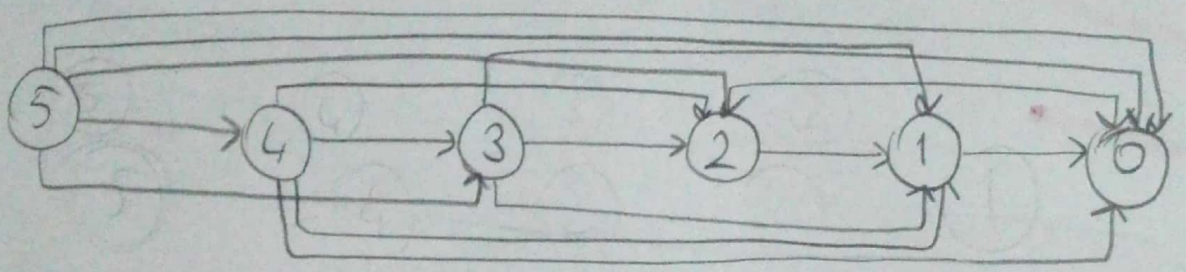
Problem 1:

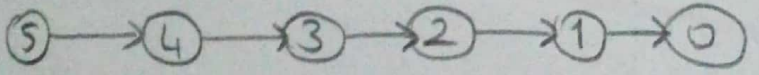
Draw the Hasse Diagram $\{\{0,1,2,3,4,5\}, >\}$

$\{(1<0), (2<0), (2<1), (3<0), (3<1), (3<2), (4<0), (4<1), (4<2), (4<3), (5<0), (5<1), (5<2), (5<3), (5<4)\}$



Delete the transitivity:

$\{(5<4), (4<3), (3<2), (2<1), (1<0)\}$



Minimal element = 5

maximal element = 0

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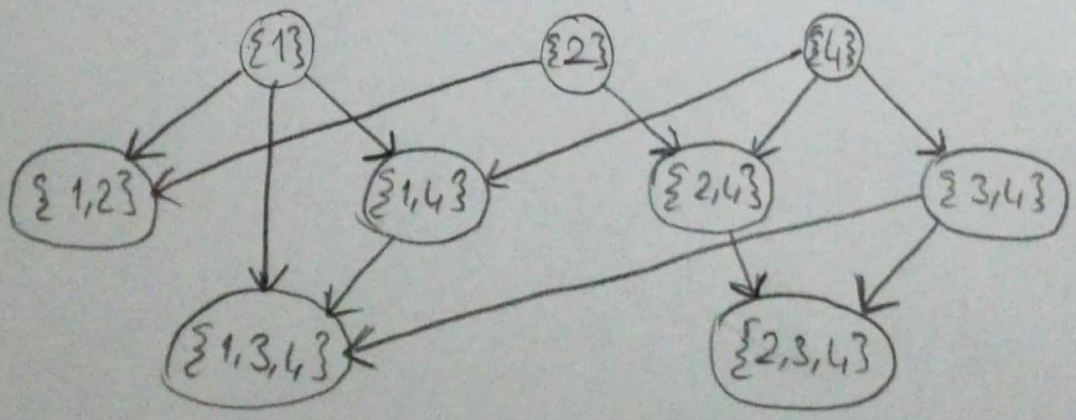
Problem 2:

Poset = ({ {1}, {2}, {4}, {1,2}, {1,4}, {2,4}, {3,4}, {1,3,4}, {2,3,4} }, ⊆)

{ ({1} < {1}), ({1} < {1,2}), ({1} < {1,4}), ({1} < {1,3,4}),
({2} < {2}), ({2} < {1,2}), ({2} < {2,4}), ({2} < {2,3,4}),
({4} < {4}), ({4} < {1,4}), ({4} < {2,4}), ({4} < {3,4}),
({4} < {1,3,4}), ({4} < {2,3,4}),
({1,2} < {1,2}), ({1,4} < {1,4}), ({1,4} < {1,3,4}), ({2,4} < {2,4}),
({2,4} < {2,3,4}), ({3,4} < {3,4}), ({3,4} < {1,3,4}), ({3,4} < {2,3,4}),
({1,3,4} < {1,3,4}), ({2,3,4} < {2,3,4}) }



a) {1,2}, {1,3,4}, {2,3,4}

b) {1}, {2}, {4}

c) No

d) {2} → UB = ({1,2}, {2,4}, {2,3,4})
{4} → UB = ({1,4}, {1,3,4}, {2,4}, {3,4})

e) {2,4}

f) {1,3,4} → LB = ({1}, {1,4}, {3,4})
{2,3,4} → LB = ({2}, {2,4}, {3,4}, {4})

h) {4}

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