

Name:

Question No.	1	2	3	4	5	6
Answers:						

1. How can we increase the boiling point of water?

1. By decreasing the pressure.
2. By adding more heat when boiling.
3. By adding a non-volatile solute.
4. By removing vapour from the gas phase above water.

A: 1, 3      B: 2, 3, 4      C: 1, 4      D: 3

2. We have four solutions: a. pure water; b. 0.1 M NaCl, c. 0.1 M Na<sub>2</sub>SO<sub>4</sub>; d. 0.1 M Na<sub>3</sub>PO<sub>4</sub>. Which statements are true?

1. The vapour pressure of the solutions increase in the following order: a < b < c < d.
2. The vapour pressure of the solutions increase in the following order: b = c = d < a.
3. The osmolarity of the solutions increase in the following order: a < b < c < d.
4. The boiling point of the solutions increase in the following order: a < b < c < d.

A: 2, 3      B: 1, 4      C: 2, 3, 4      D: 3, 4

3. Comparing the metals with non-metals of the same period, which statements are true?

1. Non-metals have higher ionisation energy and higher radii.
2. Metals have lower electronegativity and metals are smaller.
3. Metals and non-metals generally form ionic bond.
4. The metals belong to the transition elements and non-metals to the representative elements.

A: 1, 3, 4      B: 3      C: 2, 3, 4      D: 1, 3

4. The hydrogen bonding between the water molecules results:

1. the high boiling point of water.
2. the high vapour pressure of water.
3. the high surface tension of water.
4. the bent shape of water molecule.

A: 1, 2, 3      B: 1, 2      C: 1, 2, 3, 4      D: 2, 3

5. A dynamic equilibrium can be reached in the following systems **except**:

- A. 10 mL oil placed on top of 30 mL water.
- B. Solid aluminium hydroxide in the saturated solution of aluminium hydroxide.
- C. Nitrogen and hydrogen gas in a closed container at 400°C.
- D. Liquid ether and its vapour in a closed container at 10°C.

6. In the following reaction:  $\text{H}_2(\text{g}) + \text{I}_2(\text{g}) \rightleftharpoons 2\text{HI}(\text{g})$   $\Delta H < 0$  kJ which of the following can result the increase in HI production?

1. The use of a catalyst.
2. Increasing the pressure.
3. Increasing the temperature.
4. Increasing the H<sub>2</sub> concentration.

A: 3, 4      B: 2, 3, 4      C: 1, 2      D: 2, 4