

School of Basic Sciences

Bachelor of Science in General
Semester End Examination - Nov 2023

Duration : 180 Minutes
Max Marks : 100

Sem V - C1UB501T - Organic Synthesis-A

General Instructions

Answer to the specific question asked

Draw neat, labelled diagrams wherever necessary

Approved data hand books are allowed subject to verification by the Invigilator

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| 1) | What is Elimination reaction and what are the types? | K1 (2) |
| 2) | Illustrate Markownikoff's rule and explain with mechanism. | K2 (4) |
| 3) | Explain the types of hydrogen bonding and explain in between o-nitrophenol and p-nitrophenol, which is more volatile with reason? | K2 (6) |
| 4) | Applying addition reaction, predict the product of following reaction. 1. addition of HOCl with propene, 2. Addition of KMnO ₄ to 2-butene, 3. Addition of water to propyne | K3 (9) |
| 5) | Apply the mechanism of addition to following reactions i . Addition of Br ₂ to ethylene ii. Addition of HBr to propene in presence of peroxide | K3 (9) |
| 6) | Conclude why benzene undergoes electrophilic substitution reactions whereas alkenes undergoes addition reactions. Explain the product of nitration and sulphonation reaction of benzene. | K5 (10) |
| 7) | Analyze the following statements with explanation a) -NH ₂ acts as an ortho-para directing group in electrophilic substitution reaction b) Nitro group acts as meta directing group in electrophilic substitution reaction | K4 (12) |
| 8) | Justify the following with reason i) Toluene is nitrated more readily than benzene ii) Aniline is more reactive than benzene in Friedel-Craft's reactions iii) -NH ₂ acts as an ortho-para directing group | K5 (15) |
| 9) | Justify the synthesis of following with reactions i) phenol from benzene via cumene ii) phenol from chlorobenzene iii) phenol from nitrobenzene | K5 (15) |
| 10) | Elaborate different synthesis methods of alkyne and compile the chemical reactions of alkyne. | K6 (18) |