1st ASIAN PHYSICS OLYMPIAD

KARAWACI, INDONESIA

EXPERIMENTAL COMPETITION

APRIL 27, 2000

Time available : 5 hours

READ THIS FIRST :

1. **Use only the pen provided.**
2. **Use only the marked side of the paper**
3. **Each problem should be answered on separate sheets**
4. **In your answers please user primarily symbols, equations, numbers, graphs, tables and as little text as possible.**
5. **Write at the top of every sheet in your report:**
   - **Your candidate number (APhO identification number).**
   - **The problem number and section identification, e.g.2/a.**
   - **Number each sheet consecutively.**
6. **Write on the front page the total number of sheets in your report**

This set of problems consists of .... pages

Problem 1

Determination of the Density of Oil

Listed below are the only apparatus and materials available for your experiment :

1. Test tube with uniform cross-section over most of its length between its to ends.
2. Vessel
3. Ruler
4. Eye dropper
5. Graph papers
6. Drying cloth/tissue papers
7. Rubber band for level marking
8. Distilled water with density 1.00 g/cm^3
9. Oil in a plastic cup

In this experiment, you are to determine the density of the oil without measuring the dimensions of the tube. You should not put both oil and water in the tube at the same time.

Include the following in your report:

a. The theoretical basis for the analysis
b. A description of the method and procedure of the experiment
c. Final value for the density of oil

The errors and their sources