(a) $I_1 = \frac{V^+ - V^- - 2V_{BE}}{R_1} = \frac{30 - 1.4}{28.6} = 1\,mA$

$I_{C3} = I_1 = \boxed{1\,mA}$

$I_{C1} = I_{C2} = \frac{I_1}{2} = \boxed{0.5\,mA}$

$V_{O2} = V^+ - I_{C2} R_C = 15 - 0.5(20) = 5\,\text{Volts}$

$I_{C6} = \frac{V^+ - V_{O2} - V_{BE}}{6} = \frac{15 - 5.7}{6} = \boxed{1.55\,mA}$

(b) $r_{\pi 1} = \frac{V_T B}{I_{C1}} = \frac{0.026(100)}{0.5} = 5.2\,k\Omega$

$r_{\pi 6} = \frac{B V_T}{I_{C6}} = \frac{0.026(100)}{1.55} = 1.67\,k\Omega$

$R_{i66} = r_{\pi 6} + (1+B)R_E = 1.67 + 101(4.3) = 435.97$

$\frac{V_{O2}}{V_d} = \frac{B(R_C \| R_{i66})}{2(r_{\pi 1} + R_B)} = \frac{100(19.122)}{2(5.2+2)} = \boxed{132.8}$

(c) $R_o = \frac{V_A}{I_{C3}} = \frac{80}{1} = 80\,k\Omega$

Yes, $A_V = \frac{\text{something}}{\text{something}(R_o)}$ so if R_o changes so will A_V.

(d) This im not sure about but here is an attempt

$A_d = A_{d1} * A_2$ were $A_2 = 1$

so $\boxed{A_d = A_{d1} = 132.8}$