

ANSWERS

- Q1. (a) (ii) $1.34 \text{ kJkg}^{-1}\text{K}^{-1}$
(d) 634.5 K

- Q2. (a) 114.3 MJkg^{-1}
(b) (ii) 19.2 MJkg^{-1}
(iii) 11.5 GJm^{-3} (NH_3) 92.2 MJm^{-3} (H_2)
(c) $0.047 \text{ MJ per kg of NH}_3$

- Q3. (a) $3.08 \times 10^{12} \text{ J}$ (859.4 MWh)
(b) (i) $4.92 \times 10^{12} \text{ J}$ (1.37 GWh) (ii) $0.742 \times 10^{12} \text{ J}$ (206 MWh) ; 92.8%
(c) (ii) 85.8%

- Q4. (a) (i) $x_4 = 0.85$ (ii) 38%
(b) (i) $\text{AFR} = 6.31 \text{ kg/kg}$ (ii) 74.7 kg/s