

# **PORTFOLIO**

## **ORGANIC SYNTHESIS**

**ACADEMIC YEAR 2019/2020 EVEN SEMESTER**



**Course Coordinator:**

**Prof. Dr. Suyatno, M.Si.**

**Teaching Team:**

**Prof. Dr. Suyatno, M.Si.**

**Prof. Dr. Tukiran, M.Si.**

**CHEMISTRY DEPARTMENT**  
**FACULTY OF MATHEMATICS AND SCIENCES**  
**UNIVERSITAS NEGERI SURABAYA**

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## A. SEMESTER LEARNING ACTIYITY PLAN

### A.1. COURSE IDENTITY


Modul Name	<b>Organic Synthesis</b>
Module Level	Bachelor of Chemistry
Abbreviation, if applicable	4720103165
Sub-heading, if applicable	-
Course included in the module, if applicable	-
Semester/term	6 <sup>th</sup> / Sixth year
Modul coordinator(s)	Prof. Dr. Suyatno, M.Si. (C1), Prof. Dr. Tukiran, M.Si. (C1)
Lecturer(s)	Prof. Dr. Suyatno, M.Si. (C1), Prof. Dr. Tukiran, M.Si. (C1)
Language	Indonesian Language
Classification within the curriculum	Compulsory Course
Teaching format/class hours per week during the semester	3 hours lectures (50 min / hour)
Workload	3 hours lecture, 3 hours structured activities, 3 hours individual activities, 14 week a semester, and total 126 hours a semester ~4.77 ECTS *
Credit point	3 CU = = 3 x 1.59= 4.77 ECTS
Requirement	Monofunctional Organic Chemistry and Polyfunctional Organic Chemistry
Learning Outcomes	<b>General Competence (knowledge):</b> Student can conclude functionalitation of functional group, functional group interconversion, formation of carbon-carbon bond and carbon-heteroatom bond, target molecule, sinton and disconnection approach, syntesis strategy, protective group, chemoselective and stereoselective reaction.  <b>Spesific Competence :</b> At the end of the lecture, students can conclude functionalitation of functional group, functional group interconversion, formation of carbon-carbon bond and carbon-heteroatom bond, target molecule, sinton and disconnection approach, syntesis strategy, protective group, chemoselective and stereoselective reaction.
Content	Course materials discuss the understanding of functionalitation of functional group, functional group interconversion, formation of carbon-carbon bond and carbon-heteroatom bond, target molecule, sinton and disconnection approach, syntesis strategy, protective group, chemoselective and stereoselective reaction.
Study/exam achievements	Students are considered to be competent and pass if at least get 55  Final score is calculated as follows: 20% Participation + 30% Assignment + 20% Midle Exam + 30% Final Exam

	<p>middle exam (UTS)&amp; 30% final exam (UAS)</p> <p>Tableindex of graduation</p> <ul style="list-style-type: none"> <li>● 0 - 39,999 E,</li> <li>● 40 - 54,999 D,</li> <li>● 55 - 59,999 C,</li> <li>● 60 - 64,999 C+,</li> <li>● 65 - 69,999 B-,</li> <li>● 70 - 74,999 B,</li> <li>● 75 - 79,999 B+,</li> <li>● 80 - 84,999 A-,</li> <li>● 85 - 100, A</li> </ul>
Forms of media	Computer, LCD, White board
Learning Methods	Lectures, discussion, problem solving, assignment
Literatur	<ol style="list-style-type: none"> <li>1. Carruthers, W. &amp; Coldam, I. (2004). <i>Modern Methods of Organic Synthesis</i>. 4<sup>th</sup> Ed. New York: Cambridge University Press.</li> <li>2. Fessenden, R.J. dan Fessenden, J.S. (1998). <i>Kimia Organik</i>. Jilid 1 dan 2. Penerjemah AH Pudjaatmaka. Jakarta: Erlangga.</li> <li>3. Michael B. Smith, M.B. &amp; March, J. (2007). <i>March's Advanced Organic Chemistry, Reaction, Mechanism, and Structure</i>, 6<sup>th</sup> ed. New Jersey: John Wiley and Son, Inc.</li> <li>4. Solomon, T.W.G. &amp; Fryhle, C.B. (2011). <i>Organic Chemistry</i>. New York: John Wiley &amp; Sons, Inc.</li> <li>5. Tukiran dan Suyatno (2018). <i>Sintesis Kimia Organik</i>. Surabaya: Unesa University Press.</li> <li>6. Warren, S. &amp; Wyatt, P. (2008). <i>Organic Synthesis: the Disconnection Approach</i>. 2<sup>nd</sup> Ed. London: John Wiley and Sons, In</li> </ol>
Note	<p>This course is divided into two parallel classes with the materials and ingredients but given the same test in the same time with same lecturers.</p> <p>*Total ECTS = {(total hours workload x 50 min ) / 60 min } / 25 hours</p> <p><b>Each ECTS is equals with 25 hours</b></p>

## A.2. COURSE TOPIC

This course examines functionalization of functional group, functional group interconversion, formation of carbon-carbon bond and carbon-heteroatom bond, target molecule, sinton and disconnection approach, syntesis strategy, protective group, chemoselective and stereoselective reaction..

### A.3. COURSE PROGRAM

 <b>UNESA</b> Universitas Negeri Surabaya		<b>UNIVERSITAS NEGERI SURABAYA</b> <b>FACULTY MATHEMATICS AND NATUARAL SCIENCES</b> <b>UNDERGRADUATE PROGRAM OF CHEMISTRY</b>				<b>Documen</b> <b>Code</b>	
<b>LESSON PLAN</b>							
<b>COURSE</b>		<b>CODE</b>	<b>COURSE CLASSIFICATION</b>	<b>CREDIT (SKS)</b>		<b>SEMESTER</b>	<b>COMPILATION DATE</b>
Organic Synthesis		4720103165	Compulsory Course	T = 3	P = 0	6	21 June 2021
<b>OTORISASI</b>		<b>Lesson Plan Developer</b>		<b>Course Coordinator</b>		<b>Coordinator of Study Program</b>	
Undergraduate Program of Chemistry		Prof. Dr. Suyatno, M.Si.		Dr. Nuniek Herdyastuti, M.Si.		Dr. Amaria, M.Si.	
<b>Learning Outcomes</b>	<b>Program Learning Outcomes (PLO)</b>						
	PLO-1	Mastering the concepts of structure, dynamics and energy, as well as the basic principles of separation, analysis, synthesis and characterization of micromolecular compounds and their applications					
	PLO-5	Able to apply logical, critical, systematic and innovative thinking in the context of the development or implementation of science and technology by observe and applying the value of humanities in accordance with the field of chemistry in solving problems					
	<b>Course Learning Outcomes (CLO)</b>						

	CLO	Able design the synthesis of organic compounds using disconnection approach by applying functionalisation of functional group, functional group interconversion, formation of carbon-carbon bond and carbon-heteroatom bond, protective group, chemoselective and stereoselective reaction
	<b>The Final ability of each learning stage (Sub-CLO)</b>	
	Sub-CLO1	Understand the meaning, use, principles of organic chemical synthesis
	Sub-CLO2	Understand the types of organic reactions, functional group functionalization processes, functional group interconversion
	Sub-CLO3	Understand about the types of organic reactions for the formation of carbon skeletons
	Sub-CLO4	Understand the basic principles in designing the synthesis of organic compounds
	Sub-CLO5	Understand the synthesis strategy through the disconnection of carbon-heteroatom bonds
	Sub-CLO6	Understand the synthesis strategy through the disconnection of carbon-carbon bonds
	Sub-CLO7	Understand the synthesis strategy through the disconnection of aromatic compounds
	Sub-CLO8	Understand about Definition, selection of protective groups and application of protective groups in organic synthesis
	Sub-CLO9	Understand about chemoselectivity and stereoselectivity in organic synthesis
<b>Description of Course</b>	The study of functionalisation of functional group, functional group interconversion, formation of carbon-carbon bond and carbon-heteroatom bond, target molecule, retrosynthetic and disconnection approach, synthesis strategy, protective group, chemoselective and stereoselective reaction.	
<b>Course material</b>	<ol style="list-style-type: none"> <li>1. The meaning, use, principles of organic chemical synthesis</li> <li>2. The types of organic reactions, functional group functionalization processes, functional group interconversion</li> </ol>	

	3. The types of organic reactions for the formation of carbon skeletons 4. The basic principles in designing the synthesis of organic compounds 5. The synthesis strategy through the disconnection of carbon-heteroatom bonds 6. The synthesis strategy through the disconnection of carbon-carbon bonds 7. The synthesis strategy through the disconnection of aromatic compounds 8. Protective groups in organic synthesis 9. Chemoselectivity and stereoselectivity in organic synthesis						
<b>References</b>	<b>Main References :</b>						
	1. Carruthers, W. & Coldam, I. (2004). <i>Modern Methods of Organic Synthesis</i> . 4 <sup>th</sup> Ed. New York: Cambridge University Press. 2. Michael B. Smith, M.B. & March, J. (2007). <i>March's Advanced Organic Chemistry, Reaction, Mechanism, and Structure</i> , 6 <sup>th</sup> ed. New Jersey: John Wiley and Son, Inc. 3. Tukiran dan Suyatno (2018). <i>Sintesis Kimia Organik</i> . Surabaya: Unesa University Press. 4. Warren, S. & Wyatt, P. (2008). <i>Organic Synthesis: the Disconnection Approach</i> . 2 <sup>nd</sup> Ed. London: John Wiley and Sons, Inc.						
	<b>Supporting References :</b>						
	5. Fessenden, R.J. dan Fessenden, J.S. (1998). <i>Kimia Organik</i> . Jilid 1 dan 2. Penerjemah AH Pudjaatmaka. Jakarta: Erlangga. 6. Solomon, T.W.G. & Fryhle, C.B. (2011). <i>Organic Chemistry</i> . New York: John Wiley & Sons, Inc.						
<b>Lecturer</b>	1. Prof. Dr. Suyatno, M.Si. 2. Prof. Dr. Tukiran, M.Si.						
<b>Prerequisite Course</b>	Monofunctional Organik Compound and Polyfunctional of Organic Compound						
Meeting	The Final ability of each learning stage (Sub-CLO)	Evaluation		Form of Learning, Learning Models/ Methods, Assignment [ Time Estimate ]		Learning Materials [ Reference ]	Weight score of evaluation (%)
		Indicator	Criteria & Form	Offline	Online		
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)

1	Understand the meaning, use, principles of organic chemical synthesis	Explain the meaning, use, principles of organic chemical synthesis	Criteria: - The suitability of the answers with the scoring rubric for each indicator Evaluation type: Essay test	Form of learning: Lecture  Learning model: Direct instruction	-	The meaning, use, principles of organic chemical synthesis (Reference 3)	10
2	Understand the types of organic reactions, functional group functionalization processes, functional group interconversion	Explain the types of organic reactions, functional group functionalization processes, functional group interconversion	Criteria: - The suitability of the answers with the scoring rubric for each indicator Evaluation type: Essay test	Form of learning: Lecture  Learning model: Problem based learning	-	The types of organic reactions, functional group functionalization processes, functional group interconversion (Reference 2, 3, and 5)	10
3	Understand about the types of organic reactions for the formation of carbon skeletons	Explain the types of organic reactions for the formation of carbon skeletons	Criteria: - The suitability of the answers with the scoring rubric for each indicator Evaluation type: Essay test	Form of learning: Lecture  Learning model: Problem based learning		The types of organic reactions for the formation of carbon skeletons (Reference 1, 3 and 4)	10
4	Understand the basic principles in designing the	Explain the basic principles in designing the	Criteria: - The suitability of the answers with	Form of learning: Lecture		The basic principles in designing the	10



	synthesis of organic compounds	synthesis of organic compounds	the scoring rubric for each indicator Evaluation type: Essay test	Learning model: Problem based learning		synthesis of organic (Reference 1, 3 and 4)	
<b>5</b>	Understand the synthesis strategy through the disconnection of carbon-heteroatom bonds	Explain the synthesis strategy through the disconnection of carbon-heteroatom bonds	Criteria:  - The suitability of the answers with the scoring rubric for each indicator Evaluation type: Essay test	Form of learning: Lecture  Learning model: Problem based learning		The synthesis strategy through the disconnection of carbon-heteroatom bonds  (Reference 1, 3 and 4)	15
<b>6-7</b>	Understand the synthesis strategy through the disconnection of carbon-carbon bonds	Explain the synthesis strategy through the disconnection of carbon-carbon bonds	Criteria:  - The suitability of the answers with the scoring rubric for each indicator Evaluation type: Essay test	Form of learning: Lecture  Learning model: Problem based learning	-	The synthesis strategy through the disconnection of carbon-heteroatom bonds  (Reference 1, 3 and 4)	15
<b>8</b>	<b>The Midterm exam</b>						
<b>9-11</b>	Understand the synthesis strategy through the disconnection of aromatic compounds	Explain the synthesis strategy through the disconnection	Criteria:  - The suitability of the answers with the scoring rubric for each indicator	Form of learning: Lecture  Learning model: Problem based learning	-	The synthesis strategy through the disconnection of aromatic compounds	10

		of aromatic compounds	Evaluation type: Essay test			(Reference 3, 4, and 6)	
<b>12-13</b>	Understand about Definition, selection of protective groups and application of protective groups in organic synthesis	Explain definition, selection of protective groups and application of protective groups in organic synthesis	Criteria: - The suitability of the answers with the scoring rubric for each indicator - Evaluation type: Essay test	Form of learning: Lecture  Learning model: Problem based learning	-	Protective groups in organic synthesis  (Reference 1,3, 4, and 6)	10
<b>14-15</b>	Understand about chemoselectivity and stereoselectivity in organic synthesis	Explain the chemoselectivity and stereoselectivity in organic synthesis	Criteria: - The suitability of the answers with the scoring rubric for each indicator Evaluation type: Essay test	Form of learning: Lecture  Learning model: Problem based learning	-	Chemoselectivity and stereoselectivity in organic synthesis (Reference 1, 3, 4, and 5)	10
<b>16</b>	<b>The Final Exam</b>						<b>100</b>

#### A.4. MAPPING OF LEARNING OUTCOMES – COURSE OUTCOMES

##### A.4.1. The Expected Program Learning Outcomes (PLO) of Undergraduate Program of Chemistry (UPC)

ASPECTS	PLO	CODE
<b>KNOWLEDGE</b>	1. Able to master the concepts of structure, dynamics and energy, as well as the basic principles of separation, analysis, synthesis, and characterization of micromolecular compounds and their applications	<b>KNO-1</b>
	2. Able to master the basic principles and knowledge of how to operationalize instruments for the analysis and characterization of compounds, as well as utilizing ICT for modeling more specific molecules	<b>KNO-2</b>
<b>SKIL</b>	3. Able to master the principles of Occupational Health and Safety, manage laboratories and use their equipment, and operate instrumental of chemistry	<b>SKI-1</b>
	4. Able to design an activity to solve problems by implementing capabilities in the field of chemistry that refers to ecopreneurship	<b>SKI-2</b>
<b>COMPETENCIES</b>	5. Able to apply logical, critical, systematic and innovative thinking in the context of the development or implementation of science and technology by observe and applying the value of humanities in accordance with the field of chemistry in solving problems	<b>COM-1</b>
	6. Able to master the basics of the scientific method, designing and conducting research, compiling scientific reports and communicating them both verbally and in writing by utilizing information and communication technology	<b>COM-2</b>
<b>ATTITUDE AND SOCIAL</b>	7. Able to build teamwork and have entrepreneurial skills that are environmental perspective, and make the right, honest and responsible decisions in solving problems of chemistry and have social sensitivity as a obligation of citizens and religious communities	<b>SOC-1</b>
	8. Able to adapt to various developments in chemistry, continue to develop and learn throughout long-life education, both formal and nonformal	<b>SOC-2</b>

#### A4.2. The Education Program Objectives (PEOs) of Organic Synthesis

PEO 1. Able to master the fundamental knowledge of chemistry, the basic principles of chemical instruments, laboratory organizations, Occupational Health and Safety, scientific methods, digital literacy to solve a problem in their profession/workplace (professional).

PEO 2. Able to improve higher-order thinking skills by analyzing, evaluating data, and being creative; communicating ideas, able to take the right initiatives, be good decision-makers, and have the ability to lead in relevant field workgroups

PEO 3. Able to develop and apply chemistry concepts along with the progress of science and technology as well as humanities values

#### A4.3. Mapping of Program Learning Outcomes (PLO) – Education Program Objectives (PEOs)

	PLO 1 (KNO-1)	PLO 5 (COM-1)
PEO 1	√	
PEO 2		√
PEO 3	√	√

### B. COURSE ASSESSMENT

#### B.1. Assessment Rubric

Cognitive Criteria

1. The ability to give answers correctly
2. The ability to provide argumentation according to theory
3. The ability to provide systematic explanations
4. The ability to solve problems comprehensively

#### B.2. Assessment System

Final Assessment Course:

Group/Individuals Assignment : 30%

Midterm examination : 30%

Final examination : 40%

#### Distribution of the weight of the ability of the test item

	PLO 1 (KNO-1)	PLO 5 (COM-1)	Total
Group/Individuals Assignment	70%	30%	100%
Midterm examination	80%	20%	100%
Final examination	80%	20%	100%

#### Success Criteria of Program Learning Outcomes (PLO)

Excellence	≥ 80
Good	≥ 70
Satisfy	≥ 55
Fail	> 0

Final index for undergraduate program defined as follow:

Final Index	Range
A	4 (85 ≤ - ≥ 100)
A <sup>-</sup>	3,75 (80 ≤ - < 85)
B <sup>+</sup>	3,5 (75 ≤ - < 80)
B	3 (70 ≤ - < 75)
B <sup>-</sup>	2,75 (65 ≤ - < 75)
C <sup>+</sup>	2,5 (60 ≤ - < 65)
C	2 (55 ≤ - < 60)
D	1 (40 ≤ - < 55)
E	0 (0 ≤ - < 40)

## C. COURSE DEVELOPMENT

### C.1. Academic Year 2019/2020 even semester

Parameter	∑ of person	Percentage
Number or students taking this subject	59	100%
Number of students who pass at first attempt (>C <sup>+</sup> )	57	97%
Number of students who pass at first attempt (= C)	0	0%
Number of failed students after remedial (D & E)	2	3%

### C.2. Problems Analysis

In 2019/2020 academic year in the Organic Synthesis course, there were 97 % students had passed the examination at the first attempt. At the end of the Semester Examination there is remedial test for two students but they did not take the opportunity given so they failed in this course. Thus as many as 3 percent of students did not succeed in this course and they must take this course in the next semester. The improving learning strategies / methods were required to achieve the better results.

### C.3. Solutive Strategy

New teaching and learning methods should be developed for the next academic years, consisting of:

1. There needs to be a group study in understanding the career development, so that students teach each other, and peer tutors occur.
2. Enhance the cooperative skills of students with exchange the methods and models of learning

## D. APPENDICES

### D.1. DOCUMENT OF COURSE ACTIVITY

#### D.1.1. Lecture's journal and student's attendance form [siakadu.uneca.ac.id](http://siakadu.uneca.ac.id) for Chemistry Class-2017



## D.2. SAMPLE OF STUDENT WORK

### D.2.1. Sample of Test Paper



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UNIVERSITAS NEGERI SURABAYA  
FAKULTAS MATEMATIKA DAN ILMU PENGETAHUAN ALAM  
JURUSAN KIMIA

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T: +621-829834  
F: +621-829834



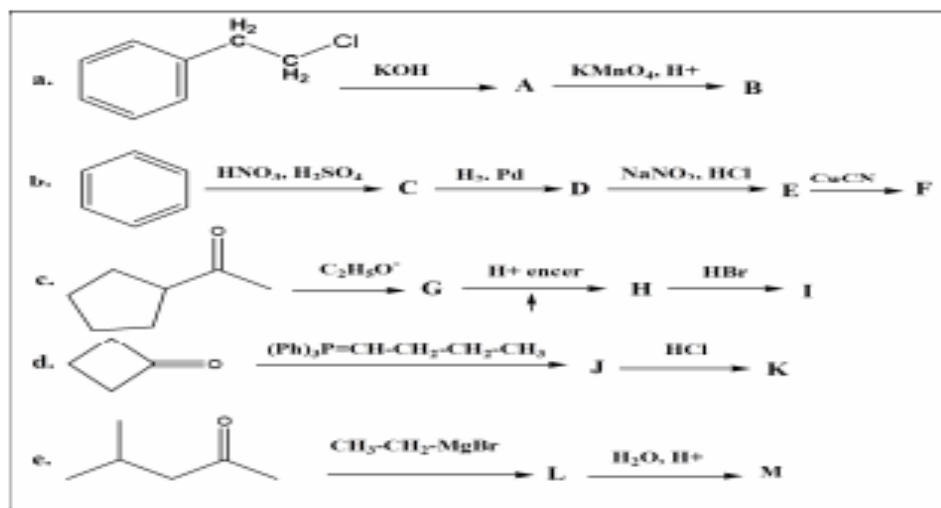
Management  
System  
ISO 9001:2015  
www.unesa.ac.id  
ID: 170000001

#### SOAL UJIAN TENGAH SEMESTER GENAP 2019/2020

Mata Ujian : Sintesis Kimia Organik  
Jurusan/Fakultas : Kimia/ MIPA  
Program/Angkatan : Kimia A dan B/2017  
Hari/Tanggal : Selasa, 24 Maret 2020  
Waktu : 100 menit  
Dosen : Prof. Dr. Suryatno, M.Si

**PETUNJUK:** Jawablah setiap pertanyaan berikut dengan benar!

1. Tentukan struktur molekul senyawa A s/d M dalam deretan reaksi sintesis berikut!





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JURUSAN KIMIA

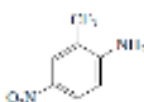
Kampus Ketintang, Jalan Ketintang, Surabaya 60231  
Telepon : +6231- 8298761, email: [kimia@unesa.ac.id](mailto:kimia@unesa.ac.id), Laman : <http://kimia.fmipa.unesa.ac.id>

**GOAL UJIAN AKHIR SEMESTER GENAP 2019/2020**

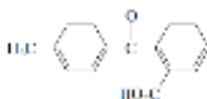
Mata Ujian	: Sintesis Kimia Organik
Jurusan/Fakultas	: Kimia / MIPA
Program/Angkatan	: Kimia/2017 (kelas A dan kelas B)
Hari/Tanggal	: Senin/18 Mei 2020
Waktu	: 08.00-09.40 {100 menit pengerjaan + 20 menit upload jawaban}
Dosen	: Tim
Sifat Ujian	: Open Book/Source

**Jawablah Pertanyaan-Pertanyaan di Bawah ini !**

1. Lakukan retro-sintesis lebih dulu setiap senyawa-senyawa berikut, baru Anda lakukan sintesis dan tunjukkan reagen-reagen yang digunakan dengan jelas dan lengkap!

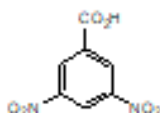


b.

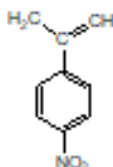


2. Tulis secara garis besar reaksi sintesis untuk pembentukan dari setiap senyawa berikut dari benzena menggunakan pereaksi yang sesuai dan berikan alasannya.

a.



b.







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Kampus Ketintang, Jalan Ketintang, Surabaya 60231

Telepon : +6231- 8298761, email: [kimia@unesa.ac.id](mailto:kimia@unesa.ac.id), Laman : <http://kimia.fmipa.unesa.ac.id>

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3. Kapan tahapan geseran metil (methyl shift) atau geseran hydrogen (hydrogen shift) terjadi pada reaksi substitusi elektrofilik pada senyawa aromatis dan berikan contohnya.
4. Gugus pelindung adalah gugus fungsi yang digunakan untuk melindungi gugus tertentu supaya tidak turut bereaksi dengan menggunakan pereaksi atau pelarut selama proses sintesis.
  - a. Jika senyawa yang akan direaksikan (disebut substrat) memiliki dua gugus hidroksil, apa yang bisa Anda lakukan terkait penggunaan gugus pelindung? Berikan contoh reaksinya dan jelaskan agar dapat dipahami maksudnya.
  - b. Bagaimanakah kalau substrat itu memiliki dua gugus karbonil dalam senyawanya? Apa yang Anda bisa lakukan terkait dengan penggunaan gugus pelindung? Berikan contoh reaksinya untuk memperjelas maksud Anda.

## D.2.2. Sample of Student's Work from Chemistry Class-20017

Nama : Perintis Gita Susanti

NIM : 17030234013

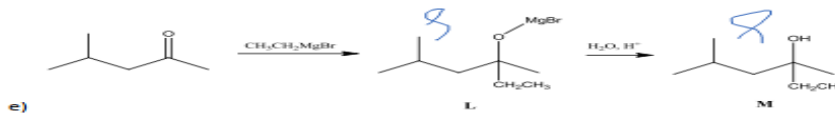
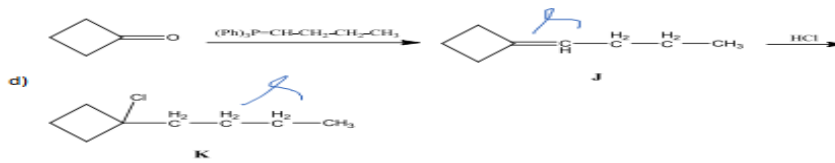
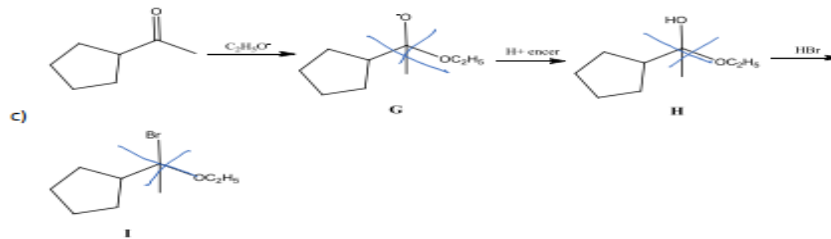
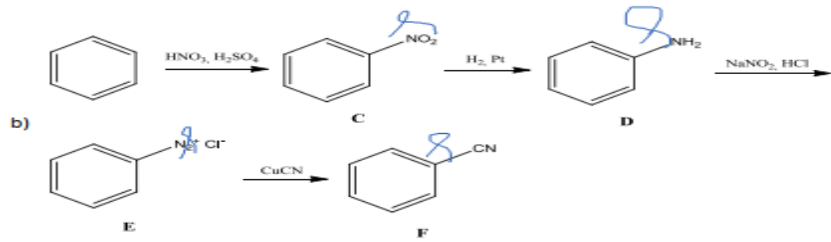
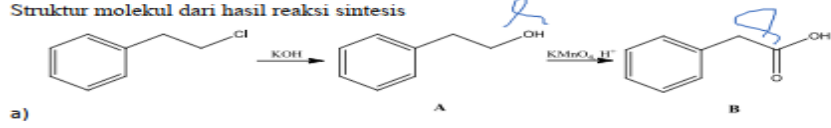
Kelas : Kimia A 2017

85

### UTS SINTESIS KIMIA ORGANIK

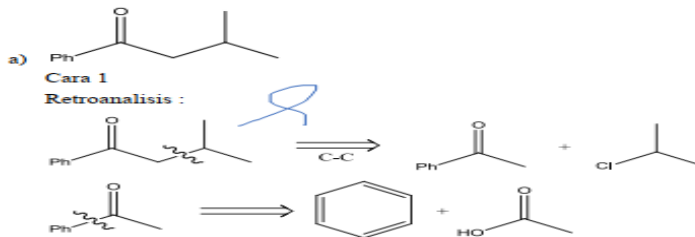
#### 1. Struktur molekul dari hasil reaksi sintesis

35

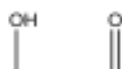
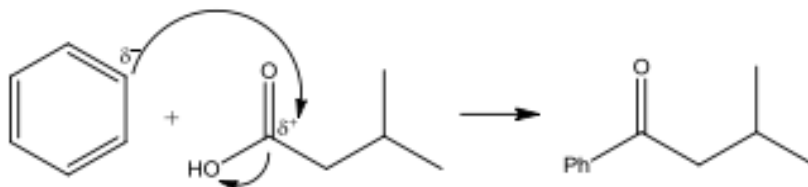


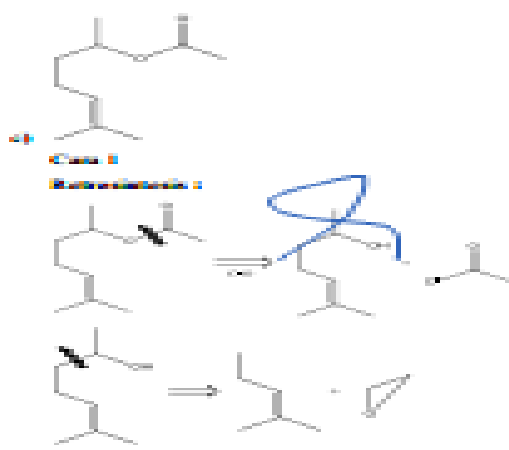
#### 2. Rancangan sintesis

50



#### Reaksi sintesis :






### D.3. RECAPITULATION OF ASSESSMENT

#### D.3.1. Validate Test Item

The test for the end of semester evaluation consists of eight questions in the form of essays which have been analyzed by the lecturer in the Organic Synthesis group. The essay question is validated by paying attention to several aspects, namely the suitability of the problem with indicators, language, content and construct.

#### D.3.2. Evaluation Results of Organic Synthesis for Chemistry Class

4	Kelas : 2017A											
5	Tahun Ajaran : 2019/2020 Genap											
6												
7	Keterangan :											
8	1. Komponen nilai yang diisi hanya : Part,Tugas,UTS dan UAS											
9	2. Nilai UAS mahasiswa dengan kehadiran dibawah 73.3% (kolom dg warna merah) tidak akan disimpan											
0	3. Jangan merubah apapun di dokumen ini kecuali pada point nomer satu di atas.											
1	4. PPTI / BAAK tidak menerima file nilai untuk diupload. Proses upload nilai dilakukan oleh dosen pengampu yang bersangkutan.											
2												
3	No	NIM	Nama Mahasiswa	Angkatan	Kehadiran	Part	Tugas	UTS	UAS	NA	Huruf	Pakai
4	1	16030234005	SOFIA MADANI	2016	93.33%	50	0	0	83	34.9	E	1
5	2	16030234026	EDLYN AINAYYAH AN NABILAH	2016	66.67%	0	85	0	85	25.5	E	1
6	3	17030234001	RIZKI AMALIA	2017	100%	80	88	55	85	78.9	B+	1
7	4	17030234003	DEWINTA INTAN LAILY	2017	100%	80	83	55	88	78.3	B+	1
8	5	17030234005	LISTYOWATI	2017	100%	80	83	50	85	76.4	B+	1
9	6	17030234007	ELMA ALFIANTI INDRI LESTARI	2017	100%	80	83	75	87	82	A-	1
10	7	17030234009	LAILATUL WAKHIDAH	2017	100%	80	83	55	89	78.6	B+	1
11	8	17030234011	SHEILA INSANIJI HIKMAH	2017	100%	80	85	55	82	77.1	B+	1

PROGRAM STUDI S1 Kimia												Original data :		
DAFTAR NILAI MAHASISWA														
Mata Kuliah : Penentuan Struktur Molekul														
Kelas : 2017B														
Tahun Ajaran : 2019/2020 Genap														
<b>Keterangan :</b>														
1. Komponen nilai yang diisi hanya : Part, Tugas, UTS dan UAS														
2. Nilai UAS mahasiswa dengan kehadiran dibawah 73.3% (kolom dg warna merah) tidak akan disimpan														
3. Jangan merubah apapun di dokumen ini kecuali pada point nomer satu di atas.														
4. PPTI/ BAAK tidak menerima file nilai untuk diupload. Proses upload nilai dilakukan oleh dosen pengampu yang bersangkutan.														
No	NIM	Nama Mahasiswa	Angkatan	Kehadiran	Part	Tugas	UTS	UAS	NA	Huruf	Pakai			
1	17030234002	AMALINA NUR FIDIYAH	2017	100%	60	70	55	84	69.2	B-	1			
2	17030234004	DEVY PUSPITA SARI	2017	100%	90	90	75	85	85.5	A	1			
3	17030234006	NUR AIDA, AMYLIANA	2017	100%	80	70	75	85	77.5	B+	1			
4	17030234008	KUALA WIRIDA WENING	2017	100%	80	90	55	90	81	A-	1			
5	17030234010	DICKY DHARMAWAN	2017	100%	75	70	85	80	77	B+	1			
6	17030234012	DIMAS AYU YULIANTI	2017	100%	90	90	65	85	83.5	A-	1			
7	17030234014	MUKHAMAD ROJIB AMINUDIN	2017	100%	90	90	75	86	85.8	A	1			
8	17030234016	BELA NUR WIDODO	2017	100%	85	90	75	90	86	A	1			
9	17030234018	RIZKA TAZKY AMALIA	2017	100%	90	90	76	83	85.1	A	1			
10	17030234020	JULIAN SAGUS BRAMASTA	2017	93.33%	80	88	0	88	68.8	B-	1			

**D.3.3. Percentage of PLO achievements of Organic Synthesis at Academic Year 2019/2020 for Chemistry Class**

**PLO ASSESSMENT**

Lecture : Organic Synthesis  
Code : 4720103165  
Department : Chemistry Department  
Total of Student : 59

	PLO-1	PLO-2	PLO-3	PLO-4	PLO-5	PLO-6	PLO-7	PLO-8
EXELENCE	24%				27%			
GOOD	66%				64%			

SATISFY	8%				7%			
FALSE	2%				2%			
	100%	0%	0%	0%	100%	0%	0%	0%

