

(b)

$$P \Rightarrow Q \wedge R$$

$$S \Rightarrow M \vee \sim Q \quad \vdash M$$

$$R \Rightarrow S$$

$$P$$

$$P \Rightarrow Q \wedge R$$

$$P$$

$$\therefore Q \wedge R \text{ (Modus Ponens)}$$

$$Q \wedge R$$

$$\therefore R \text{ (And Elimination)}$$

$$Q \text{ (And Elimination)}$$

$$R \Rightarrow S$$

$$R$$

$$\therefore S \text{ (Modus Ponens)}$$

$$S \Rightarrow M \vee \sim Q$$

$$S$$

$$\therefore M \vee \sim Q \text{ (Modus Ponens)}$$

$$M \vee \sim Q$$

$$Q$$

$$M \text{ (Unit Resolution)}$$