

1. Air treated as an **ideal gas** is **flowing steadily** through an **adiabatic** and **horizontal diffuser** where the **area increases**, **velocity decreases**, and **pressure increases**. How do the following quantities change? **Justify with appropriate equations!**

**Enthalpy:** i) increases, ii) decreases, iii) remains constant

**Temperature:** i) increases, ii) decreases, iii) remains constant

2. Water treated as an **incompressible liquid** is **flowing steadily** through an **adiabatic** and **horizontal** piping system of **constant diameter** where the **pressure decreases**. What happens to the following for the water flow between the inlet and outlet? **Justify with equations!**

**Enthalpy:** i) increases, ii) decreases, iii) remains constant

**Temperature:** i) increases, ii) decreases, iii) remains constant