2012 A/L Structured Essay Question No (02)

2. You are asked to perform an experiment to verify that the value of the specific latent heat of fusion of ice is 3.3×10^5 J kg^{-1} using the method of mixtures.
Some of the items given to you are listed below.
   (1) A copper calorimeter
   (2) A beaker containing water heated to 45 °C
   (3) A block of ice

   (*a*) Prepare a list of other items needed to perform this experiment.

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   (*b*) When performing this experiment, what steps would you take to minimize the heat absorbed from the surroundings?

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   (*c*) If the room temperature is 30 °C and the dew point of the atmosphere is 25 °C what values would you suggest for

   (i) initial temperature of water : .....

   (ii) minimum temperature of water : .....

   Give reasons.

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   (*d*) List all the experimental measurements that you would take before adding ice.

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   (*e*) What procedures would you follow when preparing ice, adding it, and mixing with water?

   Preparing : .....

   Adding : .....

   Mixing : .....

   (*f*) Write down the rest of the experimental measurements that you would take after adding ice.

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   (*g*) In this experiment the measurements that are used to determine the mass of ice have to be taken more carefully and accurately. Explain why.

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