

		Sanjay Ghodawat University, Kolhapur		2018-19
Established as State Private University under Govt. of Maharashtra. Act No XL, 2017				
Year and Program: 2018-19 F. Y. M.Sc.		School of Science		Department of Chemistry
Course Code: CHS 502		Course Title: Organic chemistry-II		Semester – Even (II)
Day and Date: Monday 20th May, 2019		End Semester Examination		Time: 3 hrs, Max Marks: 100 10.30 to 11.00 AM
PRN:		Seat No:		Section A Marks out of 20:
Jr. Supervisor sign:		Student Sign:		Answer Booklet No.

Section A

- Instructions:** 1) All Questions are compulsory.
2) For MCQs mark tic (\checkmark) for correct answer. No marks for multiple tics (\checkmark).
3) Section A should be submitted to Jr Supervisor immediately after first 30 min.

Q.1	Multiple choice questions. (1 mark each)	Marks	level	CO
1	Robinson annulation gives	20	L1	1
	A. α -hydroxyl ketones B. Six member cyclic α , β -unsaturated ketones C. Six member cyclic β -hydroxyl ketones D. none of this			
2	Benzoin Condensation gives.....		L2	1
	A. α -hydroxyl ketones B. β -hydroxyl ketones C. Ketones D. none of this			
3	Mc-Murry Coupling is carried out in presence of.....		L1	1
	A. Titanium B. Sodium C. Zinc D. none of this			
4	$\text{CrO}_3 + \text{Py}$ is known as.....		L2	2
	A) Jones Reagent. B. Collins reagent. C. Jones Reagent D. None of these			
5	1, 2-diol on cleavage by gives dialdehyde or diketones.		L2	2
	A. KMnO_4 B. MnO_2 C. OsO_4			

- D. All of these
- 6 Oxidation state of Mn in KMnO_4 is L1 2
- A. 6
B. 7
C. 8
D. 5
- 7 In catalytic hydrogenation reaction, which of the following catalyst is used? L2 3
- A) Pd
B) Ni
C) Pt
D) All of the above
- 8 Esters on reduction with LAH give..... L1 3
- A) 1° Alcohol,
B) 2° Alcohol
C) 3° Alcohol
D) None of this
- 9 Reduction of Cyclohexanone with Zn-Hg/HCl gives.....as a product. L2 3
- A. Benzene
B. Cyclohexane
C. Toluene
D. none of this
- 10 Deprotection of the acyclic ketal (ketone) is carried out with L2 3
- A. $\text{MeOH}/\text{H}_2\text{O}$ and $2N \text{H}_2\text{SO}_4$,
B. H_3O^+
C. F^-
D. All of this
- 11 Protection of the alcohol is carried out with L1 3
- A. MOM,
B. MEM
C. THP
D. All of this
- 12 In homogeneous catalytic hydrogenation reaction..... catalyst is used. L2 3
- A. Platinum
B. Raney Nickel
C. $(\text{Ph}_3\text{P})_3\text{RhCl}$.
D. All of the above
- 13 LiAlH_4 cannot reduce..... L2 3
- A. Aldehydes
B. Nitriles
C. Esters
D. Aromatic rings

- 14 Which of the following compound is not an organo-lithium compound? L2 4
- BuLi
 - CH₃Li
 - CdCl₂
 - PhLi
- 15 Synthon is L1 4
- Neutral species
 - Ionic species
 - Organometallic compound
 - None of these
- 16 Gilman reagent is an organometallic compound of L2 4
- Li
 - Cu
 - Fe
 - Ti
- 17 Organo-cadmium compound prepared by using..... L2 4
- Alkyl halide and Cadmium metal.
 - Organo-Litium and Cadmium chloride.
 - Both A and B
 - None of these.
- 18 Choose correct reagent for following reaction. L2 4
- $$\begin{array}{ccc}
 \begin{array}{c} \text{CH}_3 \\ | \\ \text{H}_3\text{C}-\text{C}-\text{COOH} \\ | \\ \text{CH}_3 \end{array} & \xrightarrow{\quad ? \quad} & \begin{array}{c} \text{CH}_3 \\ | \\ \text{H}_3\text{C}-\text{C}-\text{C}=\text{O} \\ | \quad \quad \quad || \\ \text{CH}_3 \quad \quad \quad \text{Ph} \end{array}
 \end{array}$$
- Ph-OH /H₂O and 2N H₂SO₄,
 - Ph-Li (Excess) / H₃O⁺
 - Ph-Cl / DCM
 - None of this
- 19 Lithium-dimethyl-cuprate when react with methyl bromide gives L2 4
- Alkene.
 - Ethanol
 - Ethane
 - None of these
- 20 Ferrocene is an organometallic compound of L2 4
- Li
 - Cu
 - Fe
 - Ti

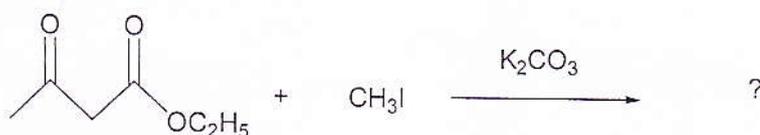
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Section B

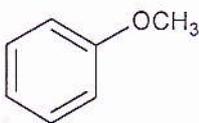
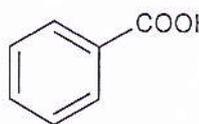
- Instructions:**
- 1) All questions are compulsory.
 - 2) Figures to the right indicate full marks.
 - 3) Non-programmable calculator is allowed

		Marks	level	CO
Q.2	Attempt <u>any two</u> of the following:	12		
a)	Explain Robinson annulation reaction with mechanism.	6	L2	1
b)	Discuss Mannich reaction and its application.	6	L2	1
c)	Identify and complete following reaction?	6	L3	1



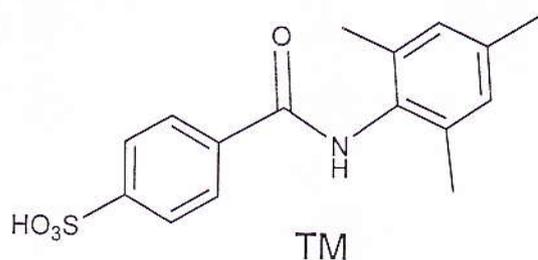
Q.3	Attempt <u>any two</u> of the following:	12		
a)	Take an account of selectivity in hydroboration of alkene.	6	L2	2
b)	Write note on potassium permanganate as oxidizing agent	6	L3	2
c)	Explain Prevost reaction with detail mechanism.	6	L3	2

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- Q.4 a) Attempt any two of the following:** **12**
- i) Give a comparative account of homogeneous and heterogeneous catalytic hydrogenation reactions. 6 L4 3
- ii) Explain mechanism and applications of Wolff-Kishner reduction. 6 L3 3
- iii) Give applications of the protecting and de-protecting group for carbonyl group with example 6 L3 3
- b) Attempt any four of the following:** **16**
- i) Explain acetals and ketals as a protecting group for alcohol. 4 L2 3
- ii) Predict the product and give appropriate mechanism. 4 L3 3
- $$\text{HOOC}-\overset{\text{H}_2}{\text{C}}-\overset{\text{H}_2}{\text{C}}-\overset{\text{H}_2}{\text{C}}-\overset{\text{H}_2}{\text{C}}-\overset{\text{O}}{\parallel}{\text{C}}-\text{OH} \xrightarrow[\text{ii) H}_3\text{O}^+]{\text{i) LiAlH}_4} ?$$
- iii) Predict the product and justify. 4 L4 3
- A  $\xrightarrow[\text{ii) C}_2\text{H}_5\text{-OH}]{\text{i) Na / NH}_3}$?
- B  $\xrightarrow[\text{ii) C}_2\text{H}_5\text{-OH}]{\text{i) Na / NH}_3}$?
- iv) What will be the possible product, when A react with following reagent? 4 L4 3
- $$\text{H}_3\text{C}-\underset{\text{H}}{\text{C}}=\underset{\text{H}}{\text{C}}-\overset{\text{O}}{\parallel}{\text{C}}-\text{H}_2-\overset{\text{O}}{\parallel}{\text{C}}-\text{CH}_3$$
- (A)
- I) $\text{NaBH}_4 / \text{H}_3\text{O}^+$,
- II) H_2 / Pt
- v) Explain protection of carbonyl compound with 1, 2 diol and 1, 3 diol. 4 L2 3

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- Q.5 a) Attempt any two of the following:** **16**
- i) Give synthetic methods for preparation of organo-lithium compound. How will you prepare primary, secondary, tertiary alcohol from organo-lithium compound? **8** L3 4
- ii) How organo-Cadmium compound can be prepared? What will happens when dimethyl cadmium react with acid chloride and acid anhydride respectively? **8** L3 4
- iii) Give your plan to synthesize following Target Molecules (TM). **8** L5 4



- b) Attempt any three of the following:** **12**
- i) Predict the product and give appropriate mechanism. **4** L3 4
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- ii) Write note on organo-Titanium compound. **4** L2 4
- iii) How will you prepare Lithium dialkyl-cuprate? Give its reaction with alkyl halide. **4** L3 4
- iv) Explain retrosynthesis and synthons with example. **4** L2 4

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