(i) $[B] \subseteq U+W$

Let $\alpha \in [B]$

$$\Rightarrow \alpha = \alpha_1 v_1 + \dots + \alpha_r v_r + \beta_{r+1} u_{r+1} + \dots + \beta_m u_m + \gamma_{r+1} w_{r+1} + \dots + \gamma_p w_p$$
$$\in U+W$$

$\therefore [B] \subseteq U+W$. ——— (1)

(ii) $U+W \subseteq [B]$

Let $y \in U+W$

$$\Rightarrow y = a_1 v_1 + \dots + a_r v_r + b_{r+1} u_{r+1} + \dots + b_m u_m + \dots$$
$$+ c_1 v_1 + \dots + c_r v_r + d_{r+1} w_{r+1} + \dots + d_p w_p$$

$$= (a_1 + c_1) v_1 + \dots + (a_r + c_r) v_r + b_{r+1} u_{r+1} + \dots + b_m u_m$$
$$+ d_{r+1} w_{r+1} + \dots + d_p w_p$$

$$= \delta_1 v_1 + \dots + \delta_r v_r + b_{r+1} u_{r+1} + \dots + b_m u_m + d_{r+1} w_{r+1}$$
$$+ \dots + d_p w_p$$

$$\in [B]$$

$\therefore U+W \subseteq [B]$ ——— (2)

From (1) and (2), we get $U+W = [B]$.