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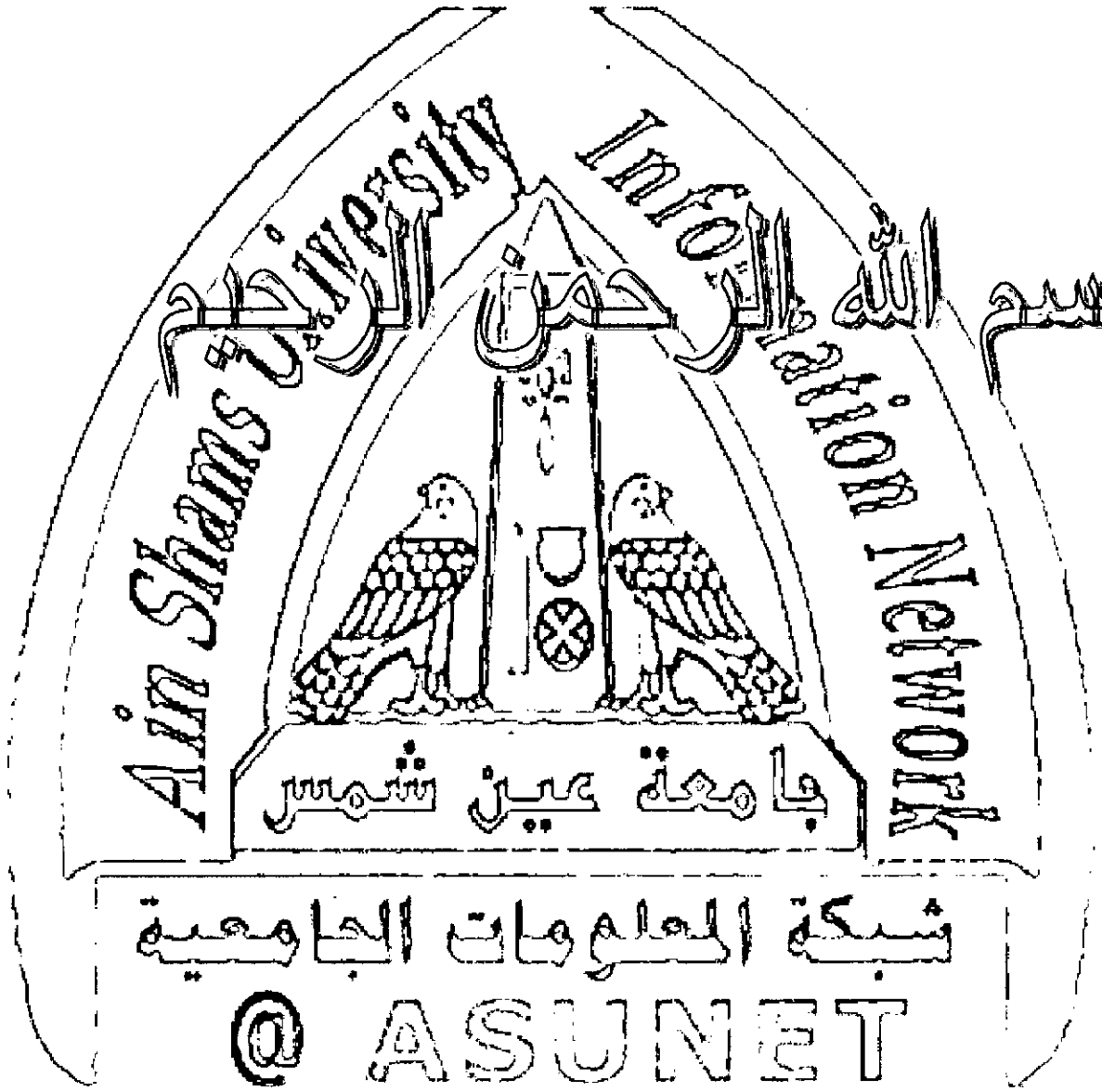

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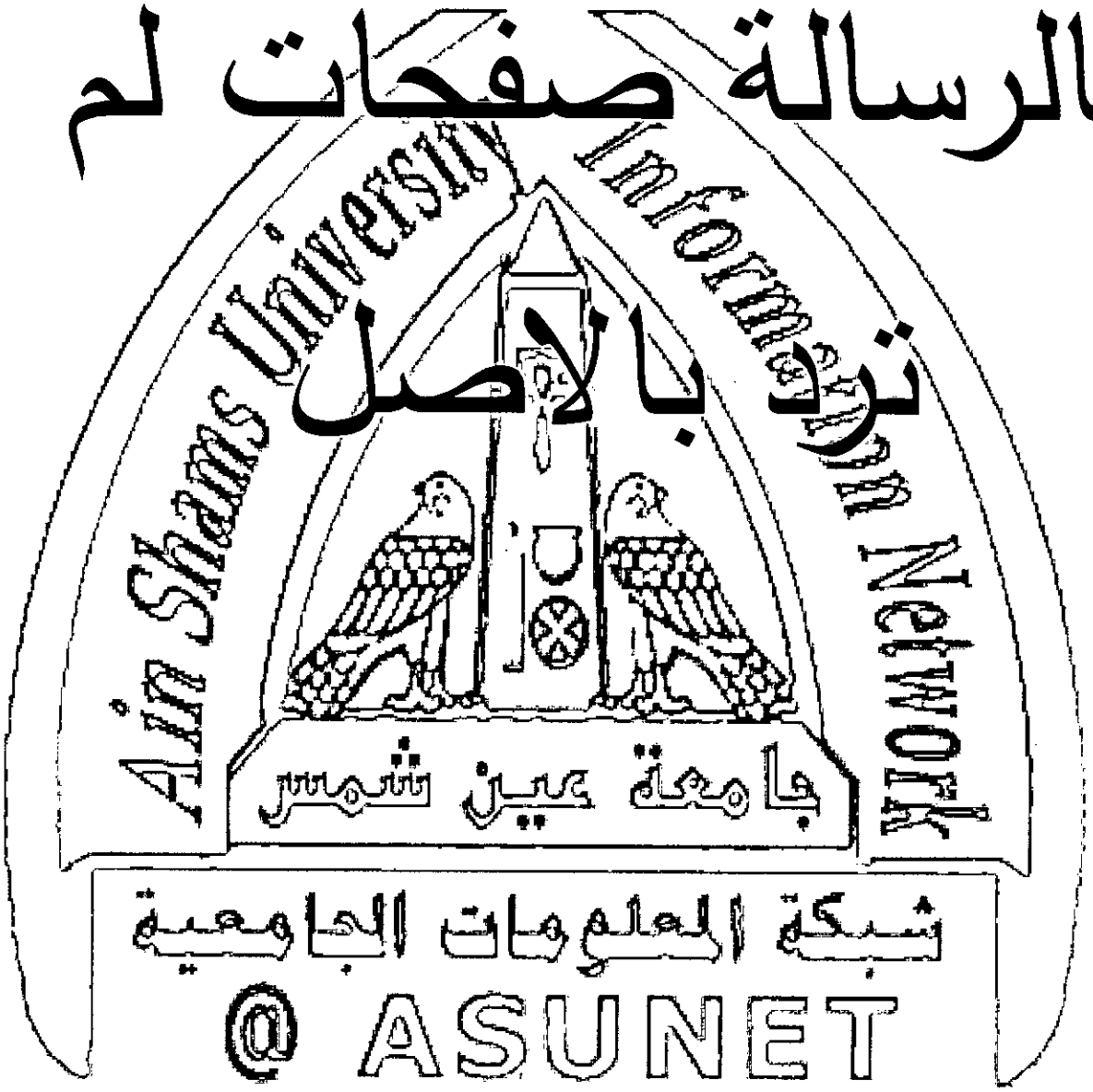

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FINITE-DIFFERENCE METHODS AND SIMILARITY SOLUTIONS FOR SOLVING SOME PROBLEMS IN FLUID DYNAMICS

A Thesis
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The Degree of Master of Science
(Mathematics)

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Nomenclature

Nomenclature

$A, B, C's, m, n, r,$ $T_0, U_0, K's, \alpha, \beta, \gamma$	Real constants.
a_1, a_2	Essential parameters.
Pr	Prandtl number.
Re	Reynolds number.
x	Distance along the surface.
y	Distance normal to the surface.
t	Time.
u	Velocity in x-direction.
v	Velocity in y-direction.
T	Temperature.
U	Potential velocity.
U^*	Reference velocity.
F	Dimensionless velocity.
E	Total specific energy
q	Heat flux vector
G	Dimensionless microrotation.
L	Differential operator.
f	Body force
V	Control volume
S	Orientable surface
P	Pressure

Greek symbols

η	Dimensionless coordinate.
θ	Dimensionless temperature.
ψ	Stream function.
μ	Dynamic viscosity coefficient.
ν	Kinematic viscosity coefficient.
λ	Second coefficient of viscosity
ρ	Density of the fluid.
σ	Stress tensor
ε	Singular perturbation parameter.

Subscripts

w	Surface Conditions.
∞	Conditions far a way form the surface.

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