SUMMARY

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Let G be a graph with a set of vertices $V(G)$ and a set of edges $E(G)$. The distance from vertex u to vertex v in G, denoted by $d(u,v)$, is a length of the shortest path from vertex u to v. The eccentricity of vertex u in graph G is the maximum distance from vertex u to any other vertices in G, denoted by $e(u)$. Vertex v is an eccentric vertex from u if $d(u,v) = e(u)$. The eccentric digraph $ED(G)$ of a graph G is a graph that has the same set of vertices as G, and there is an arc (directed edge) joining vertex u to v if v is an eccentric vertex from u.

The purposes of this reserarch are to determine the eccentric digraphs of some classes of graphs, in particular the friendship graphs, and the firecracker graphs.

The results show that (1) the eccentric digraph of friendship graph F_k^n for k even, is a digraph having the vertex set $V(D_k^n) = \left\{u, v_{1,1}, v_{1,2}, \ldots, v_{n.k-1}\right\}$ and the arc set $A(ED(F_k^n)) = \left\{\overrightarrow{uv_{i,j}} \mid i \in [1,n],\ j = \frac{k}{2}\right\} \cup \left\{\overleftrightarrow{v_{i,\frac{k}{2}} v_{j,\frac{k}{2}}} \mid i, j \in [1,n], i \neq j\right\} \cup \left\{\overrightarrow{v_{i,j} v_{s,t}} \mid i, j \in [1,n],\ j \neq \frac{k}{2}, s \in [1,n], s \neq i, t = \frac{k}{2}\right\}$, $\overline{(2)}$ the eccentric digraph of friendship graph F_k^n for k odd is a digraph having the vertex set $V_i = V(\overline{K}_{k-3,i}) = \{v_{i,1}, v_{i,2}, \ldots, v_{i,\frac{k-3}{2}}, v_{i,\frac{k+3}{2}}, \ldots, v_{i,k-1}\}$, $V_i' = V(\overline{K}_{2,i}) = \{v_{i,\frac{k-1}{2}}, v_{i,\frac{k+1}{2}}\}$ and the arc set $A(ED(F_k^n)) = \{\overrightarrow{u\alpha_i} \mid i \in V_i', i \in [1,n]\} \cup \{\overleftrightarrow{\alpha_r \alpha_s} \mid \alpha_r \in V_r', \alpha_s \in V_s', r \neq s, r, s \in [1,n]\} \cup \{\overrightarrow{\beta_p \beta_q} \mid \beta_p \in V_i, \beta_q \in V_j', \quad i \neq j, \quad i, j \in [1,n]\}$, $p = 1, 2, \ldots, \frac{k-3}{2}, \frac{k+3}{2}, \ldots, k-1,\ q = \frac{k-1}{2}, \frac{k+1}{2}$, (3) the eccentric digraph of firecracker graph $F_{n,k}$ is a 4-partite $F_{k-2,k-2,\frac{nk-2k+4}{2},\frac{nk-2k+4}{2}}$, and (4) the eccentric digraph of firecracker graph $F_{n,k}$ is a digraph 5-partite $F_{k-2,k-2,k,\frac{nk-3k+4}{2},\frac{nk-3k+4}{2}}$.