

# 127, 17 27, 17 (20) 77, 17 (20









### جامعة عين شمس

التوثيق الالكتروني والميكروفيلم



نقسم بللله العظيم أن المادة التي تم توثيقها وتسجيلها علي هذه الأفلام قد اعدت دون آية تغيرات



### يجب أن

تحفظ هذه الأفلام بعيداً عن الغبار

في درجة حرارة من 15-20 مئوية ورطوبة نسبية من 20-40 %

To be kept away from dust in dry cool place of 15 – 25c and relative humidity 20-40 %



ثبكة المعلومات الجامعية





Information Netw. " Shams Children Sha شبكة المعلومات الجامعية @ ASUNET بالرسالة صفحات لم ترد بالأص



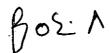
### PLATTNG ON PLASTICS FOR PRINTED CIRCUIT BOARDS

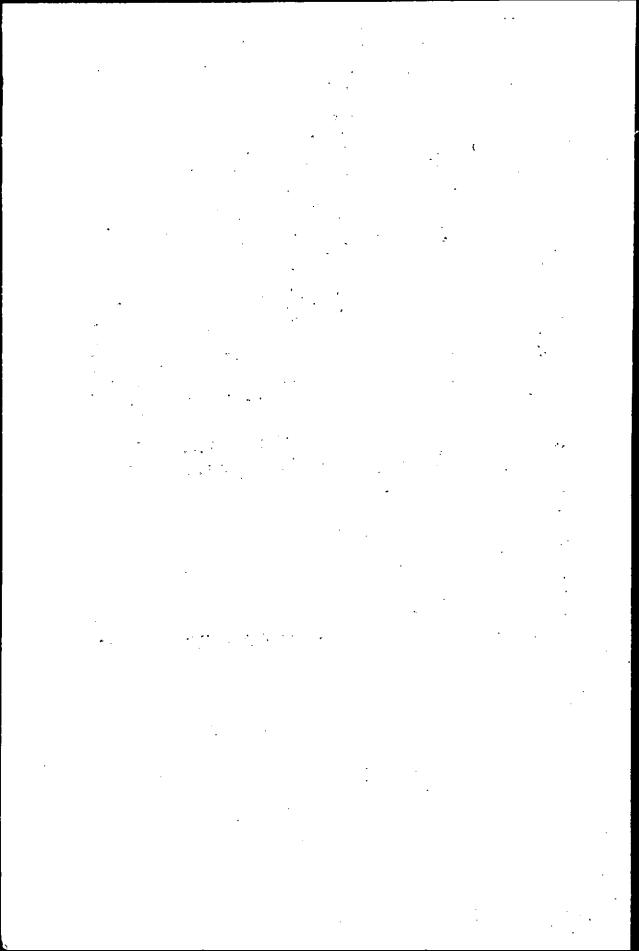
A thesis Submitted to

Faculty of Science
Ain Shams University
for
the degree of Master of Science

Вy

AL SAYED ABDEL AAL AL SAYED IBRAHIM
B.Sc.1994



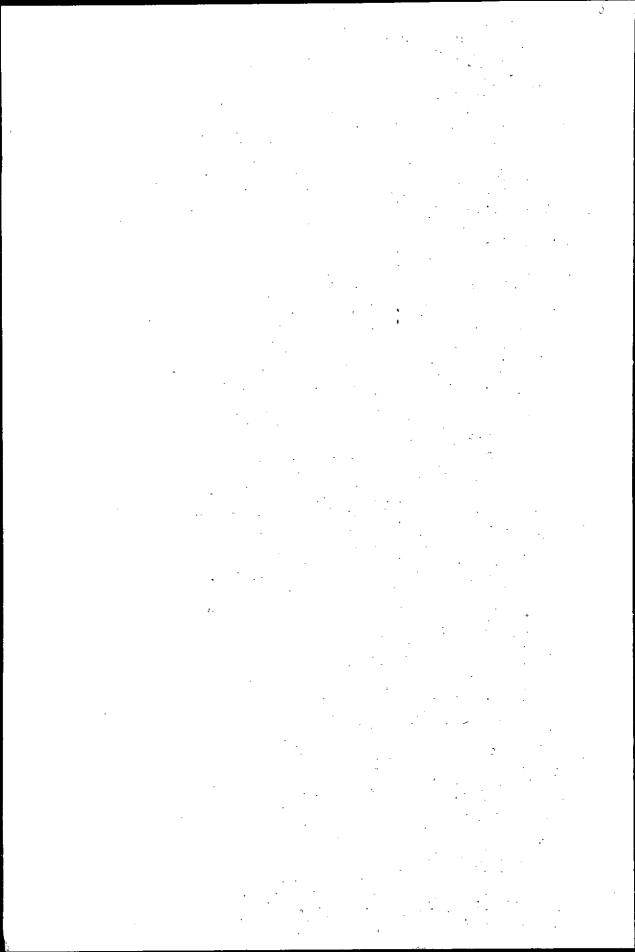




﴿ قَالُوا سُبْحَانَكَ لا عِلْمَ لَنَا إِلاَّ مَا عَلَّمْ تَنَا إِلاَّ مَا عَلَّمْ تَنَا إِنَّكَ أَنتَ الْعَلِيمُ الْحَكِيمُ ﴾

صدق الله العظيم

[البقرة: ٣٢]



## PLATTNG ON PLASTICS FOR PRINTED CIRCUIT BOARDS

M.SC. Thesis

Thesis Supervisors

Prof. Dr. Sayed Sabet Abdel Rehim

Prof. Dr. Farid Hanna Saad.

Prof. Dr.S.S.M. Hassan

Head of chemistry Department

Faculty of Sciency

Ain Shams University

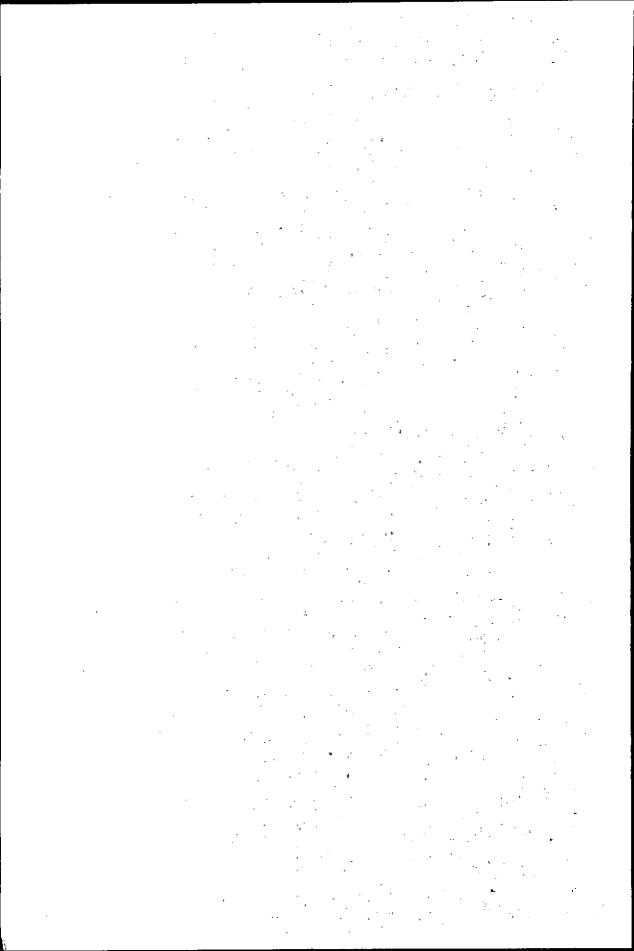
#### **ACKNOWLEDGEMENT**

The auther wishes to express his gratitude to **Prof. Dr. Sayed S.Abdel Rehim,** Prof. of Physical Chemistry, Faculty of Science, Ain Shams University, for his support and valuable guidance throughout this work.

I'm much indebted to **Prof. Dr. Farid Hanna**, Head of Metal Coating Lab; Central Metallurgical R & D Institute (CMRDI) for suggesting the subject of this work, for his constant support, supervision, and for the valuable discussions and guidance throughout this investigation.

I would like to Submit my gratitude and thanks to **Dr. Zeinb. A. Hamid** Associate Professor, Metal Coating Lab. (CMRDI) for her helpful supervision and close guidance thoughout this work

Thanks are due to my colleges in CMRDI for providing research facilities.



#### The Theoretical Curricula for the Degree:

This to certify that Mr. Alsayed Abdel Aal Alsayed has attended and passed successfully the following post graduate courses as a partial fulfillment of the requirements for the degree of Master of Science during the academic year 1997.

#### These courses are:

- -Advanced Electrochemistry.
- -Statistical Thermodynamics.
- -Physical Polymer Chemistry.
- -Advanced Chemical Kinetics.
- -Ouantum Mechanics.
- -Surface Chemistry.
- -Computer Science.
- -Cement Chemistry.
- -Catalysis Chemistry.
- -English Course.

Prof.Dr.S.S.M.Hassan

Head of Chemistry Department.
Faculty of Science.
Ain Shams University.