

EASTERN UNIVERSITY, SRI LANKA

SECOND EXAMINATION IN SCIENCE-2010/2011 (APRIL/MAY' 2013)

FIRST SEMESTER

CH204 REACTION MECHANISM AND AROMATICITY

(Proper & Repeat)

Answer all questions

Time Allowed: One hour

1. (a) Describe the following briefly;

i) Aromatic, anti aromatic and non aromatic compounds

ii) Annulenes

(20 Marks)

(b) Show how primary, secondary, and tertiary alcohols can be formed using Grignard reactions with aldehydes and ketones as starting materials.

(10 Marks)

(c) Outline a synthesis of 5-nonanone with 1-butanol as your only starting compound.

(10 Marks)

(d) i) Propose a suitable mechanism on a Wittig synthesis of 2-methyl -1-phenyl propene.

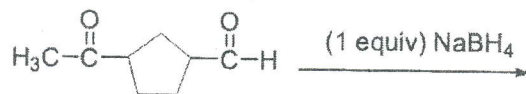
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ii) Why is triphenylphosphine used in the Wittig reaction and not trimethylphosphine

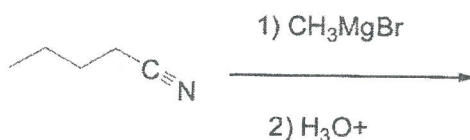
(20 Marks)

(e) Write down the products for the following reactions.

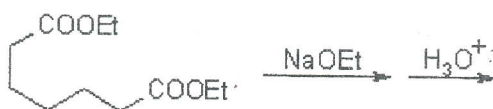
i)



ii)



iii)

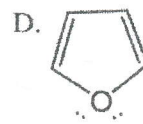
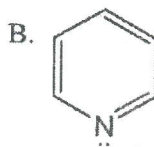
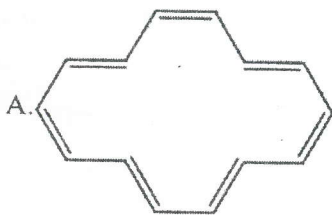


(30 Marks)

2. (a) i) State Huckel's rule?

ii) Determine whether the following compounds are aromatic or not, by

Huckel's rule.

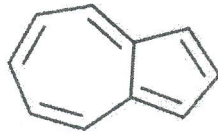


(20 Marks)

Contd.



iii) Find out whether the following compound (azulene) is aromatic or not using Craig rule.



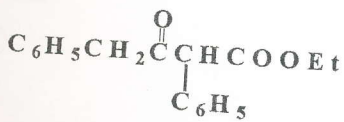
(20 Marks)

(b) Using Huckel's rule and polygon & Circle method find out whether cyclooctatetraene is aromatic or not.

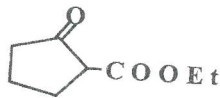
(15 Marks)

(c) Write the structures of the ethyl esters needed for forming each of these β -keto ester by Claisen condensation

i)



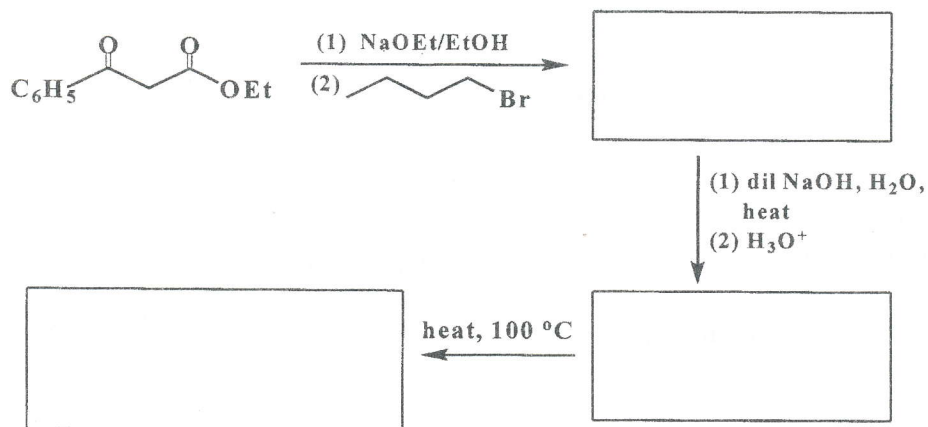
ii)



(10 Marks)

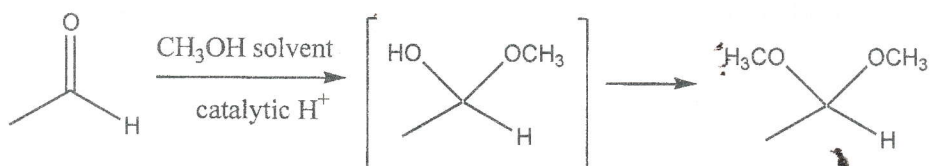
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(d) Provide the missing structures in the scheme below.



(15 Marks)

(e) Propose a mechanism for the formation of this following reaction.



(20 Marks)
