SGU	**Sanjay Ghodawat University, Kolhapur** Established as State Private University under Govt. of Maharashtra. Act No XL, 2017	**2018-19**

Year and Program: MSc	**School of Science**	**Department of Chemistry**
Course Code: CHS 601	**Course Title:** Organic Reaction Mechanism and Natural Products	**Semester – Odd (I)**
Day and Date: 26 Nov 2018 Monday	**End Semester Examination**	**Time: 3 hrs, Max Marks: 100** 10:00am to 1:00pm
PRN:	**Seat No:**	**Section A Marks out of 20:**

Jr. Supervisor Signature		**Student Signature**	

Section A

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

Q.1	**Multiple choice questions.**	**Marks 20**	**level**	**CO**
1	Rate-determining step containing single species will make ------ reaction. A) molecular B) unimolecular C) bimolecular D) multimolecular	01	L1	1
2	In the equation, $\Delta G = \Delta H - T\Delta S$, reaction is spontaneous if ΔG is A) negative B) positive C) negative or positive D) none of above	01	L1	1
3	Order of reaction can be determined by knowing that rate determining step have - A) intermediates B) reactants C) products D) initiators	01	L1	1
4	Triplet carbene has …… spin. A) parallel B) opposite C) complex D) none of above	01	L1	2
5	Carbenes undergo ….. reaction with alkenes. A) Addition B) Substitution C) Reduction D) Elimination	01	L1	2
6	$R\text{-}N\text{-}N{\equiv}N \xrightarrow{\text{Light}} ?$	01	L1	2

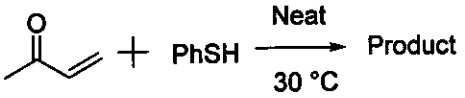
A) R-N: C) R-N-N

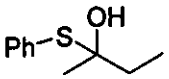
B) N≡N^{++} D) R:

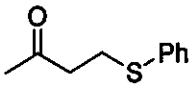
7 Boronic acid used as reactant in following coupling reaction - 01 L1 3

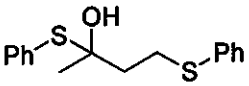
A) Heck Coupling
B) Schenk-Ene
C) Suzuki Coupling
D) None of above

8 Find the product. 01 L2 3



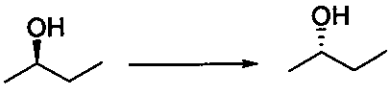
A) 

C) 

B) 

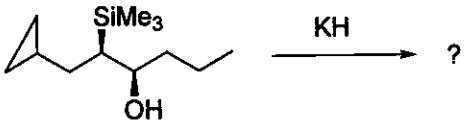
D) None

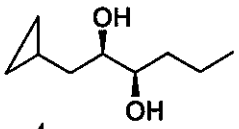
9 Which name reaction is involved in following transformation ? 01 L2 3

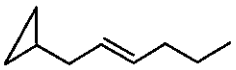


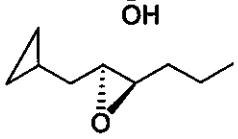
A) Michael Reaction
B) Chichibabin Reaction
C) Mitsunobu Reaction
D) Hoffman Reaction

10 Find the product. 01 L2 3



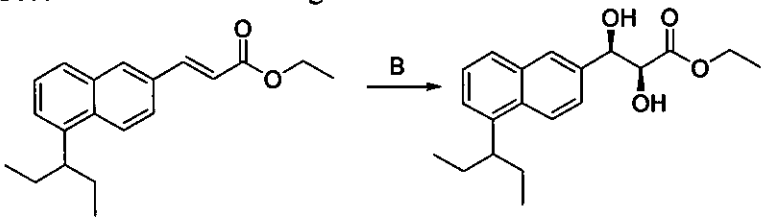
A) 

B) 

C) 

D)

11 Predict the B in following reaction. 01 L2 3



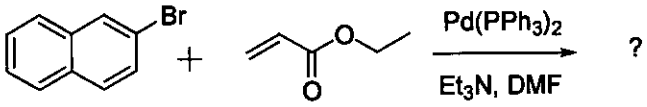
A) OsO_4, $K_3Fe(CN)_6$, K_2CO_3 DHQ-PHAL

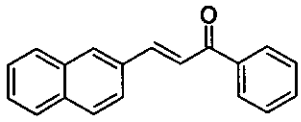
B) OsO_4, $K_3Fe(CN)_6$, K_2CO_3 DHQD-PHAL

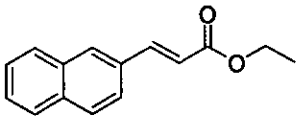
C) OsO_4, $K_3Fe(CN)_6$, K_2CO_3

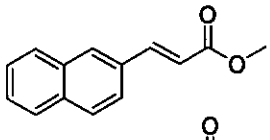
D) OsO_4, $K_3Fe(CN)_6$, K_2CO_3 Quinhydrone

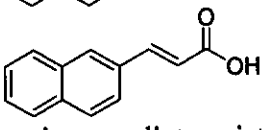
12 Find product. 01 L2 3



A) 

B) 

C) 

D) 

13 Ketene intermediate exist in the reaction is 01 L1 3

A) Wolff Rearrangement
B) Beckman Rearrgement
C) Suzuki Coupling
D) Robinson Annulation

14 General formula of Terpenoids is 01 L1 4

A) C_5H_8
B) $C_{10}H_{22}$
C) C_6H_{12}
D) $C_{12}H_{14}O_4$

15 Which is suitable example of monoterpenoids ? 01 L1 4

A) Chlorophyll
B) Rubber
C) Morphine
D) Menthol

16 Number of unsaturation in α-pinene ($C_{10}H_{16}$) is 01 L2 4

A) Three
B) Two
C) One
D) Zero

17 Natural Source of camphor terpenoids is 01 L1 4

A) Chrysanthemum
B) Camphora Tree
C) Ginger
D) Lemmon

18	What are to proposed function of alkaloids within plant? A) Poison to protect plant B) End product of detoxification C) Regulatory growth factor D) Nitrogen reserves	01	L1	4
19	Alkaloids must have - A) N-atom in the ring B) N-atom at any position in molecule C) Primary amine group D) None of above	01	L1	4
20	Which of following is alkaloid ? A) Phenol B) menthol C) terpine D) Reserpine	01	L1	4

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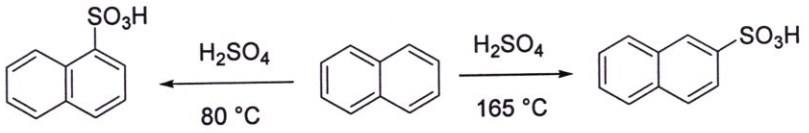
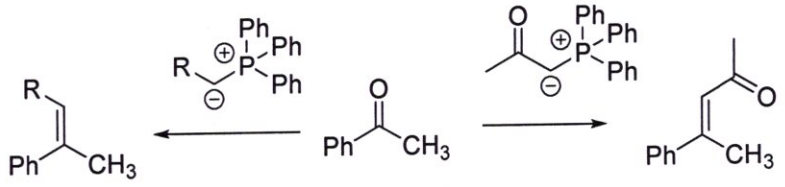
Day and Date: 26 Nov 2018 Monday	**End Semester Examination**	**Time: 3 hrs, Max Marks: 100** 10:00am to 1:00pm
PRN:	**Seat No:**	**Section B Marks out of 80**

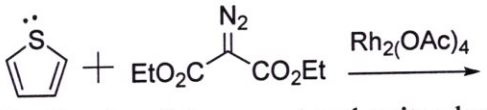
Section B

		Marks	level	CO
Q.2	**Attempt the following (any Two)**	**12**	L3	
a)	What is mean by reaction profile diagram? Explain with example.	06	L3	1
b)	Comment on product selectivity under thermodynamic vs. kinetic control.	06	L3	1

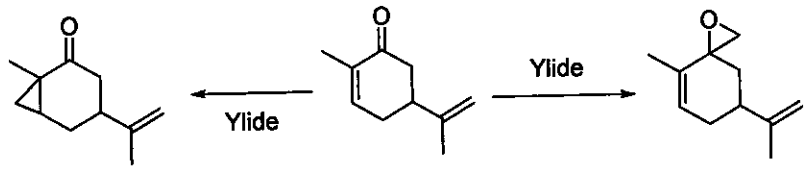




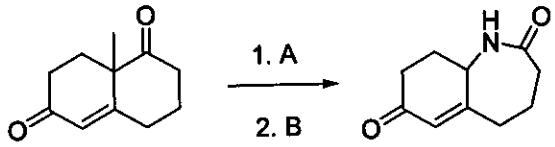
c)	Explain the following terms Molecularity Transition state Microscopic reversibility	06	L1	1
Q.3	**Attempt the following (any Two)**	**12**	L1	
a)	i. Write note on Chichibabin reaction. ii. Predict the product.	06	L2	2



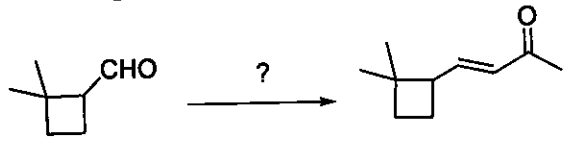
b)	Predict the ylide reagent and write plausible mechanism.	06	L2	2



c) i. Predict A and B. 06 L2 2



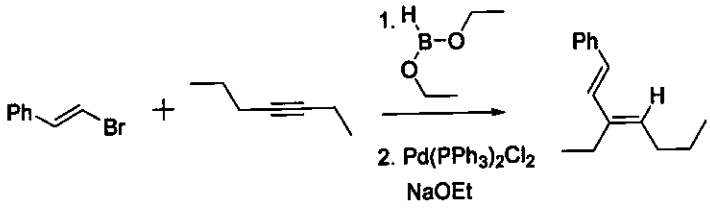
ii. Predict the reagent and write the proper mechanism for following reaction.



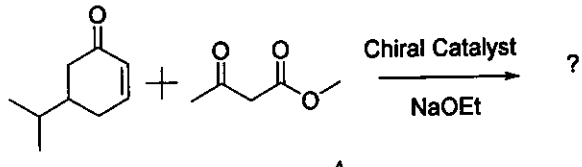
Q.4 a) Attempt the following (any Two) **12**

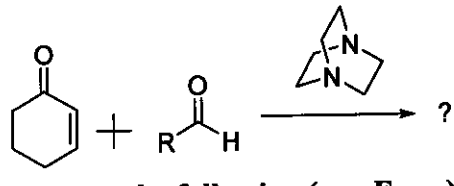
i) Write a note on Wittig reaction with detailed mechanism, comment on different stereo product formed at different reagents. 06 L1 3

ii) Write mechanism involved in following name reaction. 06 L2 3



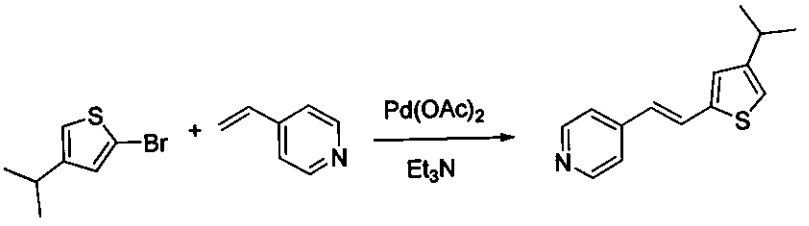
iii) Write product with mechanism. 06 L2 3



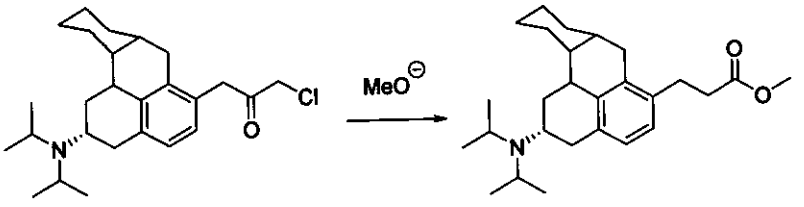


b) Attempt the following (any Four) **16**

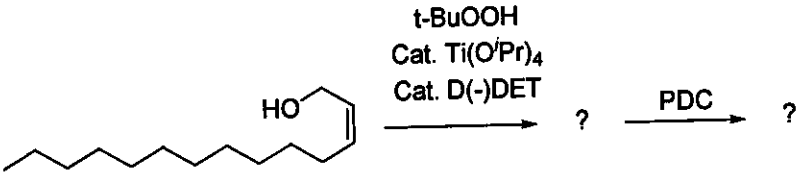
i) Write the mechanism of following reaction. 04 L2 3



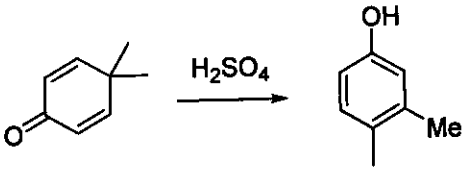
ii) Write the mechanism for following reaction. 04 L2 3



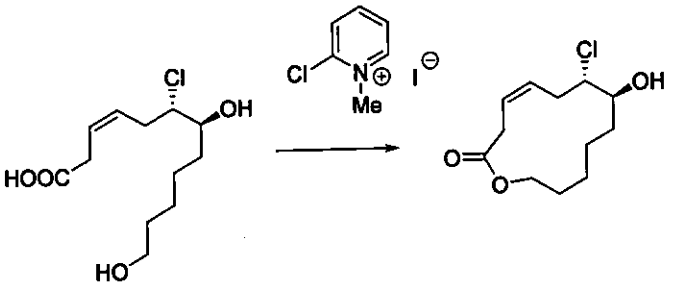
iii) Complete the following transformation. 04 L2 3



iv) Write the mechanism for following Dienone-Phenol rearrangement. 04 L2 3



v) Give the mechanism for following reaction. 04 L2 3

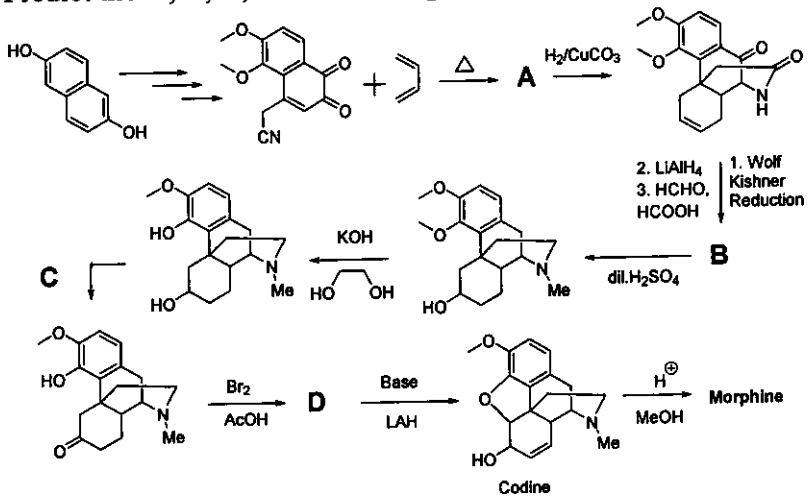


Q.5 a) Attempt the following (any Two) **16**

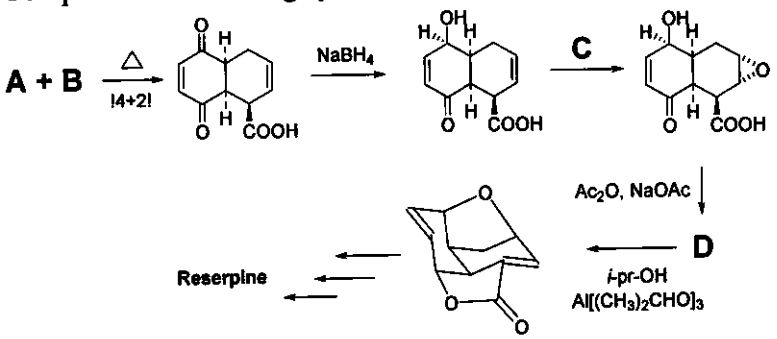
i) Give the structure determination of following terpenoids: 08 L1 4
Geraniol
Menthol

ii) Give an account on terpenoids with the following: 08 L1
Definition, examples, isoprene rule, special isoprene rule, classification.

iii)	Explain the structure determination of in terpenoids with following notes: Physical Methods Synthetic Methods	08	L1	
b)	**Attempt the following (any Three)**	**12**		
i)	Explain the term Alkaloids with examples and its nomenclature.	04	L1	4
ii)	What is pseudo alkaloids and give the total synthesis of ephedrine.	04	L1	4
iii)	Predict the A, B, C, D in following natural product synthesis.	04	L3	4



iv)	Complete the following synthesis of Reserpine alkaloid.	04	L3	4



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