


Name:	 UPES UNIVERSITY WITH A PURPOSE
Enrolment No:	

UNIVERSITY OF PETROLEUM AND ENERGY STUDIES
End Semester Examination, December 2019

Course: Organic Chemistry II
Program: B.Sc. (H) Chemistry
Course Code: CHEM 2002

Semester: III
Time 03 hrs.
Max. Marks: 100

Instructions: Read the instructions given below carefully:

1. All questions are compulsory.
2. Internal choice is given in question number 10 and 12.
3. Attempt all part of the question in continuations

SECTION A

S. No.	Question	Marks	CO
Q 1	Describe the preparation of aryl halides from diazonium salt.	4	CO1
Q 2	Arrange the following compounds in decreasing order of reactivity towards nucleophilic addition reactions: C ₆ H ₅ CHO, C ₆ H ₅ COCH ₃ , C ₆ H ₅ COC ₆ H ₅ , CH ₃ COCH ₃ , CH ₃ CHO	4	CO1
Q 3	Discuss the stereochemical aspect in SN ¹ and SN ² reactions.	4	CO2
Q 4	a) Giving reasons, arrange the following in increasing order of acidity ClCH ₂ COOH, CH ₃ CH ₂ COOH, BrCH ₂ COOH, (CH ₃) ₂ CHCOOH b) First dissociation constant of maleic acid is greater than first dissociation constant of fumaric acid	4	CO1
Q 5	Give the reaction involved a) Reduction of Malic acid b) Oxidation of Malic acid	4	CO3

SECTION B

Q 6	Explain a) The relative reactivity of alkyl halides vs benzyl halides. b) Acidic character of reactive methylene compounds	8	CO1
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Q 7	Giving reaction, explain the treatment of H ₂ SO ₄ on hydrocarboxylic acid under different conditions	8	CO2
Q 8	Explain the mechanism in aromatic compounds a) Michael addition b) Aldol condensation. c) Witing reactions d) Benzil-Benzilic acid rearrangement	8	CO3
Q 9	Carry out the following conversions with detailed mechanism a) butanoic acid to pentanoic acid b) propanamide to ethanamine	8	CO3
Q 10	Explain the synthetic application of diethyl malonate and ethyl acetoacetate. OR a) Discuss bromination of phenol in the presence of water and also in the presence of CS ₂ b) Why 2 ^o and 1 ^o alcohol are less reactive than 3 ^o alcohols.	8	CO2
SECTION-C			
Q 11	a) Discuss the use of Grignard reagent in the synthesis of organic compound. b) Conversions: i) Ethanoyl chloride to Butanone ii) Ethanal to ethane iii) Methanal to Methanol	10 10	CO2 CO3
Q 12	a) Give reason: i) Lower carboxylic acid are soluble in water ii) Hydrolysis of ester to produce carboxylic acid is a reversible process iii) Acidic strength of carboxylic acid is higher than alcohol and water iv) Carboxylic acid also exhibit basic characters v) Amides are least reactive of all the acid derivatives b) Write the equation showing the effect of H ₂ SO ₄ on 1 ^o , 2 ^o , and 3 ^o alcohol c) Give detailed mechanism of Reimer-Tiemann reaction OR a) Explain Victor's Meyer's test to distinguish between 1 ^o , 2 ^o and 3 ^o alcohols b) Give any two reactions (steps involved) to prepare alcohols using Grignard reagent c) Give detailed mechanism of Pinacol-Pinacolone rearrangement	10 5 5	CO1 CO3