Table H Vapor Pressure Of Four Liquids

1 What is the vapor pressure of propanone at 50.°C?
(1) 37 kPa (3) 83 kPa
(2) 50. kPa (4) 101 kPa

2 What is the vapor pressure of water at 90.°C?
(1) 40. kPa (3) 94 kPa
(2) 68 kPa (4) 150. kPa

3 Based on Table H, which compound has the strongest intermolecular forces at 60 kPa?
(1) ethanoic acid (3) propanone
(2) ethanol (4) water

Base your answers to questions 4 on the information below and on your knowledge of chemistry.

Rubbing alcohol is a product available at most pharmacies and supermarkets. One rubbing alcohol solution contains 2-propanol and water. The boiling point of 2-propanol is 82.3°C at standard pressure.

4 Determine the vapor pressure of water at a temperature equal to the boiling point of the 2-propanol.

5 Based on Table H, state the vapor pressure of ethanol at 75ºC.

Base your answers to questions 6 on the information below and on your knowledge of chemistry.

Ethane, C_2H_6, has a boiling point of –89°C at standard pressure. Ethanol, C_2H_5OH, has a much higher boiling point than ethane at standard pressure. At STP, ethane is a gas and ethanol is a liquid.

6 A liquid boils when the vapor pressure of the liquid equals the atmospheric pressure on the surface of the liquid. Based on Table H, what is the boiling point of ethanol at standard pressure?

Base your answers to questions 7 on the information below and on your knowledge of chemistry.

A 100.-gram sample of liquid water is heated from 20.0°C to 50.0°C. Enough $KClO_3(s)$ is dissolved in the sample of water at 50.0°C to form a saturated solution.

7 Based on Table H, determine the vapor pressure of the water sample at its final temperature.

Base your answers to questions 8 on the information below and on your knowledge of chemistry.

Water, H_2O, and hexane, C_6H_{14}, are commonly used as laboratory solvents because they have different physical properties and are able to dissolve different types of solutes. Some physical properties of water and hexane are listed on the table below.

Physical Properties of H_2O and C_6H_{14}

Solvent	Boiling Point (°C)	Melting Point (°C)	Vapor Pressure at 69°C (kPa)
H_2O	100.	0.	?
C_6H_{14}	69	–95	101.3

8 Determine the vapor pressure of water at 69°C. [1]
kPa

Answer Keys

1 3

2 2

3 1

4 Allow 1 credit for any value from 48 kPa to 52 kPa, inclusive.

5 Allow 1 credit for any value from 84 kPa to 87 kPa, inclusive.

6 Allow 1 credit for any value from 78°C to 80.°C, inclusive.

7 Allow 1 credit for any value from 11 kPa to 13 kPa, inclusive.

8 Allow 1 credit for any value from 28 kPa to 30. kPa, inclusive.