Topic 2A Kinetic Particle Theory

PAPER 3

MULTIPLE-CHOICE QUESTIONS

For each question, there are four possible answers. Choose the one you consider correct and record your choice (A, B, C or D) in the brackets provided.

1. Some students are asked to describe the differences between gases and liquids.

   Three of their suggestions are:
   1 gas molecules are further apart than liquid molecules
   2 gas molecules are smaller than liquid molecules
   3 gas molecules move freely but liquid molecules vibrate about fixed positions

   Which suggestion or suggestions is/are correct? (2013/P3/Q3)

   A 1 only
   B 2 only
   C 3 only
   D 1, 2 and 3 ( )

2. Which substance is a solid at 20°C? (2015/P3/Q1)

	melting point / °C	boiling point / °C
A	–117	78
B	–93	69
C	0	100
D	36	130

( )

3. What happens to the molecules in a liquid when it turns into a solid at its freezing point? (2016/P3/Q3)

   A They cool down.
   B They gain energy.
   C They lose energy.
   D They move faster. ( )

4. During which process does the movement of particles decrease? (2019/P3/Q1)

   A liquid changing to gas
   B liquid changing to solid
   C solid changing to gas
   D solid changing to liquid ( )

PAPER 4

STRUCTURED QUESTIONS

Section A

Answer the following question.

1. (a) The melting and boiling points of four substances, **R**, **S**, **T** and **U**, are given in the table.
Complete the table by stating the physical state of each substance at 20°C.

substance	melting point / °C	boiling point / °C	physical state at 20°C
R	–39	357	
S	69	383	
T	–210	–196	
U	17	45	

[2]

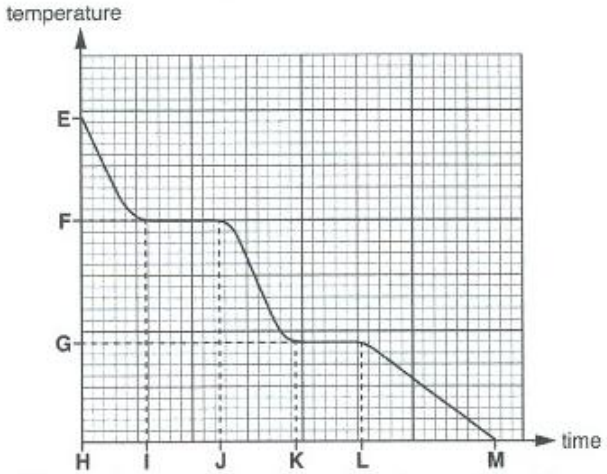
(b) Explain what happens when a liquid boils. Your answer should explain boiling in terms of the kinetic particle theory and of the energy changes involved. [3]

(2014/P4/Q2)

Section B

Answer the following question.

1. A gaseous substance is allowed to cool.
The temperature of the substance is taken at regular intervals.
A graph of the readings obtained is shown.



(a) Between which **two** letters on the time axis is there **only** solid present? [1]

(b) Name the process occurring at temperature **F**. [1]

(c) What is happening to the substance between time **K** and time **L**? Explain this in terms of the kinetic particle theory. [2]

(2018/P4/Q5a)