Report – Excercise 2
EXPERIMENTAL ESTIMATION OF THE MOMENT OF INERTIA OF A MACHINE PART BY MEANS OF THE PENDULUM METHOD

Name:

Student ID:

Date:

Part 1

1. Mass moment of inertia of the connecting rod

1A. Period of free oscillations of the connecting rod supported in point A

Results:

T_{A1} = T_{A2} = T_{A3} =

Average value of a single period

T_{A1av} = [s]

1B. Period of free oscillations of the connecting rod supported in point A

Results according to formula (8):

T_{B1} = T_{B2} = T_{B3} =

Average value of a single period

T_{Bav} = [s]

RESULTS

Distance a = [m]

Mass moment of inertia B_S = [kg/m^2]

Data: mass of the connecting rod: m = 1.85 kg
Distance between supporting points: l = 0.27 m

PART 2

2. Mass moment of inertia of the crankshaft

2A. Period of free oscillations of the flywheel itself:

$T_{fw}1$ = $T_{fw}2$ = $T_{fw}3$ =

2B. Period of free oscillations of the flywheel with crankshaft:

$T_{fwc}1$ = $T_{fwc}2$ = $T_{fwc}3$ =

RESULTS

Mass moment of inertia according to formula (14):

B_K = [kgm^2]

Shear modulus (rigidity of the string)

G = [Gpa]

Data:

Length of the supporting string l = 0.590 m,
String diameter d =0.005 m.
Flywheel mass moment of inertia: B_0=0.0707 kgm^2.

CONCLUSIONS AND REMARKS