DT. 1

Qu: 2.2

let X1, X2, X3, and X4 be 4 disjoint set
with cardinality n.

So,

$G = V(G) = \bigcup_{i=1}^{4} X_i$ $\boxed{n = 4+0}$

E(G) consist of edges in the two complete graphs with ~~vertex~~ set X_1 and X_4

respectively and the edges in 3 ~~bipartite~~ complete graphs with bipartitions

(X_1, X_2), (X_2, X_3) and (X_3, X_4)

respectively. Then G' has the edge set comprising the edges in the two complete graphs with vertex set X2 & X3 respectively.

The complete graph with bipartition

(X_2, X_4), (X_4, X_1) and (X_1, X_3)

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respectively.

It is almost immediate that

$G \cong G'$

→

[$n = 4t+1$].

for a new graph $4t$.

add a new vertex $v \in V(G)$ and edge b/w v and every member of $X_1 \cup X_4$. so; G_0 i.e resulting graph is again complimentary.

→

~~for [$n = 4t+2$ or $4t+3$]~~

~~for a graph with $4t$ vertices~~

~~add $v \in V(G)$ and the edge between v and every member of $X_1 \cup X_4$. The resulting graph is also complementary.~~

[$n = 4t+2$ or $4t+3$]

total no. of edges in K_n is odd in this case so it cannot decompose.

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into a graph.

Hence;

it's a complement G' with

$G \cong G'$

Hence proved