



## بسم الله الرحمن الرحيم

∞∞∞∞

تم عمل المسح الضوئي لهذه الرسالة بواسطة / سامية زكى يوسف

بقسم التوثيق الإلكتروني بمركز الشبكات وتكنولوجيا المعلومات دون أدنى

مسئولية عن محتوى هذه الرسالة.

### ملاحظات:

- بالرسالة صفحات لم ترد بالأصل
- بعض الصفحات الأصلية تالفة
- بالرسالة صفحات قد تكون مكررة
- بالرسالة صفحات قد يكون بها خطأ ترقيم

# **Study of The Early Detection of Diabetic Retinopathy In Insulin Dependent Diabetics**

**Thesis**

Submitted for partial fulfillment of M.D. Degree in  
Ophthalmology

By

**Amany Abd El Fattah Ahmed El Shazly**

*Supervisors*

**Prof.Dr. Mahmoud Hamdy Ibrahim**

Professor of Ophthalmology  
Ain Shams University

**Prof.Dr. Mona Abd El Kader Salem**

Professor of Pediatrics  
Ain Shams University

**Prof.Dr. Fatma Mohamed Shafik El-Hennawy**

Professor of Ophthalmology  
Ain Shams University

**Prof.Dr. Tarek Mohamed Mahmoud Abdallah**

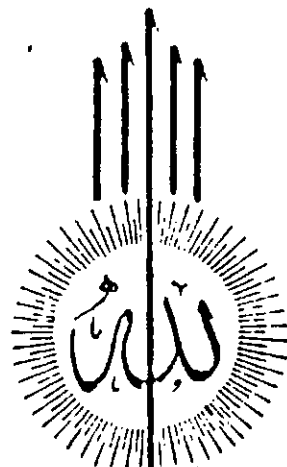
Professor of Ophthalmology  
Ain Shams University

Faculty of Medicine  
Ain Shams University

2000

## کتاب الحقیقین

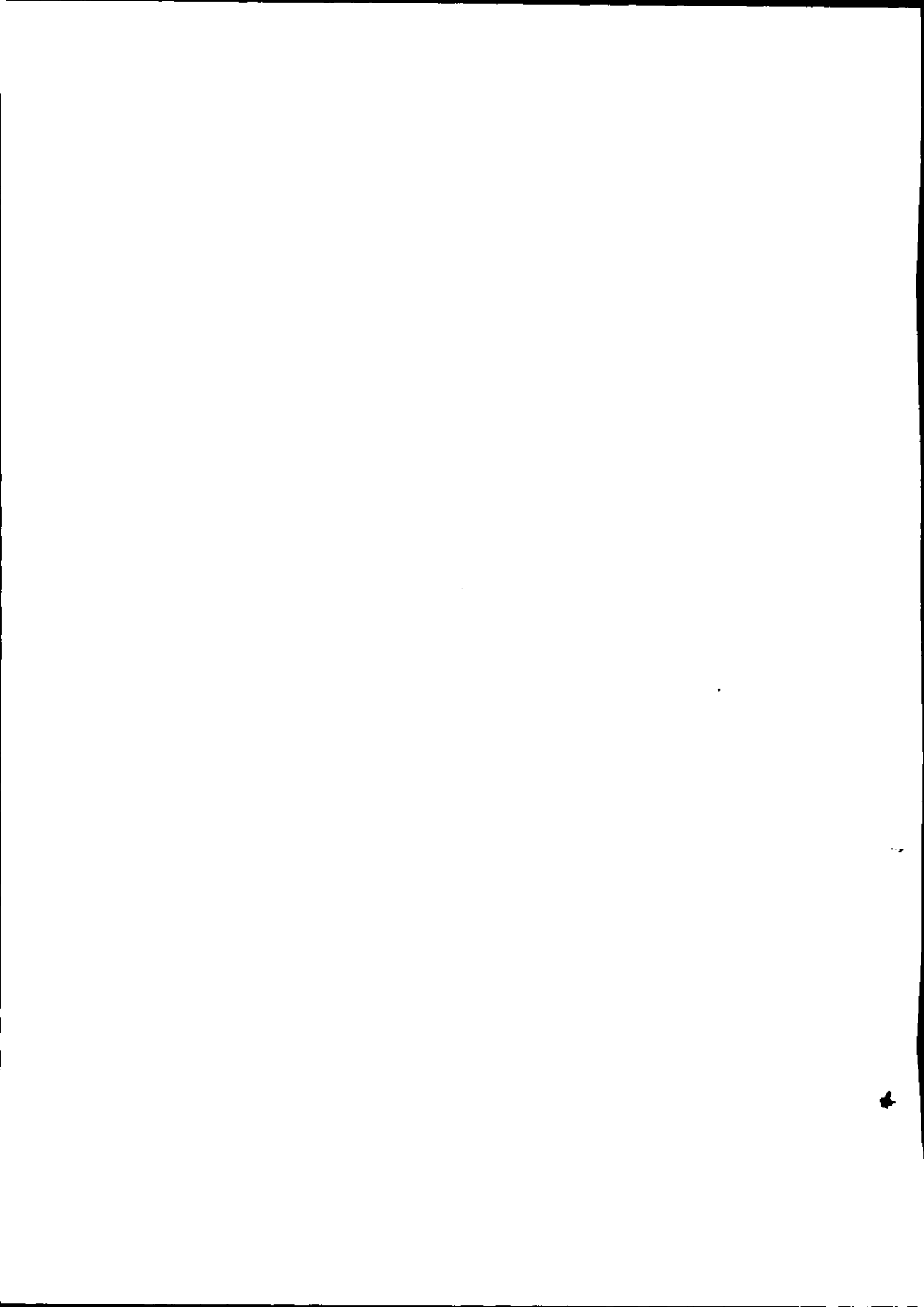
۱. د. محمد حسن کویک فارم محمد صالح الحیات  
۲. د. شاکر احمد خضر دافار شاکر علی  
۳. د. محمد احمد ابراهیم شاکرین سر



بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ

قَالُوا سُبْحَانَكَ لَا عِلْمَ لَنَا إِلَّا مَا  
عَلَّمْتَنَا إِنَّكَ أَنْتَ الْعَلِيمُ الْحَكِيمُ

صَدَقَ اللَّهُ تَعَالَى  
البقرة - ٣٢



**To My Little Family**



# Acknowledgment

*First and foremost thanks are to Allah, the most beneficent and merciful*

I would like to express my utmost gratitude to Professor Dr. Mahmoud Hamdy Ibrahim, Professor of Ophthalmology, Ain Shams University, for giving me the privilege of working under his meticulous supervision. His constant support, guidance and encouragement made this work, possible to achieve.

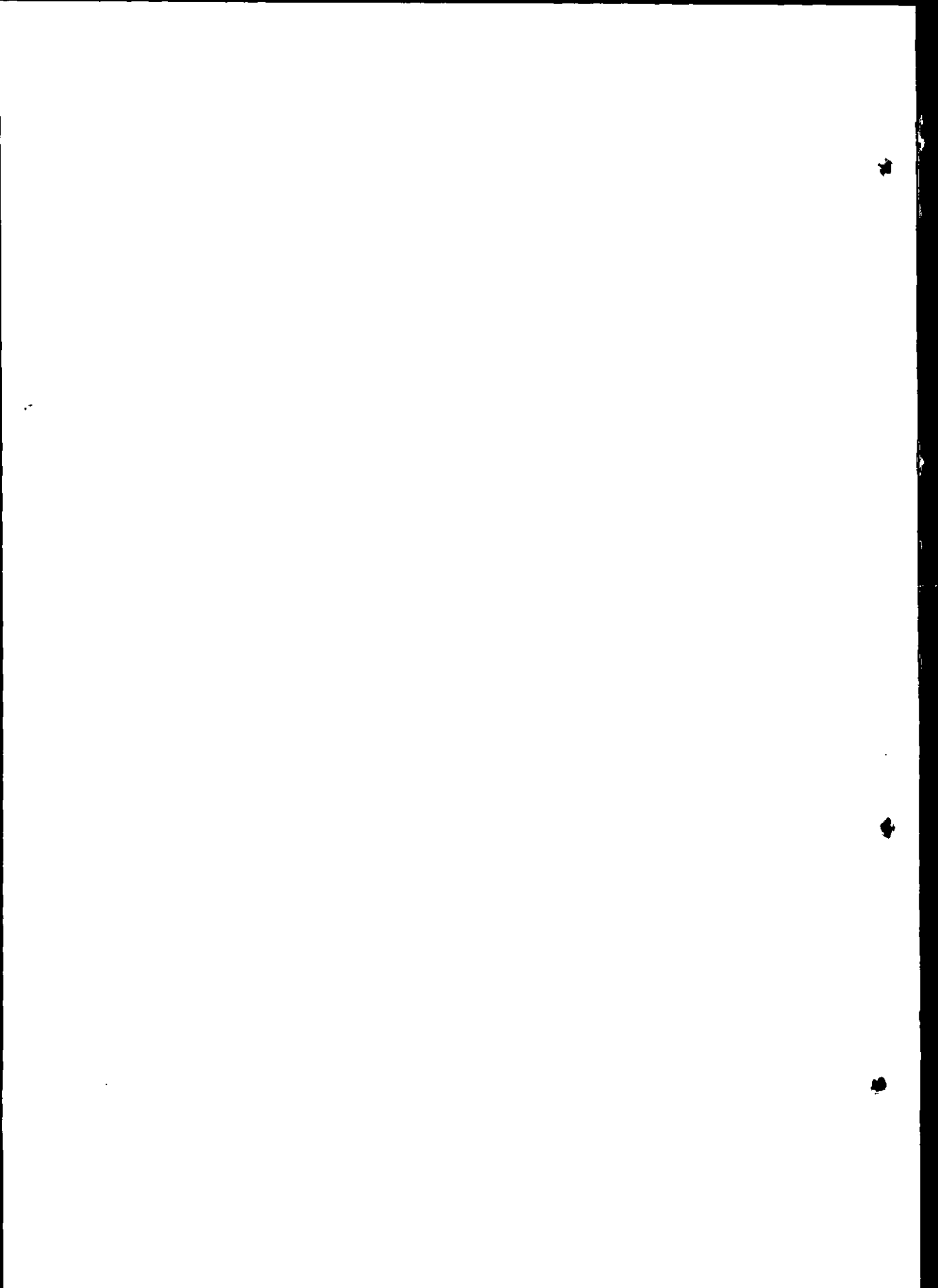
I would like to extend my sincere gratitude to Professor Dr. Mona Abd El Kader Salem Professor of Pediatrics, Ain Shams University. It is a real pleasure to acknowledge her sincere encouragement and valuable guidance, would also thanks her for her honest help, constant advice, keen interest and guidance throughout the performance of this work.

I owe my deep thanks and gratitude to Professor Dr. Fatma Mohamed Shafik El-Hennawy, Professor of Ophthalmology, Ain Shams University, for her great support, patience and fruitful comments without which this work have never been accomplished.

I am faithfully grateful to Professor Dr. Tarek Mohamed Mahmoud Abdallah, Professor of Ophthalmology, Ain Shams University, for his valuable assistance, instructive guidance, effective scientific supervision, cooperation which were essential for this work to be achieved.

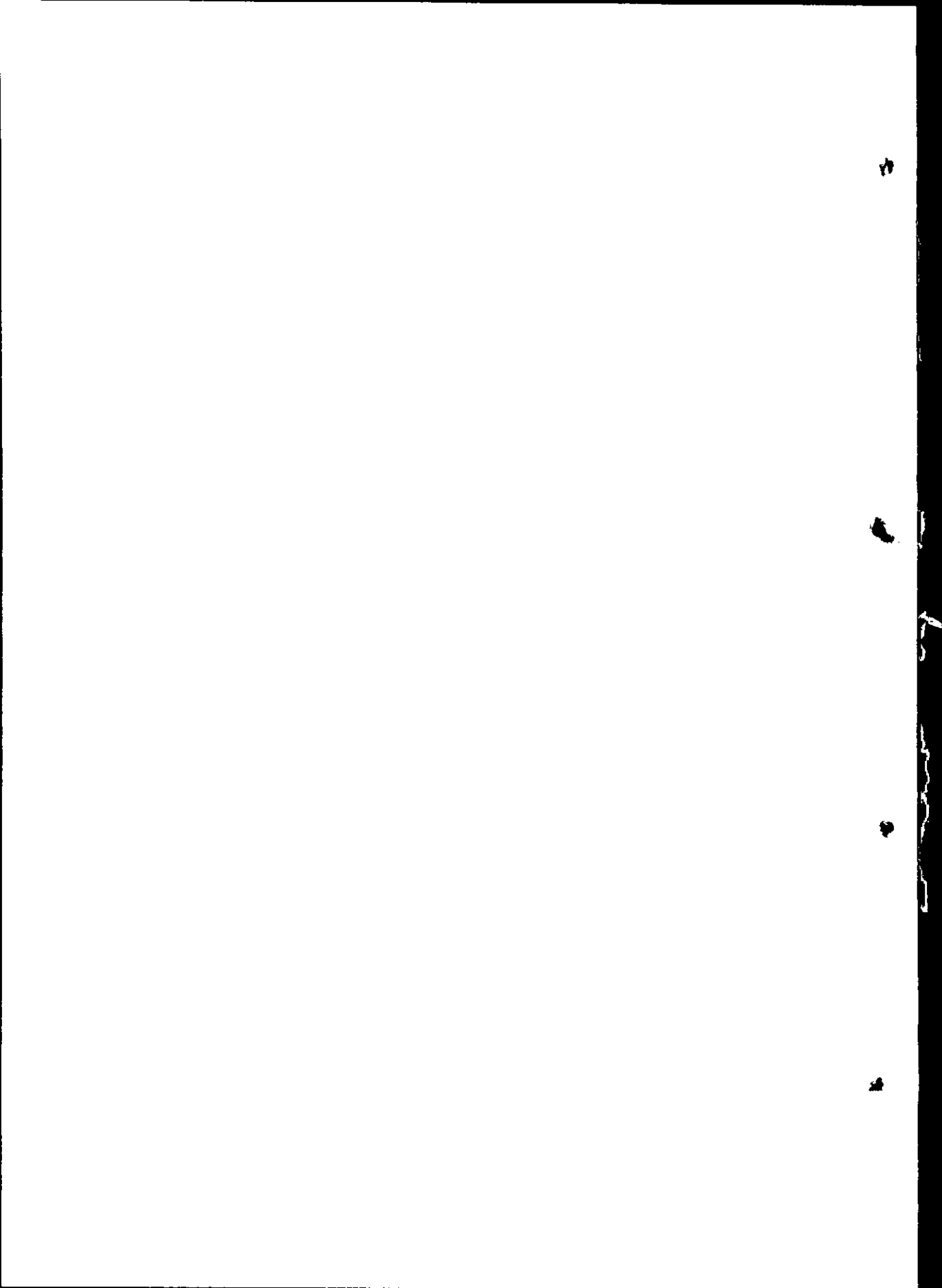
Last but not least, my deep appreciation is expressed to my family and to all patients of the Ophthalmologic and Diabetologic Pediatric Clinics Ain Shams University Hospital.





# List of content

<b>Lists</b> .....	i-viii
<b>Introduction</b> .....	1
<b>Aim of the work</b> .....	3
<b>Review of literature</b> .....	4
Diabetes mellitus .....	4
Complication of IDDM .....	13
I-Diabetic nephropathy .....	13
II-Diabetic retinopathy .....	18
Visual acuity in IDDM .....	41
Color vision in IDDM .....	43
Electroretinography in IDDM .....	44
Fluorescein angiography In IDDM .....	50
Perimetry in IDDM .....	55
<b>Subjects and Methods</b> .....	64
<b>Results</b> .....	69
<b>Discussion</b> .....	102
<b>Summary and conclusion</b> .....	111
<b>Recommendation</b> .....	116
<b>References</b> .....	117
<b>Appendix</b> .....	146
<b>Arabic summary</b>	



# List of Appendix

Appendix 1	Sheet	146
Appendix 2	Table 15: shows age, body built, HbA1c and UAER of control group (group II)	149
Appendix 3	Table 16: shows age, duration of DM, body built, HbA1c and UAER of normoalbuminuric group (group IA)	150
Appendix 4	Table 17: shows age, duration of DM, body built, HbA1c and UAER of microalbuminuric group (group IB)	151
Appendix 5	Table 18: shows age, duration of DM, body built, HbA1c and UAER of retinopathic group (group IC)	152
Appendix 6	Table 19: shows visual functions parameters of control group (group II)	153
Appendix 7	Table 20: shows visual functions parameters of normoalbuminuric group (group IA)	154
Appendix 8	Table 21: shows visual functions parameters of microalbuminuric group (group IB)	155
Appendix 9	Table 22: shows visual functions parameters of retinopathic group (group IC)	156
Appendix 10	Table 23: shows ERG and Ops parameters of control group (group II)	157
Appendix 11	Table 24: shows ERG and Ops parameters of normoalbuminuric group (group IA)	158
Appendix 12	Table 25: shows ERG and Ops parameters of microalbuminuric group (group IB)	159
Appendix 13	Table 26: shows ERG and Ops parameters of retinopathic group (group IC)	160



# List of Tables

<u>Table</u>	<u>Subject</u>	<u>page</u>
Table 1	ETDRS Retinopathy Severity Scale	40
Table 2	Mean values of different parameters of the controls	69
Table 3	Mean values of different parameters of the normoalbuminuric group.	70
Table 4	Mean values of different parameters of the microalbuminuric group.	71
Table 5	Mean values of different parameters of the retinopathic group.	72
Table 6	Comparison between mean values of age and duration of disease in different groups	73
Table 7	Comparison between mean values of BMI, height and weight in different groups	73
Table 8	Comparison between mean HbA1c (%) and urinary albumin excretion rate (mg/dl)	77
Table 9	The comparison of different groups in perimetric findings	77
Table 10	The comparison of different groups in ERG findings	88
Table 11	The comparison of different groups in oscillatory potentials (Ops)	88
Table 12	Correlation between different parameters with that of glycosylated Hb (HbA1c) and microalbuminuric values in normoalbuminuric group	99
Table 13	Correlation between different parameters with that of glycosylated Hb (HbA1c) and microalbuminuric values in microalbuminuric group	99
Table 14	Correlation of different retinopathic parameters with that of glycosylated Hb and UAER	99

