HITEC UNIVERSITY TAXILA CANTT, RAWALPINDI

TOM LAB OPEN ENDED LAB REPORT

TOPIC : CRANK-SLIDER MECHANISM

PROBLEM:

To find Mobility, Displacement, Velocity, and Acceleration of Slider-Crank Mechanism with changed Crank Length.

NAME	REG NO
Wajih ul Hassan	21-ME-023
Ahmed Quddos	21-ME-136
Jawad Bhatti	21-ME-124
Abdullah Saleh	21-ME-112

DEPARTMENT OF MECHANICAL ENGINEERING

HITEC UNIVERSITY TAXILA CANTT, RAWALPINDI

CRANK-SLIDER MECHANISM

The crank-slider mechanism is a simple four bar mechanism in which a rocker is replaced by a slider.

Thus the four links in the slider-crank mechanism are :

Crank, Coupler, Slider and Ground link.

USES OF SLIDER-CRANK MECHANISM

The slider-crank mechanism can be used whenever there is a need of converting rotational motion to translational motion. The common applications of slider-crank mechanism are the internal combustion engine, Bull gears, Locomotives, etc.

DEPARTMENT OF MECHANICAL ENGINEERING

HITEC UNIVERSITY TAXILA CANTT, RAWALPINDI

CONSTANT	VARIABLE
L1	L3
L2	Theta2
L4	Theta3
Theta1	
Theta4	

MOBILITY

Links = 04, Full joints = J1 = 04,

Half joints = J2 = 0

DOF = 3(L-1) – 2J1 – J2

=3(4-1) – 2(4) – 0

DOF = 01

DEPARTMENT OF MECHANICAL ENGINEERING

HITEC UNIVERSITY TAXILA CANTT, RAWALPINDI

Theta 2	L3 (cm)	Velocity (cm/s)	Acceleration (cm/s^2)
0	31.5	-0.5	-1
20	31	-1.5	-0.7
40	29.5	-2.2	-0.8
60	27.3	-3	0.9
80	24.3	-2.1	-1.1
100	22.2	-3.2	1.2
120	19	-2	0.5
140	17	-1.5	2
160	15.5	0.5	0.5
180	16	1	-0.8
200	17	0.2	3
220	18.8	3.2	-1.2
240	22	2	1
260	24	3	-1
280	27	2	-0.2
300	29	1.8	-1.1
320	30.8	0.7	-1.2
340	31.5	-0.5	
360	31		

DEPARTMENT OF MECHANICAL ENGINEERING