GALGOTIAS UNIVERSITY

ADMISSION NUMBER													

School of Basic Sciences

Master of Science in Chemistry
Semester End Examination - May 2024

Duration : 180 Minutes
Max Marks : 100

Sem IV - MSCH6002 - Reagents and Heterocyclic Chemistry

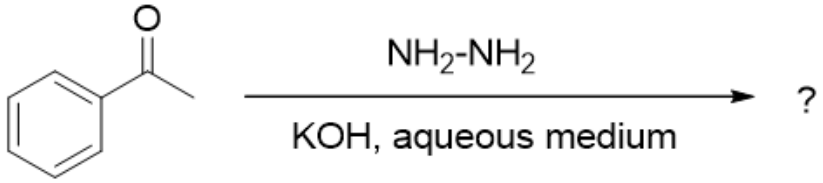
General Instructions
Answer to the specific question asked
Draw neat, labelled diagrams wherever necessary
Approved data hand books are allowed subject to verification by the Invigilator

1) Why LDA is a poor nucleophile? Write the structure and function of LDA. K1 (3)

2) Illustrate orbital diagram and all possible resonance structures of Furan. K2 (4)

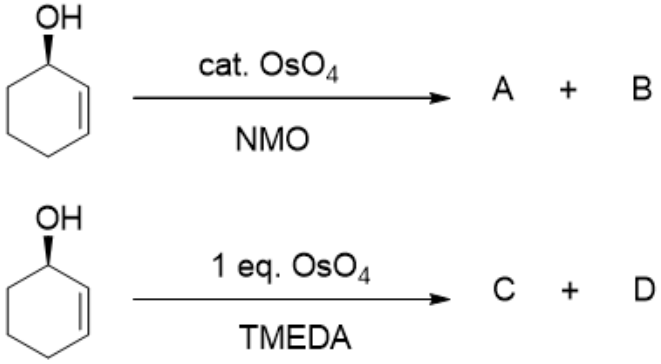
3) Explain the method of synthesis of Dettol. K2 (6)

4) Utilizing reduction mechanism, predict the products with mechanism for following reactions. K3 (6)



5) Utilizing retrosynthetic approach, explain the synthesis of sulphanilamide. K3 (6)

6) Applying oxidation mechanism of OSO_4 predicts the products and stereochemistry of following reactions with reason. K3 (9)



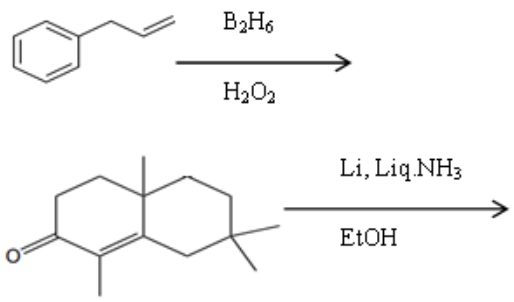
7) Applying Retrosynthesis approach, illustrate the synthesis of Benzocaine. K3 (9)

8) Compare in between Pyridine and Pyridine –N-oxide, which is more reactive towards electrophiles and nucleophiles with reason. K4 (8)

9) Analyze the synthesis method of chloropromazine and chloramine -T. K4 (12)

10) Conclude how Gilman's reagent react with α, β unsaturated compounds, epoxides, acid chlorides and cyclic ketones with reactions. K5 (10)

11) Justify the Stereoselectivity of the products in following reactions with reason K5 (15)



OR

Justify the following: K5 (15)

1. Terminal alkyne forms aldehydes and internal alkyne forms ketone upon hydroboration-oxidation reaction.
2. Hydroboration-oxidation product occurs according to Anti-Markovnikov's rule.

12) Discuss the following reactions with mechanism: a. Conard-Limpach synthesis of Quinoline b. Hantz Synthesis K6 (12)

OR

Discuss the method of synthesis of Mepacrine with mechanism. K6 (12)