SECTION-1

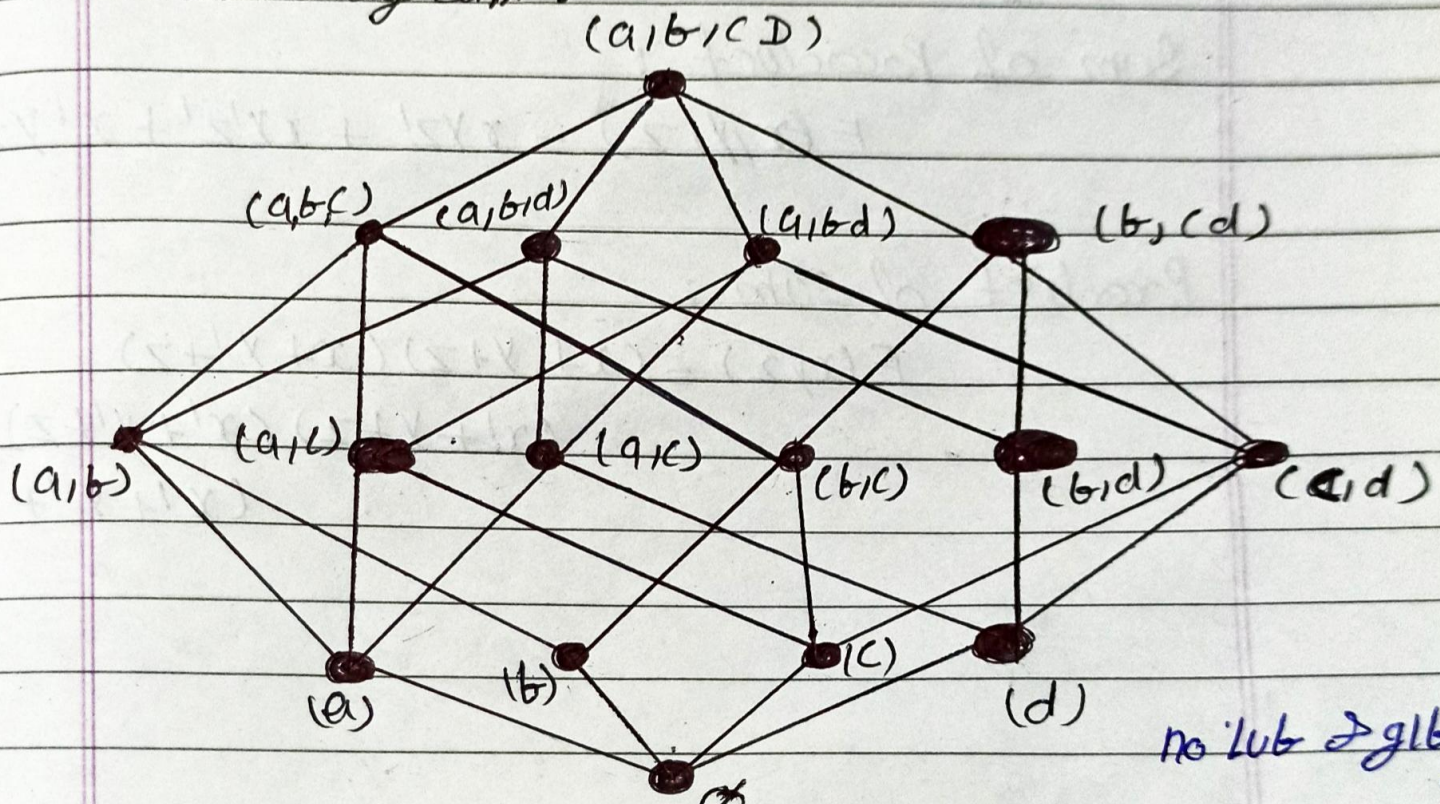
Q1.

Sol: (a) The inclusion relation ($\subseteq$) is partial ordering on the power set of a set S if it satisfies the condition:

Reflexivity: $A \subseteq A$ whenever A is a subset of S.
Antisymmetry: If A and B are positive integers with $A \subseteq B$ and $B \subseteq A$, then $A = B$.

Transitivity: if $A \subseteq B$ and $B \subseteq C$, then $A \subseteq C$.

Hasse diagram:



no lub & glb.

⇒ $(P(S), \subseteq)$ is not a lattice because $((a,b),(b,d))$ has

(b) $F(x,y,z) = (x+y)z'$

x	y	z	x+y	z'	(x+y)z'
1	1	1	1	0	0
1	1	0	1	1	1
1	0	1	1	0	0
1	0	0	1	1	1
0	1	1	1	0	0
0	1	0	1	1	1
0	0	1	0	0	0
0	0	0	0	1	0

Sum of Product :

$F(x,y,z) = xyz' + xy'z' + x'yz'$

Product of sum :

$F(xyz) = (x+y+z)(x+y'+z)$
$(x'+y+z)(x'+y'+z)$
$(x'+y'+z').$