

## Question 4

4. (a) Identify the intermolecular attractions present in the following substances, and (b) select the substance with the highest boiling point:  $\text{CH}_3\text{CH}_3$ ,  $\text{CH}_3\text{OH}$ , and  $\text{CH}_3\text{CH}_2\text{OH}$ .

## Answer:

(a)  $\text{CH}_3\text{CH}_3$  has only dispersion forces, whereas the other two substances  $\text{CH}_3\text{OH}$  and  $\text{CH}_3\text{CH}_2\text{OH}$  have both dispersion forces and hydrogen bonds.

(b) Both  $\text{CH}_3\text{OH}$  and  $\text{CH}_3\text{CH}_2\text{OH}$  have Hydrogen-bond but  $\text{CH}_3\text{CH}_2\text{OH}$  has more CH bonds for greater dispersion force interactions.

Therefore,  **$\text{CH}_3\text{CH}_2\text{OH}$  has the higher boiling point.**