbocation is more stable?

SECTION-C (MARKS 13)

Q.3 ATTEMPT ALL THE QUESTIONS

- a. What are β -Elimination reactions? Compare substitution reactions with elimination reactions? (7)
- b. What are amines? How they be prepared by reduction of nitriles, nitro compounds and Amides (6)