

TERM 2 HOLIDAY WORK

PHYSICS PAPER 1

SENIOR TWO

INSTRUCTIONS TO LEARNERS:

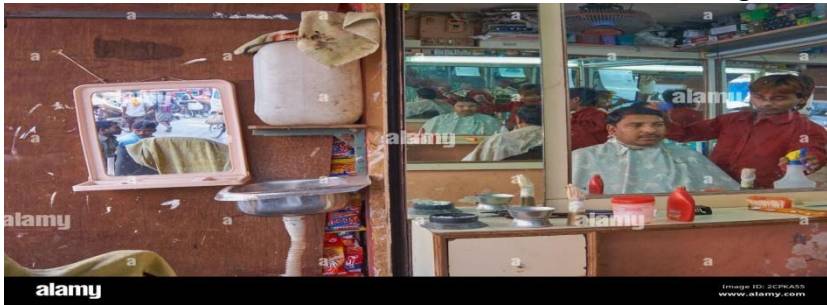
- ❖ Attempt all items in this paper.
- ❖ Begin every item on a fresh sheet of paper.
- ❖ Neatness is a must.

Item one:

When John was doing research, he came across an article about how light was guided into dark caves by the people in the Stone Age.

The article showed how stones or metals were smoothened and put at different corners (or places) to reflect and direct light; however he did not find out why this was done.

After reading the article, John went to the saloon to trim his hair and counted five images when he looked at the inclined mirrors and wondered what angle is between the mirrors.



Task:

- a) Why were the stones smoothened?
- b) On what laws did the Stone Age people base on to guide light.
- c) Which kind of mirrors did John see in the salon and determine their angle of inclination.

Item two:

As part of an investigation to determine the mass of an eight meter uniform rod, students balanced this rod on a knife edge at a one meter distance from one end using six one hundred masses hanged at the extreme end of the rod.

However they had to stop since the smell from the nearby latrines kept on increasing.

One of the students put all the masses (one mass on top of the) on the box and he saw it being crashed down wards.

Task:

- a) Help the students to determine the mass of the uniform rod.
- b) What was the likely process causing the smell and suggest the remedies to control it.
- c) If one mass is 2cm thick with a diameter of 28mm, determine the total pressure exerted by all the masses on the box.

Item three:

At the construction site, workers had to carry 50kg loads to the second floor using a staircase having 10 steps with each step 40cm high. The workers always complain while doing this challenging work.



To solve challenge above, the engineer bought a pulley system of five pulleys which carries a load of 2000N using an effort of 500N.

Task:

- Determine the work done by one of the workers above.
- Draw the diagram of this system and determine its efficiency.
- Outline areas where such a system is used in our daily life.

Item four:

Joseph put his juice in a tightly filled and corked glass bottle and stored it in the freezer. When the freezer was opened the following day, the juice was frozen and the bottle broken. He wondered why.

Also the thermometer on the freezer has been giving wrong temperatures. It reads 3°C when pure ice is melting and 95°C at the boiling point of pure water.

Task:

- Describe using suitable diagram, the steps followed in the determining the lower fixed point.
- Explain why the glass broke.
- Determine the real temperature when the freezer thermometer reads 49°C .

End.