

5.4

- (a) 有反馈; 直流反馈; 负反馈
- (b) 有反馈; 直流+交流反馈; 正反馈
- (c) 有反馈; 直流反馈; 负反馈
- (d) 有反馈; 直流+交流反馈; 负反馈
- (e) 有反馈; 直流+交流反馈; 负反馈
- (f) 有反馈; 直流+交流反馈; 负反馈
- (g) 有反馈; 直流+交流反馈; 负反馈
- (h) 有反馈; 直流+交流反馈; 负反馈

5.5

- (a) 交流负反馈; (b) 交、直流负反馈; (c) R_3 直流负反馈, R_3, R_1, R_2 并联交流负反馈, R_4, C_2 交流正反馈
- (d) 交、直流负反馈 (e) 交、直流负反馈 (f) R_3, R_7 引入直流负反馈, R_4 引入交、直流负反馈

5.6

- (d) 电流并联负反馈 (e) 电压串联负反馈 (f) 电压串联负反馈
- (g) 电压串联负反馈 (h) 电压串联负反馈

5.7

- (a) 电压并联负反馈 (b) 电压串联负反馈 (c) 电流并联负反馈
- (f) 电流串联负反馈

5.8

$$(d) \dot{I}_i = \dot{I}_o \quad \dot{A}_{uf} = \frac{\dot{U}_o}{\dot{U}_i} = \frac{R_L}{R_1}$$

$$(e) \dot{A}_{uf} = \frac{\dot{U}_o}{\dot{U}_i} = \frac{R_3 + R_1}{R_1} = 1 + \frac{R_3}{R_1}$$

$$(f) \dot{U}_i = U_N = U_P = \dot{U}_o \quad \dot{A}_{uf} = \frac{\dot{U}_o}{\dot{U}_i} = 1$$

$$(g) \dot{A}_{uf} = \frac{\dot{U}_o}{\dot{U}_i} = 1 + \frac{R_2}{R_1}$$

$$(h) U_i \text{ 为 } R_1 \text{ 分压 } U_o \text{ 为 } R_1, R_3 \text{ 分压. } I_{R_1} = I_{R_3} \quad \dot{A}_{uf} = \frac{\dot{U}_o}{\dot{U}_i} = 1 + \frac{R_3}{R_1}$$

5.9

$$(a) \dot{F} = \frac{\dot{I}_f}{\dot{U}_o} = -\frac{1}{R_f} \quad \dot{A}_{usf} = \frac{1}{\dot{F}} \cdot \frac{1}{R_s} = -\frac{R_f}{R_s}$$

$$(b) \dot{F} = \frac{\dot{U}_f}{\dot{U}_o} = \frac{R_1}{R_1 + R_4} \quad \dot{A}_{uf} = \frac{1}{\dot{F}} = 1 + \frac{R_4}{R_1}$$

$$(c) \dot{F} = \frac{\dot{I}_f}{\dot{I}_o} = \frac{R_2}{R_1 + R_2} \quad \dot{A}_{usf} = \frac{1}{\dot{F}} \cdot \frac{R_L'}{R_s} = \left(1 + \frac{R_1}{R_2}\right) \frac{R_4 // R_L}{R_s}$$

$$(f) \dot{F} = \frac{\dot{U}_f}{\dot{I}_o} = -\frac{R_2 R_9}{R_2 + R_4 + R_9} \quad \dot{A}_{usf} = \frac{1}{\dot{F}} \cdot R_L' = \frac{1}{\dot{F}} \cdot (R_3 // R_8 // R_L) = -\frac{(R_2 + R_4 + R_9)(R_3 // R_8 // R_L)}{R_2 R_9}$$

5.13

