Example 2.2.: The path P_6 and P_{10} are 3-total super product cordial graphs

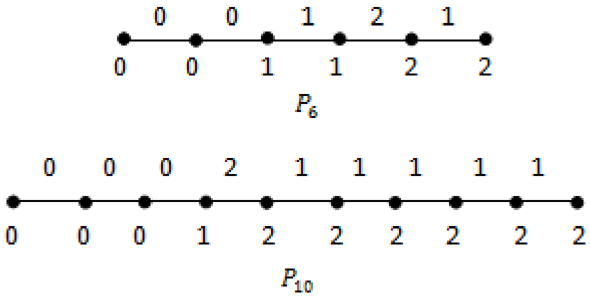

Figure 1:3-total super product cordial labeling of path P_6 and P_{10}

Theorem 2.3.: k_1,m is 3-total super product cordial. If $m \equiv 0\ (mod\ 3)$and $m \equiv 2\ (mod\ 3)$.

Proof: Let k_1,m be the complete bipartite graph we note that $|V(k_1,m)| = m+1$ and $|E(k_1,m)| = m$

Let

$$V(k_1,m) = \{u, u_i{:}1 \leq i \leq m\}$$

$$E(k_1,m) = \{uu_i{:}1 \leq i \leq m\}$$

Case I: $m \equiv 0\ (mod\ 3)$

Let $m = 3p$

Assign

$f(u) = 1$

Define:

$f(u_{3i+1}) = 0;\ 0 \leq i \leq p-1$

$f(u_{3i+2}) = 1;\ 0 \leq i \leq p-1$

$f(u_{3i+3}) = 2;\ 0 \leq i \leq p-1$

Hence f is 3-total super product cordial.

Case II: $m \equiv 2\ (mod\ 3)$

Let $m = 3p+2$

Assign

$f(u) = 1$

Define:

$f(u_{3i+1}) = 0;\ 0 \leq i \leq p$

$f(u_{3i+2}) = 2;\ 0 \leq i \leq p$

$f(u_{3i+3}) = 1;\ 0 \leq i \leq p-1$

Hence f is 3-total super product cordial.

Example 2.4.: The stars $k_1,5$ and $k_1,9$ are 3-total super product cordial graphs.

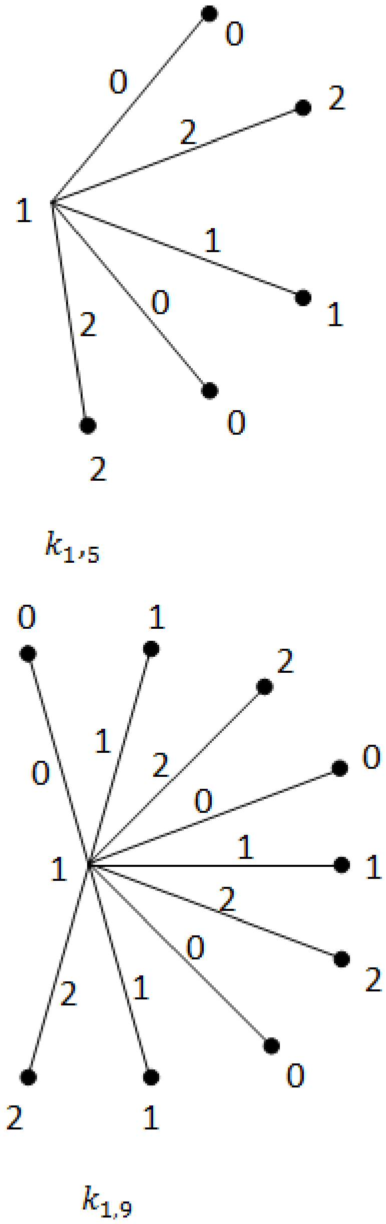

Figure 2: 3-total super product cordial labeling of the stars $k_{1,5}$ and$k_{1,9}$

Theorem 2.5.: Cycle graph c_m is 3-total super product cordial labeling. If :$m \equiv 1\ (mod\ 3)$ and $m \equiv 2\ (mod\ 3)$

Proof: Let c_m be the cycle graph. We note that $|V(G)| = m$ and $|E(G)| = m$.

Case I: $m \equiv 1\ (mod\ 3)$

Let $m = 3p+1$

$f(u_i) = 0;\ 1 \leq i \leq p$

$f(u_{p+1}) = 1$

$f(u_{p+1+i}) = 2;\ 1 \leq i \leq 2p-1$

$f(u_{3p+1}) = 1$

Hence f is 3-total super product cordial.

Case II: $m \equiv 2\ (mod\ 3)$

Let $m = 3p+2$

Define:

$f(u_i) = 0;\ 1 \leq i \leq p$

$$f(u_{p+1}) = 1$$
$$f(u_{p+1+i}) = 2;\ 1 \le i \le 2p$$
$$f(u_{3p+2}) = 1$$

Hence f is 3-total super product cordial.

Example 2.6.: The cycle c_7 and c_8 are 3-total super product cordial graphs.

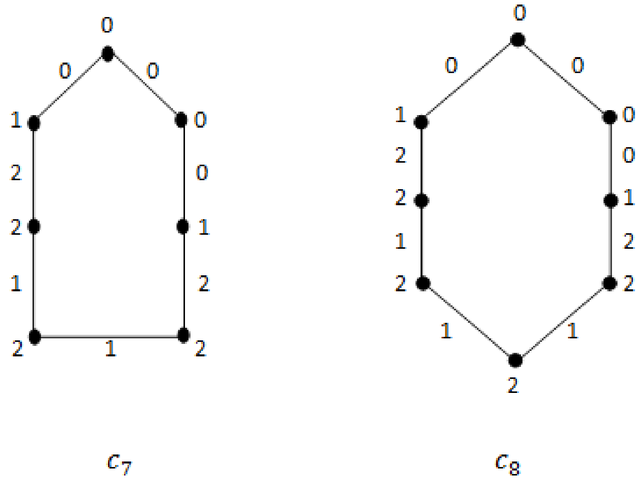

Figure 3: 3-Total super product cordial labeling of c_7 and c_8

3. Conclusion

Every 2-total product cordial graph is 2-total super product cordial graphs.

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