THE MOMBASA POLYTECHNIC UNIVERSITY COLLEGE

(A CONSTITUENT COLLEGE OF JKUAT)

(A Centre of Excellence)

Faculty of Applied and Health Sciences

DEPARTMENT OF **PURE AND APPLIED SCIENCES**

DIPLOMA IN SCIENCE LABORATORY TECHNOLOGY
(DSLT 10 S)

ACH 2302: PHOTOGRAPHY, CRYOGENIC, GLASS BLOWING VACUUM

SPECIAL/SUPPLEMENTARY: EXAMINATIONS

SERIES: February 2013

TIME: 2 HOURS

INSTRUCTIONS:

You should have the following for this paper

- *Answer booklet*

This paper consists of ***FIVE*** questions.

Answer Question **ONE (compulsory)** and any other **TWO** questions
*This paper consists of **2 PRINTED** pages*

Question ONE

a) (i) What is a leak **(2marks)**
(ii) Mention two types of leak **(2marks)**
(iii) How is an ultra high vacuum achieved **(6marks)**
b) (i) Draw a line-chart diagram of vacua showing pressure ranges. **(6marks)**
(ii) Explain why rotary vane pump work in oil. **(4marks)**
c) (i) Differentiate between static and dynamic vacua **(7marks)**
(ii) Give THREE examples of each **(3marks)**

Question TWO

a) Explain the following
(i) Critical backing **(2marks)**
(ii) Cryopumping
(iii) Vacuum coating
(iv) Roughing pump
(v) Backing pump
b) Describe how to produce rough vacuum in a laboratory. **(5marks)**

Question THREE

a) Describe hot cathode ionization gauge. **(10marks)**
b) Outline problems encountered when using ionization gauge. **(5marks)**

Question FOUR

a) Discuss sliding vane pump. **(13marks)**
b) Define the sensitivity of a leak detector **(2marks)**

Question FIVE

a) Describe pump connections **(5marks)**
b) Describe working principles of Mcleod gauge. **(10marks)**