



School: School of Science
 Program/s: MSc Chemistry (Organic)
 Year: 2nd Semester: 3rd
 Examination: End Semester Examination
 Examination year: December - 2021

Course Code: CH223

Course Name: Advanced Synthetic Methods

Date: 07/12/2021

Total Marks: 40

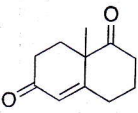
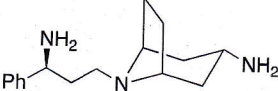

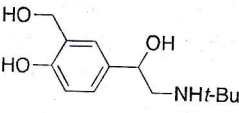
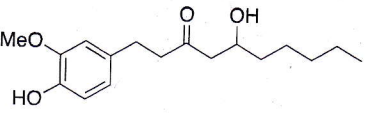
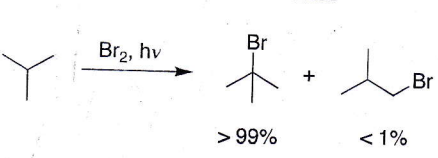
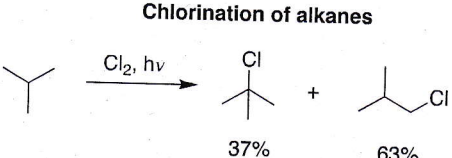
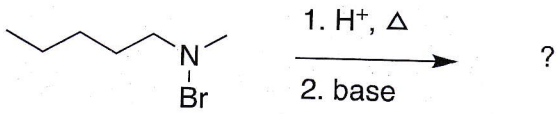
Time: 08:30 am to 10:30 am

Total Pages: 2

Instructions:

- Write each answer on a new page.
- Use of a calculator is permitted/~~not permitted~~.
- * COs=Course Outcome mapping. # BTL=Bloom's Taxonomy Level mapping

Q. No.	Details	Marks	COs*	BTL#
Q.1	<p>Predict the major products (A to I) and complete the following reactions.</p> <p>a) A</p> <p>b) B C</p> <p>c) D E</p> <p>d) F</p> <p>e) G</p> <p>f) H</p> <p>g) I</p>	8	CO1 CO2 CO3 CO4 CO5	BT1 BT2 BT3 BT4
Q.2	<p>Disconnect the following general class molecules into their reagents by known reliable methods.</p> <p>(i) A + B</p> <p>(ii) C + D</p> <p>(iii) E + F</p> <p>(iv) G + H</p> <p>(v) I + J</p> <p>(vi) K + L</p>	6	CO1 CO2 CO3	BT1 BT2 BT3 BT4 BT5

<p>Q.3</p>	<p>Disconnect the following intermediate by known reliable methods and write out the synthetic scheme according to the disconnection analysis, adding reagents and condition (wherever is applicable). (Any Four)</p> <div style="display: flex; justify-content: space-around; align-items: flex-start;"> <div style="text-align: center;">  <p>Wieland-Miescher ketone (versatile synthon for synthesis of natural products (diterpenes, steroids, etc.))</p> </div> <div style="text-align: center;">  <p>Triamine intermediate (II) for the synthesis of anti-HIV drug Maraviroc (Pfizer)</p> </div> <div style="text-align: center;">  <p>An alkyne intermediate (III) for the synthesis of Efavirenz (Anti-AIDS drug)</p> </div> </div> <div style="display: flex; justify-content: space-around; align-items: flex-start; margin-top: 20px;"> <div style="text-align: center;">  <p>Salbutamol (Anti-asthma drug)</p> </div> <div style="text-align: center;">  <p>gingerol-6 (flavoring principles of ginger)</p> </div> </div>	<p>14</p>	<p>C01 C02 C03</p>	<p>BT1 BT2 BT3 BT4 BT5</p>
<p>Q.4</p>	<p>Do as directed. (Any Three)</p> <p>(i) Explain Sommelet-Hauser rearrangement and its mechanism with suitable example.</p> <p>(ii) Radicals are stabilized by both electron withdrawing and electron donating group. Justify.</p> <p>(iii) Bromination of alkanes is more selective than chlorination (following reaction). Justify your answer based on Hammond's Postulate.</p> <div style="text-align: center; margin: 10px 0;"> <p>Bromination of alkanes</p>  </div> <div style="text-align: center; margin: 10px 0;"> <p>Chlorination of alkanes</p>  </div> <p>(iv) Complete the following reaction and write the complete mechanism.</p> <div style="text-align: center; margin: 10px 0;">  </div>	<p>12</p>	<p>C04 C05</p>	<p>BT1 BT2 BT3 BT4</p>

*****End of Question Paper*****