



UNIVERSITI TUN HUSSEIN ONN MALAYSIA

**FINAL EXAMINATION
SEMESTER I
SESSION 2016/2017**

COURSE NAME : ORGANIC CHEMISTRY
COURSE CODE : DAS 22503
PROGRAMME : 2 DAU
EXAMINATION DATE : DECEMBER 2016 / JANUARY 2017
DURATION : 2 HOURS AND 30 MINUTES
INSTRUCTION : A) ANSWER ALL QUESTIONS IN
SECTION A

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B) ANSWER TWO (2) QUESTIONS
ONLY IN SECTION B

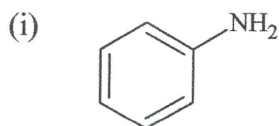
THIS QUESTION PAPER CONSISTS OF FOUR (4) PAGES

SECTION A

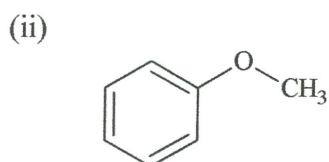
Q1 (a) Define aromatic compound.

(3 marks)

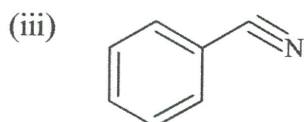
(b) Name the following compounds.



(2 marks)



(2 marks)



(3 mark)

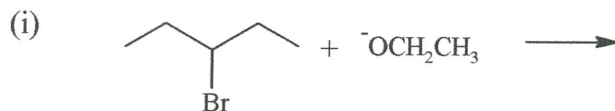
(c) Erich Hückel proposed a rule known as Hückel Rule for a compound to be aromatic. Explain this rule.

(6 marks)

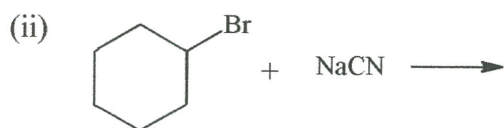
(d) Write a stepwise mechanism for nitration of benzene.

(10 marks)

Q2 (a) Draw the product of given reaction. Identify the nucleophile, electrophile and leaving group.



(5 marks)

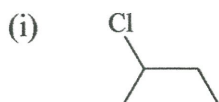


(5 marks)

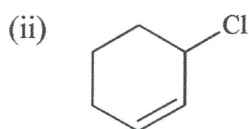
- (b) Draw structural formulas for the alkenes that form upon acid – catalysed dehydration of 2 – pentanol. Predict the major product and explain your answer. (15 marks)

SECTION B

- Q3** (a) Define enantiomers, meso compound and stereocenter. (3 marks)
- (b) Draw and name structural formulas for the **FIVE (5)** constitutional isomers with the molecular formula C_6H_{14} . (10 marks)
- (c) Identify the stereocenter in each molecule and draw stereo-presentations of the enantiomers of each.



(2 marks)



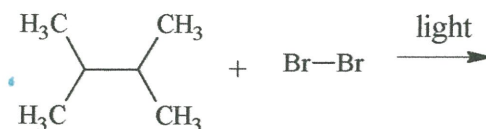
(2 marks)

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- (d) Find how many stereocenters are possible for 3-methylcyclopentanol. Determine, if any, the possible pairs of stereoisomers are meso compounds. (8 marks)

- Q4** (a) Three major sources of alkanes throughout the world are the fossil fuels:- natural gas, petroleum and coal. In your own words, explain one of the major source. (10 marks)

- (b) Name and draw structural formulas for all possible monohalogenation products that might be formed in this reaction. Predict the major product produced.



(15 marks)

Q5 (a) Define alkene and alkyne with correct general formula.

(4 marks)

(b) Name and draw a structural formula for the products of this alkene addition reaction. Predict the major product and explain your answer.



(6 marks)

(c) Propose a synthesis for $\text{H}_3\text{C}-\text{C}\equiv\text{C}-\text{CH}_2-\text{CH}_2-\text{CH}_2-\text{CH}_2-\text{CH}_3$ starting with acetylene and any necessary organic and inorganic reagents.

(15 marks)

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~END OF QUESTION~