TECHNICAL UNIVERSITY OF MOMBASA

FACULTY OF APPLIED AND HEALTH SCIENCES

DEPARTMENT OF PURE & APPLIED SCIENCES

UNIVERSITY EXAMINATION FOR:

DIPLOMA IN ANALYTICAL CHEMISTRY

DAC 14S

ACH 2209: CHEMISTRY OF AROMATIC COMPOUNDS

END OF SEMESTER EXAMINATION

SERIES:APRIL2016

TIME:2HOURS

DATE: Pick DateSelect MonthPick Year

Instructions to Candidates

You should have the following for this examination

-Answer Booklet, examination pass and student ID

This paper consists of **FIVE** questions. Attemptquestion ONE (Compulsory) and any other TWO questions.

Do not write on the question paper.

Question ONE

(a) Write electrophilic reaction mechanism of naphthalene. (8marks)

(b) (i) Benzene does not react with halogen molecules in the dark. Explain (2marks).

(ii) How can reaction of benzene and halogen molecules be achieved. Include appropriate equations and name of the products. (7marks).

(c) Write equation for reaction of Phenol with the following reagents and name the products. (i) ethanoyl chloride. (3marks)

(ii) Bromine water. (3marks)

(iii) water. (3mark)

(d) Write the four hybrid contributing resonance structures of anthracene. (4marks)

Question TWO

(a) Draw the structures of the following compounds.
(i) 2,4,6 –trichlorophenol. (2marks)
(ii) 4-Chloro3,5-dimethylphenol. (2marks)
(b) State the use of the above two compounds in modern medicine. (2mark)
(c) Using appropriate equations, explain how phenol can be prepared from benzene. (9marks)

Question THREE

(a) Draw the structures of the following organic compounds.
(i) Napthalene diozonide (2marks)
(ii) Phthaldehyde (2marks)
(iii) 2-methyl 1,4- Naphthoquinone (2marks)
(iv) Phthalic anhydride (2marks)
(v) 1,4-dihydro naphthalene (2marks)
(b) Write equation for diel Alder reaction of anthracene with maleic anhydride. (5marks)

Question FOUR

(a) Explain preparation of anthracene by Friedel craft reaction of benzene and phthalic anhydride. (8marks)
(b) State Huckels rule of aromatic compounds. (3marks)
(c) Draw the structures of the following compounds
(i) 2-Bromo 3-Chloro 5-Ethylphenol. (2marks)
(ii) 2,4,6-trinitrotoluene. (2marks)

Question FIVE

(a) Phenoxide ion, the conjugate base of Phenol is stabilized by resonance with the lone pair of electrons and –ve charge delocalized over four atoms. Write the four resonance structures of phenoxide ion. (8marks)
(b) Draw and name monochlorination products of naphthalene when its treated with $AlCl_3/Cl_2$ (4marks)
(c) Show that pyridine can be represented as a hybrid of two equivalent contributing structures. (3marks)