

ENGINEERING TRIPOS PART IIA 2010
MODULE 3A5 – THERMODYNAMICS AND POWER GENERATION

ANSWERS

1. (c) 25.88 MW, 26.54 MW
(d) $s = c_p \ln\left(\frac{T}{T_0}\right) - R \ln\left(\frac{p}{p_0}\right) - RB(p - p_0)$, $h = c_p(T - T_0)$, 26.19 MW
2. (b) (ii) $X_{\text{H}_2} = 0.316$, $X_{\text{CO}} = 0.500$, $X_{\text{CH}_3\text{OH}} = 0.184$
3. (c) 42.75
4. (a) 0.835, 0.874
(b) 72.1 kg/s 0.347, 3.33MtCO₂

J.B. Young & C.A. Hall