647510 **MSC2COcC102x** **Seat No:_____**

M.Sc.(Chem.) Semester - 2 (*CBCS*) Examination
March/April– 2019 (New Course)
Organic Chemistry(CORE)

Time: 2:30 Hours **Marks: 70**

Instructions:

1. All questions are compulsory.
2. Figures to the right indicate marks.

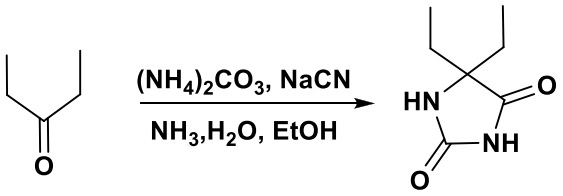
UNIT-1 (14 marks)

Answer **ALL** questions

Q.1 (a) Answer the following **4 Marks**

(1) What are multicomponent reactions (MCR)? Write its advantages. 2

(2) Identify the following reaction and write its plausible mechanism. 2



Q.1 (b) Answer any two question out of three. **10 Marks**

Describe principle, mechanism and three applications of the following MCR:

(1) Ugi reaction 5

(2) Biginelli reaction 5

(3) Mannich reaction 5

UNIT-2 (14 marks)

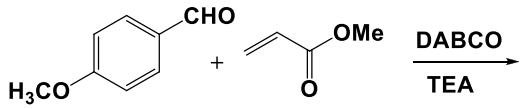
Answer **ALL** questions

Q.2 (a) Answer the following **4 Marks**

(1) What is organocatalyst? Give three examples. 2

(2) Identify the following reactions (I & II) and write it's appropriate product:

(I)



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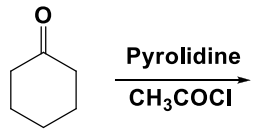
(II)



Q.2 (b) Answer any two question out of three. **10 Marks**

(1) What is Cojugate addition reaction? Describe various factors affecting conjugate and direct addition reaction with example. 5

(2) Describe Horner-wadswarth-emmons (HWE) reaction in detail. 5

(3) Write a note on peterson olefination. 5

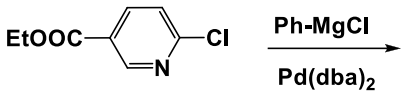
UNIT-3 (14 marks)

Answer **ALL** questions

Q.3 (a) Answer the following **4 Marks**

(1) Write any four structure of $Pd^{(0)}$ complexes which are utilized in the C-C cross coupling reaction. 2

(2) Identify the following reactions (I & II) and write it's appropriate product.

(I) 

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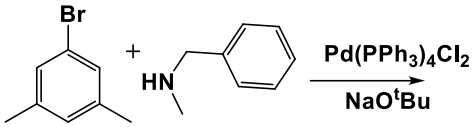
(II) 

Q.3 (b) Answer any two question out of three. **10 Marks**

Describe principle, mechanism and two applications of the following Pd-catalyzed reactions:

(1) Suzuki 5

(2) Heck 5

(3) Sonogashira 5

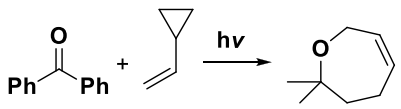
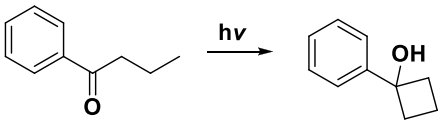
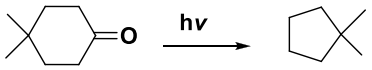
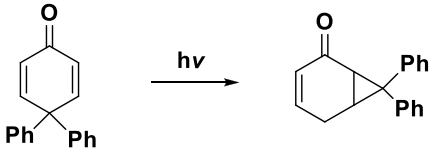
UNIT-4 (14 marks)

Answer **ALL** questions

Q.4 (a) Answer the following **4 Marks**

(1) Explain:
(i)Grothurs-draper law
(ii)Stark-Einstein law 2
(iii)Quantum yield
(iv)Kasha's rule

(2) Make correct pair from the following given list of photochemical transformation (I to IV) and their corresponding name reaction/primary processes (a to d).

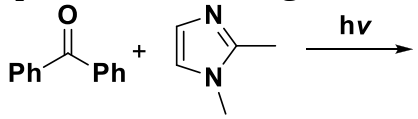
Photochemical Transformation	Name of Reaction/Primary process
(I) 	(a) zimmerman Rearrangement
(II) 	(b) Norish Type-I
(III) 	(c) Norish Type-II
(IV) 	(d) Peterno-Buchi reaction

2

Q.4 (b) Answer any two question out of three. **10 Marks**

(1) Explain Jablonski diagram in detail. 5

(2) Complete the following reactions (I & II) with mechanism:

(I) 

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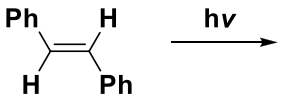
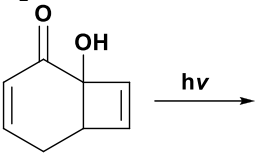
(II) 

(3) Complete the following reactions (I & II) with mechanism.

(I) 

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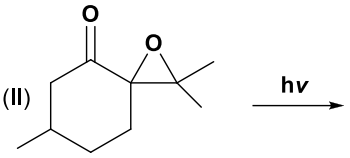
(II) 

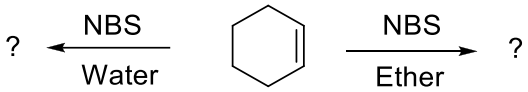
UNIT-5 (14 marks)

Answer **ALL** questions

Q.5 (a) Answer the following **4 Marks**

(1) Write the chemical structure of the following reagent: 2
(i) AIBN (ii)TMSCN (iii)TBTH (iv) DCC

(2) Complete the following reactions and justify your answer.



2

Q.5 (b) Answer any two question out of three. **10 Marks**

Write chemical structure and at least four applications of following reagent:

(1) TEMPO 5

(2) TBAB 5

(3) DDQ 5

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