iv) Many candidates may also have taken tipping over the other way round – the correct way was that moments on the right was greater than on the left. This means that the expanded balloon experience more upthrust.

Expected Response

- When taken outside air in balloon expands giving ballong more volume;
- Volume of balloon increases or giving balloon more volume;
- On returning to room balloon displaces more air than before raising up thrust of air.

Question 3

Figure 3 shows a rectangular block of wood with a hollow section (inside) at the position shown. The block is resting on a horizontal bench.

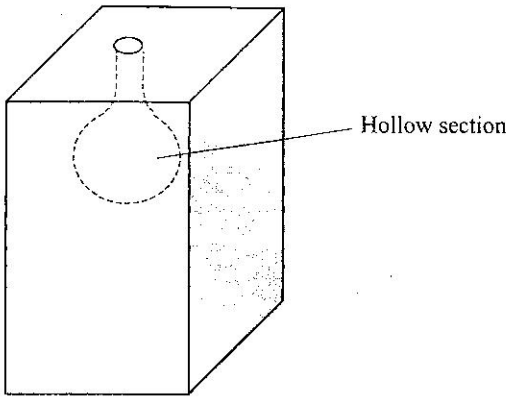

Figure 3

(i) State the effect on the stability of the block when the hollow section is filled with water. (1 mark)

(ii) Explain your answer in (i) above. (2 marks)

Candidates were expected to state and explain the status of the stability of the block when the position of centre of mass is altered – by filling the empty space with water.

Weaknesses

One major weakness is failure by some candidates to relate the status of the stability to the position of centre of gravity. The higher the centre of gravity the less stable the body will be and the reverse being true.

Candidates failed to see that addition of water in the upper section would result to change of centre of mass with a possibility of raising the centre of gravity. Other candidates used the term unstable to mean less stable while more confusion was noted with those who wrote that the block become more or less unstable.