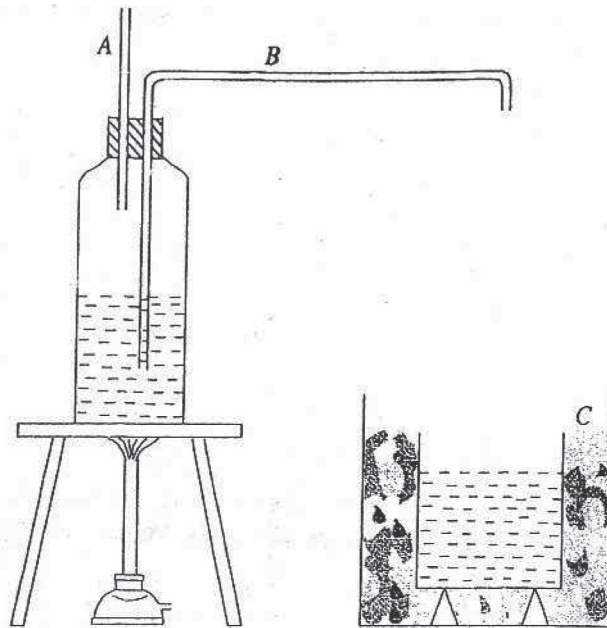


2000 A/L Structured Essay Question No (02)



The figure shows an apparatus arranged by a student in the laboratory to generate steam. The tube *B* is used to take steam out.

(a) In this setup the two tubes *A* and *B* are fixed incorrectly. State how you would arrange them properly.

(i) Tube *A* :

(ii) Tube *B* :

(b) What is the purpose of having the tube *A*?

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(c) After making the changes mentioned in (a) the student decided to use the above setup to determine the specific latent heat of vaporization of water by inserting the outlet of the tube *B* directly into the calorimeter *C* containing water. This procedure is not satisfactory.

(i) Explain why?

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(ii) The correct procedure in this experiment would be to connect another piece of apparatus to the outlet of tube *B*, before passing steam into the calorimeter. Draw this piece of apparatus in the space between the tube *B* and the calorimeter.

(d) (i) In addition to the two relevant temperature measurements what are the other measurements that you would take in this experiment.

(1)

(2)

(3)

(ii) What additional data do you need for the computation of specific latent heat of vaporization of water?

(1)

(2)

(e) What precautions would you take in order to improve the accuracy of the experiment?

(1)

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(2)

(f) When the above experiment was carried out in a hill-country school laboratory, the barometer reading was found to be 720 mm of Hg. Explain how the student should take this factor into account in his calculation.

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