POSET

A set together with partiall order relation defined on it is called POSET.

Hasse Diagram:

pictorial representation of a poset is called Hasse diagram.
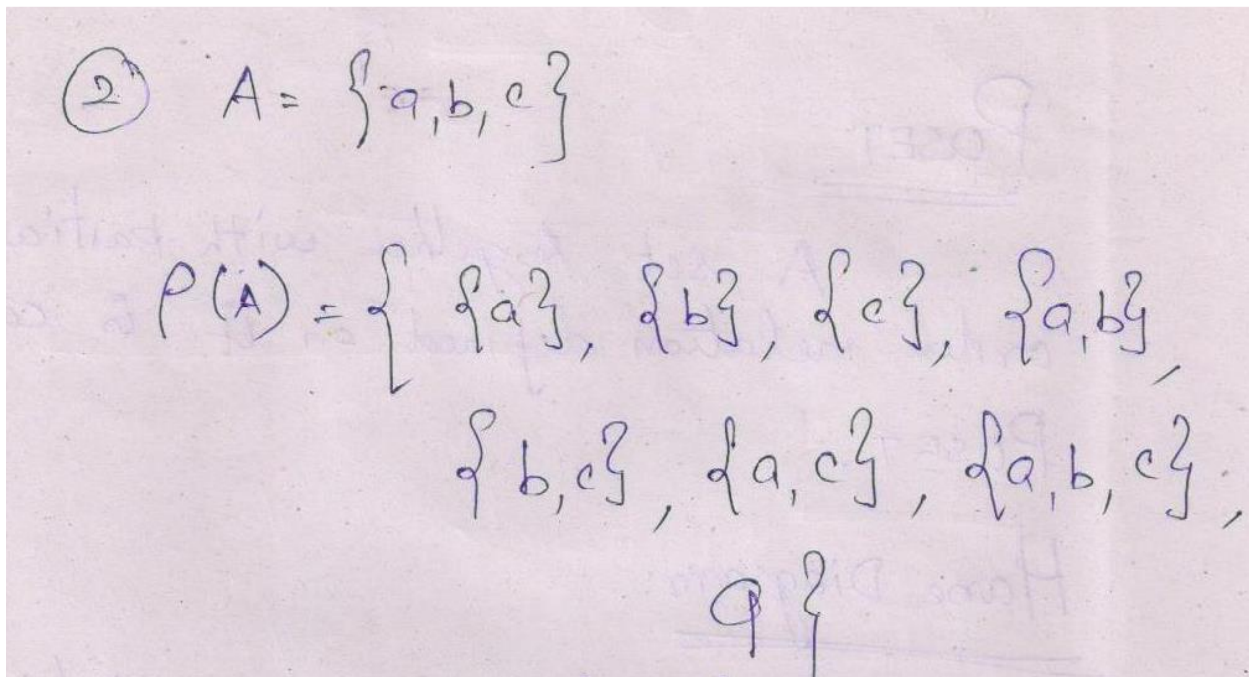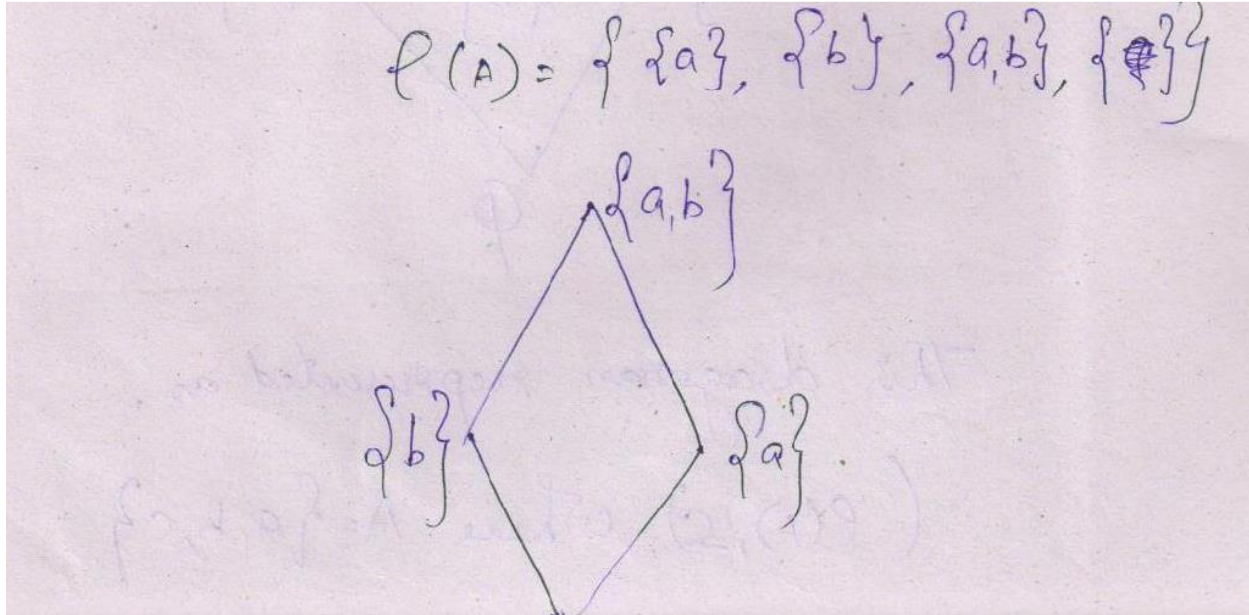
Ex Draw Hasse diagram for $(P(A), \subseteq)$ where

1) $A = \{a, b\}$ (2) $A = \{a, b, c\}$
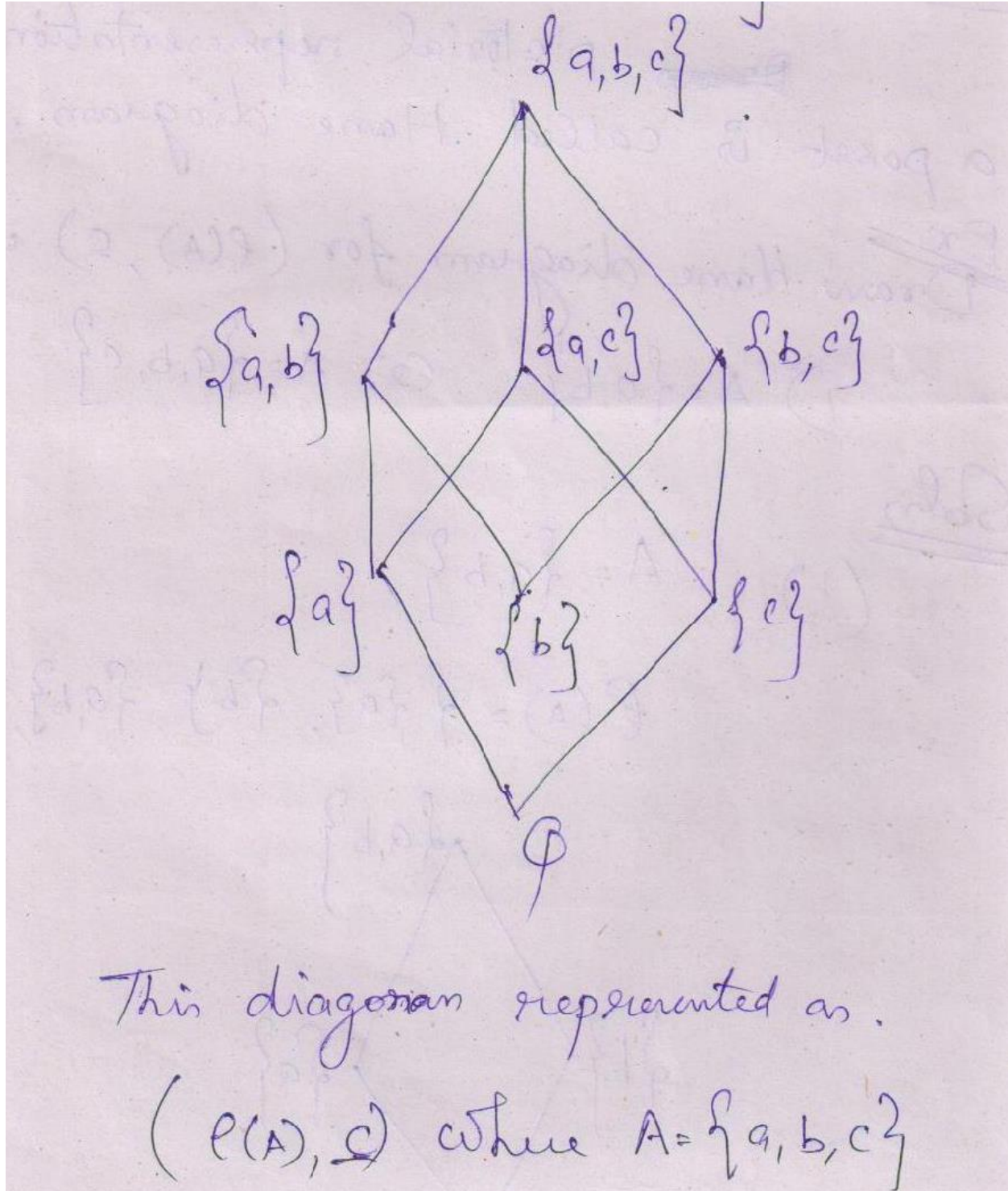
Soln

(1) $A = \{a, b\}$

$$\rho(A) = \{ \{a\}, \{b\}, \{a,b\}, \{\phi\} \}$$

$$\{a,b\}$$

$$\{b\} \qquad \{a\}$$

② $A = \{a, b, c\}$

$$\rho(A) = \{ \{a\}, \{b\}, \{c\}, \{a,b\},$$
$$\{b,c\}, \{a,c\}, \{a,b,c\},$$
$$\phi \}$$

This diagram represented as.

$(P(A), \subseteq)$ where $A = \{a, b, c\}$

If $x = \{2, 3, 6, 12, 24, 36\}$ and the relation R defined on X by

$R = \{ \langle a, b \rangle \mid a/b \}$. Draw Hasse diagram for (X, R)

Soln

The relation

$$R = \{ \langle 2,6 \rangle, \ \langle 2,12 \rangle, \ \langle 2,24 \rangle, \ \langle 2,36 \rangle$$

$$\langle 3,6 \rangle, \ \langle 3,12 \rangle, \ \langle 3,24 \rangle, \ \langle 3,36 \rangle$$

$$\langle 6,12 \rangle, \ \langle 6,24 \rangle, \ \langle 6,36 \rangle,$$

$$\langle 12,24 \rangle, \ \langle 12,36 \rangle \}$$

Hasse diagram for (X, R) is