EASTERN UNIVERSITY, SRI LANKA

FIRST SEMESTER SECOND EXAMINATION IN SCIENCE

2009/2010 (JUNE – JULY 2011)

CH 204: REACTION MECHANISM AND AROMATICITY

(Proper & Repeat)

Answer all questions

Time Allowed: One hour

1.(a) Starting with benzyl bromide show how you would synthesis each of the following;

i. $C_6H_5CH_2CHOHCH_3$

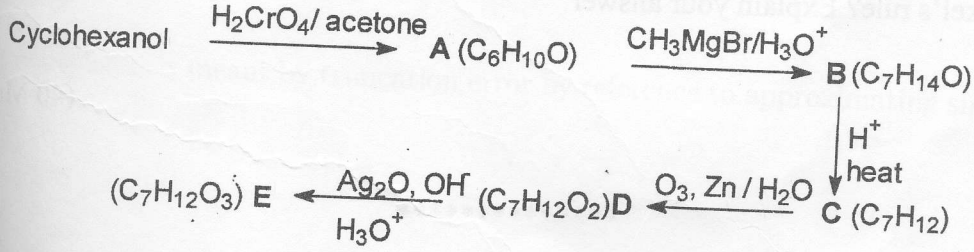
ii. $C_6H_5CH_2CH_2CHO$

iii. $C_6H_5CH_2COCH_2CH_3$

iv. $C_6H_5CH{=}CH{-}CH{=}CHC_6H_5$

(20 Marks)

(b) Give the structure for compounds A-E



(30 Marks)

Contd.

(c) Write a mechanism for the Perkin condensation that takes place when benzaldehyde reacts with propanoic anhydride in the presence of potassium propanoate.

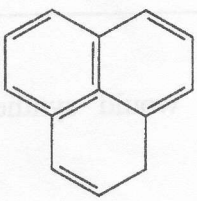
(30 Marks)

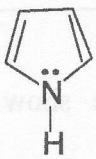
(d) Triphenylphosphine can be used to concert epoxides to alkenes, for an example,

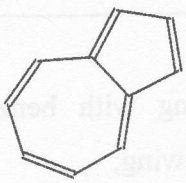
Propose a suitable mechanism for this reaction.

(20 Marks)

2.(a) State Huckel's rule for aromaticity. Classify the following species as aromatic, anti aromatic or non-aromatic. Give reasons for your classification.

(i) 

(ii) 

(iii) 

(30 Marks)

(b) Using Huckel's rule and polygon and Circle method find out whether cyclo octatetraene is aromatic.

(30 Marks)

(c) Would you expect the cyclopentadienyl cation to be aromatic on the basis of Huckel's rule? Explain your answer

(40 Marks)

****