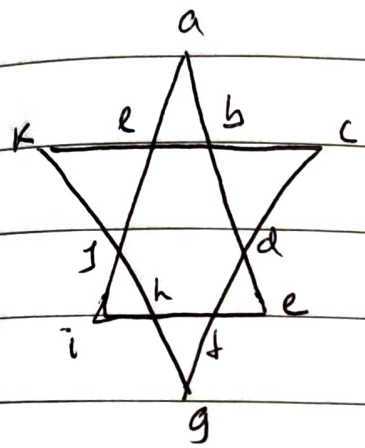
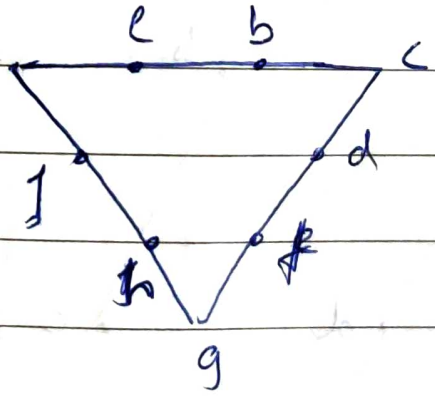
(1)



circuit: $a \to b \to d \to e \to f \to h \to i \to j \to l \to a$

H:



Subcircuit: $l \to b \to c \to d \to f \to g \to h \to y \to k \to l$

Euler circuit:

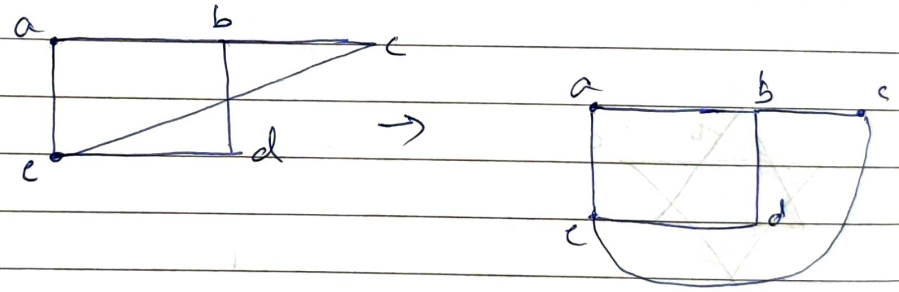
$a \to b \to d \to e \to f \to h \to i \to g \to l \to b \to c$
$\to d \to f \to g \to h \to y \to k \to l \to a$

Planar Graph

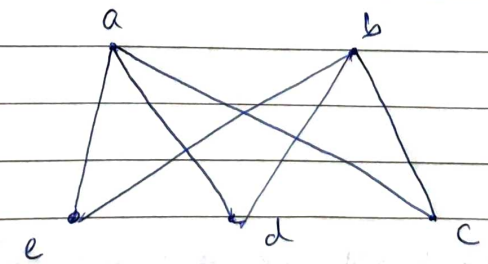
A graph is called as planar if it can be drawn on plane without edge crossing

Draw given planar graphs without edge crossing

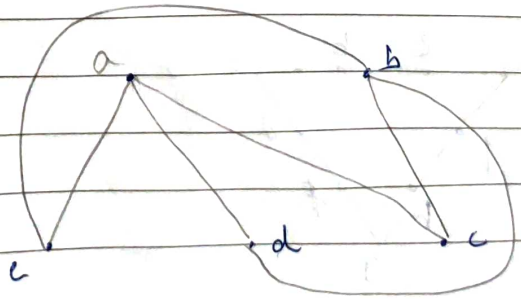
1)



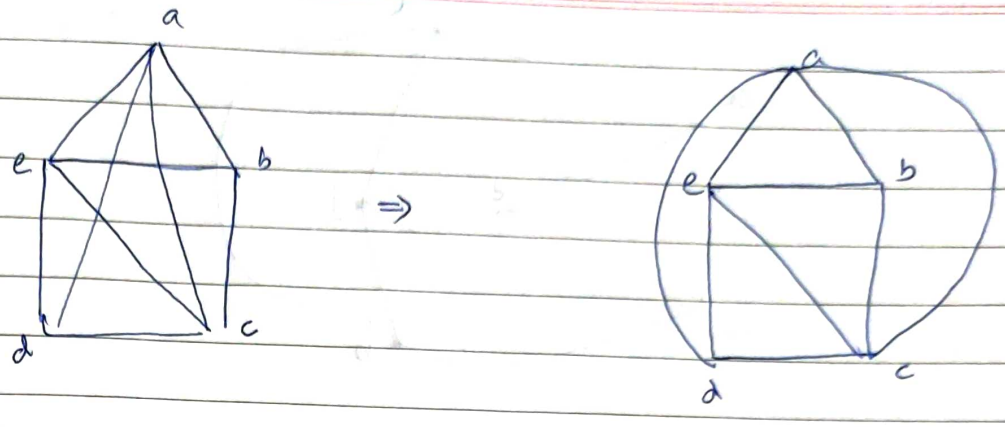
(2)



⇒

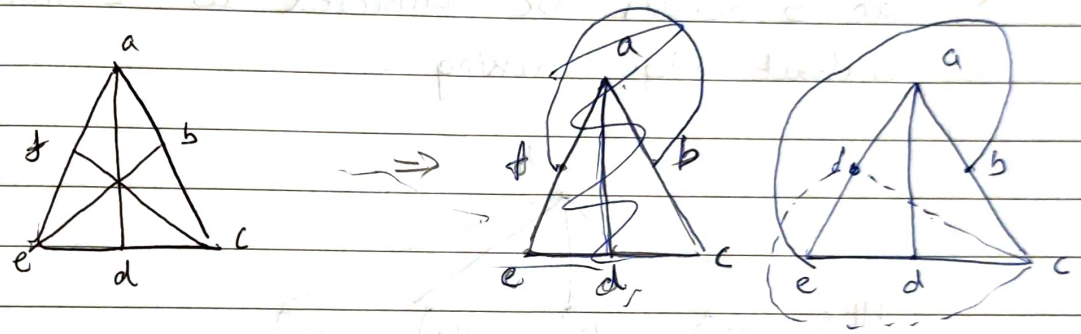


(3)



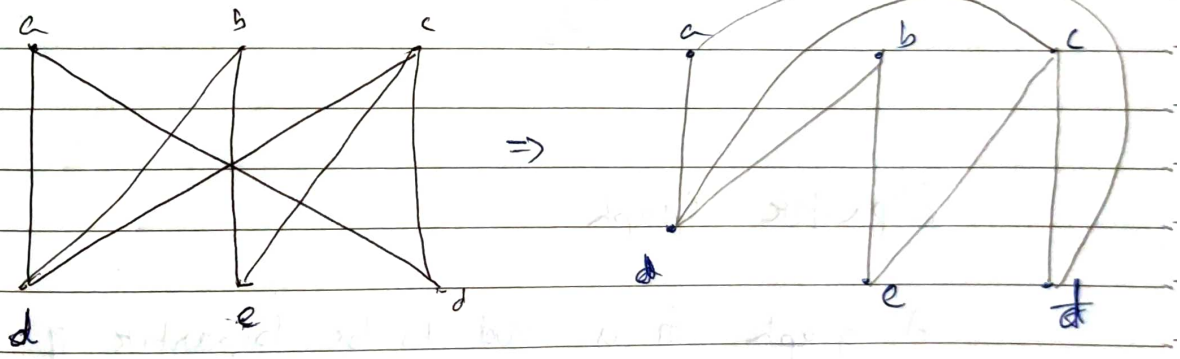
Determine given graphs are planar/not. If so draw them without edge crossing

(1)



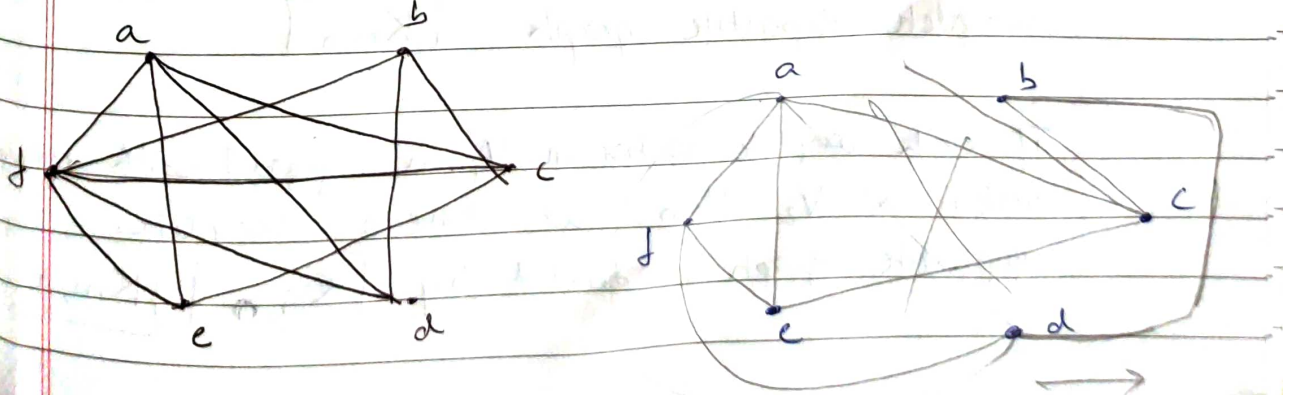
Not planar

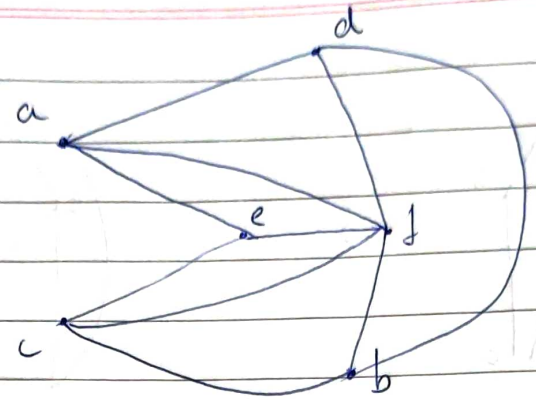
(2)



∴ Planar

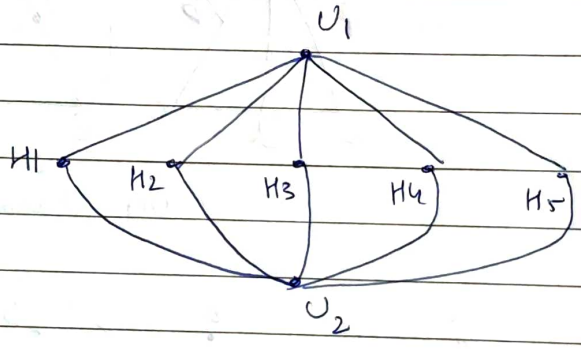
(3)





∴ Planar

a Can 5 houses be connected to 2 utilities without edge crossing.



Bipartite Graph

A graph G is said to be bipartite if $V = V_1 \cup V_2$ and $V_1 \cap V_2 = \phi$ and every edge of G of the form $\{a, b\}$ with $a \in V_1$ and $b \in V_2$

Complete Bipartite graph $[K_{m,n}]$

If each ~~complete~~ vertex in V_1 is joined with every vertex in V_2 then we have a complete Bipartite graph. denoted by ~~$K_{m,m}$~~ $K_{m,n}$