International Journal of Basic Sciences and Applied Computing (IJBSAC)
ISSN: 2394-367X (Online), Volume-8 Issue-8, April 2022

The $(a, b)-$ Status Indices of Central Graphs of Some Standard Graph

Sridhara K.R, Mallikarjun Basanna Kattimani

Abstract: ***The sum of shortest distance between a vertex u from all other vertices of a graph G is called the index of the vertex u and is denoted by $\sigma(u)$. In this article, we have obtained, the $(a,b)-$ status index [3] of central graphs of some standard graphs namely star graph, complete graph, cycle graph, wheel graph and friendship graph. Using this new index, we have computed 9 standard status indices of all these central graphs of standard graphs.***

Keywords: ***The $(a,b)-$ status index, first and second status indices, first and second status Gourava indices.***

I. INTRODUCTION

Graphs, here considered, are connected and simple with no self-loops and no parallel edges. Vertex set is denoted by $V(G)$, edge set is denoted by $E(G)$ for a graph G. The Central graph $C(G)$ of a graph G is the graph obtained by sub-dividing each edge of a G exactly once and joining all non-adjacent vertices of G. The length of shortest path between two vertices u and v, denoted by $d(u,v)$ is distance between them. The sum of distances of a vertex u from all other vertices of a graph is called status of the vertex u with notation $\sigma(u)$. Ramane et.al [4] introduced first and second connectivity status indices. V.R.Kulli et.al introduced [3] The $(a,b)-$ status index, as

$$S_{a,b} = \sum_{uv\in E(G)} \{(\sigma(u))^a \cdot (\sigma(v))^b + (\sigma(u))^b(\sigma(v))^a\}$$

For notations and definitions, we refer [1],[2]. In [3], V.R.Kulli et al. have found the first status index $S_1(G)$, second status index $S_2(G)$, product connectivity status index $PS(G)$, reciprocal product connectivity status index $RPS(G)$, the general second status index $S_2^a(G)$, The F_1 status index $F_1S(G)$, the first status Gourava index $SGO_1(G)$, the second status Gourava index $SGO_2(G)$, the symmetric division status index $SDS(G)$ of wheel and friendship graphs. Here we have obtained these indices for central graphs of star graph $K_{1,n}$, denoted by $C(K_{1,n})$, cycle graph C_n, denoted by $C(C_n)$, complete graph K_n, denoted by $C(K_n)$, wheel graph W_n with $C(W_n)$, and friendship graph F_n, denoted by $C(F_n)$.

Manuscript received on 22 March 2022.
Revised Manuscript received on 21 April 2022.
Manuscript published on 30 April 2022.

* Correspondence Author

Sridhara K.R.*, Department of Mathematics, A.P.S. College of Engineering, Bangalore (Karnataka), India. Email:sridharwi@gmail.com

Dr. Mallikarjun Basanna Kattimani, Department of Mathematics, The Oxford College of Engineering, Bangalore (Karnataka), India. Email: mallikarjunbk64@gmail.com

II. MAIN RESULTSS

Theorem 2.1. For $n \geq 2$,

$$S_{a,b}\left(C(K_{1,n})\right) = 2n\{(3n)^a(4n-2)^b + (3n)^b(4n-2)^a\} + n(n-1)(3n)^{a+b}$$

Proof. By definition of central graph, and by computation, we note that $C(K_{1,n})$ has $(2n+1)$ vertices and $\frac{n^2+3n}{2}$ edges. The edge set $E\left(C(K_{1,n})\right)$ can be divided into the following two parts.

$E_1 = \left\{uv\epsilon E\left(C(K_{1,n})\right)/d(u) = n, d(v) = n\right\}$ and

$E_2 = \left\{uv\epsilon E(C(K_{1,n}))\,/\,d(u) = n, d(v) = \frac{n(n-1)}{2}\right\}$

Calculating status of every vertex of the graph, we find that $M(K_{1,n})$ has 2 status edges as listed in Table 1.

Table 1: Details of Status of vertices of $C(K_{1,n})$

$(\sigma(u),\sigma(v))\,/\,uv\epsilon E\left(C(K_{1,n})\right)$	Total edges
$(3n, 4n-2)$	$2n$
$(3n, 3n)$	$\frac{n(n-1)}{2}$

Using the above table and definition, we get,

$$S_{a,b}\left(C(K_{1,n})\right) = 2n\{(3n)^a(4n-2)^b + (3n)^b(4n-2)^a\} + \frac{n(n-1)}{2}\{(3n)^a(3n)^b + (3n)^b(3n)^a\}$$
$$= 2n\{(3n)^a(4n-2)^b + (3n)^b(4n-2)^a\} + n(n-1)(3n)^{a+b}$$

Theorem 2.2. For $n \geq 2$,

$$SGO_1\left(C(K_{1,n})\right) = \frac{9n^4 + 45n^3 - 2n^2 - 8n}{2}$$

Proof. By definition of first Gourava index [3], we have

$$SGO_1\left(C(K_{1,n})\right) = \sum_{uvE\left(C(K_{1,n})\right)} \{\sigma(u) + \sigma(v) + \sigma(u)\sigma(v)\}$$

Using table 1, we note that

$$SGO_1\left(C(K_{1,n})\right) = 2n\{3n + (4n-2) + 3n(4n-2)\} + \frac{n(n-1)}{2}\{3n + 3n + 9n^2\} = \frac{9n^4 + 45n^3 - 2n^2 - 8n}{2}$$

Corollary 2.3.

1. The first status index

$$S_1\left(C(K_{1,n})\right) = S_{1,0}\left(C(K_{1,n})\right) = 3n^3 + 11n^2 - 4n$$

2. The second status index

$$S_2\left(C(K_{1,n})\right) = \frac{1}{2}\left(S_{1,1}\left(C(K_{1,n})\right)\right) = \frac{9n^4 + 39n^3 - 24n^2}{2}$$

3. The product connectivity status index

$$PS\left(C(K_{1,n})\right) = \frac{1}{2}\left(S_{\frac{-1}{2},\frac{-1}{2}}\left(C(K_{1,n})\right)\right) = \frac{2n}{\sqrt{12n^2 - 6n}} + \frac{(n-1)}{6}$$

4. The reciprocal product connectivity status index

$$RPS\left(C(K_{1,n})\right) = \frac{1}{2}\left(S_{\frac{1}{2}\frac{1}{2}}\left(C(K_{1,n})\right)\right) = 2n\sqrt{12n^2 - 6n} + \frac{3n^3 - 3n}{2}$$

5. The general second status index

$$S_2^a\left(C(K_{1,n})\right) = \frac{1}{2}\left(S_{a,a}\left(C(K_{1,n})\right)\right) = 2n(3n)^a(4n-2)^a + \frac{n(n-1)(3n)^{2a}}{2}$$

6. The F_1 status index

$$F_1S\left(C(K_{1,n})\right) = S_{2,0}\left(C(K_{1,n})\right) = 9n^4 + 41n^3 - 32n^2 + 8n$$

7. The second status Gourava Index

$$SGO_2\left(C(K_{1,n})\right) = S_{2,1}\left(C(K_{1,n})\right) = 27n^5 + 141n^4 - 132n^3 + 24n^2$$

8. The symmetric division status index

$$SDS\left(C(K_{1,n})\right) = S_{1,-1}\left(C(K_{1,n})\right) = 2n\left(\frac{3n}{4n-2} + \frac{4n-2}{3n}\right) + n(n-1)$$

Theorem 2.4. For $n \geq 2$

$$S_{a,b}(C(C_n)) = 2n((3n-1)^a(5n-7)^b + (3n-1)^b(5n-7)^a) + (n^2-3n)(3n-1)^{a+b}$$

Proof. By definition of central graph, and by computation, we note that $C(C_n)$ has $2n$ vertices and $\frac{n^2+n}{2}$ edges. The edge set $E(C(C_n))$ can be divided into the following two parts.

$E_1 = \{uv\epsilon E(C(C_n))/d(u) = n-1, d(v) = 2\}$ and

$E_2 = \{uv\epsilon E(C(C_n))/d(u) = n-1, d(v) = n-1\}$

Calculating status of each vertex of the graph, we find that $(C(C_n))$ has the following two types of status edges:

Table 2: Details of status of vertices of $C(C_n)$

$(\sigma(u), \sigma(v))$ / $uv\epsilon E(C(C_n))$	**Total edges**
$(3n-1, 5n-7)$	$2n$
$(3n-1, 3n-1)$	$\frac{n^2-3n}{2}$

Using the above table and definition, we get,

$$S_{a,b}(C(C_n)) = 2n((3n-1)^a(5n-7)^b + (3n-1)^b(5n-7)^a) + \left(\frac{n^2-3n}{2}\right)((3n-1)^a(3n-1)^b + (3n-1)^a(3n-1)^b)$$

$$S_{a,b}(C(C_n)) = 2n\left(\begin{matrix}(3n-1)^a(5n-7)^b + \\ (3n-1)^b(5n-7)^a\end{matrix}\right) + (n^2-3n)(3n-1)^{a+b}$$

Theorem 2.5. For $n \geq 3$,

$$SGO_1(C(C_n)) = \frac{9n^4 + 33n^3 - 73n^2 - n}{2}$$

Proof: By definition of first Gourava index[3], we have

$$SGO_1(C(C_n)) = \sum_{uv\epsilon E(C(C_n))} \{\sigma(u) + \sigma(v) + \sigma(u)\sigma(v)\}$$

Using table 2, we note that

$$SGO_1(C(C_n)) = 2n\left(\begin{matrix}(3n-1) + (5n-7) \\ +(3n-1)(5n-7)\end{matrix}\right) + \left(\frac{n^2-3n}{2}\right)((3n-1) + (3n-1) + (3n-1)^2) = \frac{9n^4 + 33n^3 - 73n^2 - n}{2}$$

Corollary 2.6.

1. $S_1(C(C_n)) = S_{1,0}(C(C_n)) = 3n^3 + 6n^2 - 13n$

2. $S_2(C(C_n)) = \frac{1}{2}\left(S_{1,1}(C(C_n))\right)$

Retrieval Number: 100.1/ijbsac.H0476048822
DOI:10.35940/ijbsac.H0476.048822
Journal Website: www.ijbsac.org

Published By:
Blue Eyes Intelligence Engineering
& Sciences Publication (IJBSAC)

$$= \frac{9n^4 + 27n^3 - 85n^2 + 25n}{2}$$

3. $PS(C(C_n)) = \frac{1}{2}\left(S_{\frac{-1}{2},\frac{-1}{2}}(C(C_n))\right)$

$$= \frac{2n}{\sqrt{(15n^2 - 26n + 7)}} + \frac{n^2 - 3n}{(6n - 2)}$$

4. $RPS\left(C((C_n))\right) = \frac{1}{2}\left(S_{\frac{1}{2}\frac{1}{2}}(C(C_n))\right)$

$$= \frac{4n\sqrt{(n^2 - 26n + 7)} + 3n^3 - 10n^2 + 3n}{2}$$

5. $S_2^a(C(C_n)) = \frac{1}{2}\left(S_{a,a}(C(C_n))\right)$

$$= (3n-1)^a\left(2n(5n-7)^a + \frac{(n^2 - 3n)(3n-1)^a}{2}\right)$$

6. $F_1S(C(C_n)) = S_{2,0}(C(C_n))$

$$= 9n^4 + 35n^3 - 133n^2 + 97n$$

7. $SGO_2(C(C_n)) = S_{2,1}(C(C_n))$

$$= 27n^5 + 132n^4 - 566n^3 + 500n^2 - 109n$$

8. $SDS(C(C_n)) = S_{1,-1}(C(C_n))$

$$= 2n\left(\frac{3n-1}{5n-7} + \frac{5n-7}{3n-1}\right) + (n^2 - 3n)$$

Theorem 2.7. For $n \geq 4$

$$S_{a,b}(C(K_n)) = n^{a+b+1}\left(\left(\frac{3n-3}{2}\right)^a (2n-3)^b + \left(\frac{3n-3}{2}\right)^b (2n-3)^a + (n-2)\right)$$

Proof. By definition of central graph, and by computation, we note that $C(K_n)$ has $\frac{n^2+n}{2}$ vertices and $n(n-1)$ edges. $E(C(K_n))$ can be written as

$$E = \{uv\epsilon E(C(K_n))/d(u) = n-1, d(v) = 2\}$$

Calculating status of every vertex, we find that $(C(K_n))$ has the following status edges:

Table 3: Details of status of vertices of $C(K_n)$

$(\sigma(u), \sigma(v))$ / $uv\epsilon E(C(K_n))$	Total edges
$\left(\frac{3n^2 - 3n}{2}, 2n^2 - 3n\right)$	$n(n-1)$

Using the above table and definition, we get,

$$S_{a,b}(C(K_n)) = n(n-1)\left(\left(\frac{3n^2 - 3n}{2}\right)^a (2n^2 - 3n)^b + (2n^2 - 3n)^a \left(\frac{3n^2 - 3n}{2}\right)^b\right)$$

$$= n^{a+b+1}(n-1)\left(\left(\frac{3n-3}{2}\right)^a (2n-3)^b + \left(\frac{3n-3}{2}\right)^b (2n-3)^a\right)$$

Theorem 2.8. For $n \geq 2$

$$SGO_1(C(K_n)) = \frac{6n^6 - 21n^5 + 31n^4 - 25n^3 + 9n^2}{2}$$

Proof. By definition of first Gourava index[3], we have

$$SGO_1(C(K_n)) = \sum_{uv\epsilon E(C(K_n))} \{\sigma(u) + \sigma(v) + \sigma(u)\sigma(v)\}$$

Using table 3, we note that

$$SGO_1(C(K_n)) = n(n-1)\left(\left(\frac{3n^2 - 3n}{2}\right) + (2n^2 - 3n) + \left(\frac{3n^2 - 3n}{2}\right)(2n^2 - 3n)\right)$$

$$= \frac{6n^6 - 21n^5 + 31n^4 - 25n^3 + 9n^2}{2}$$

Corollary 2.9.

1. $S_1(C(K_n)) = S_{1,0}(C(K_n)) = \frac{7n^4 - 162n^3 + 9n^2}{2}$

2. $S_2(C(K_n)) = \frac{1}{2}\left(S_{1,1}(C(K_n))\right) = \frac{3n^3(n-1)^2(2n-3)}{2}$

3. $PS(C(K_n)) = \frac{1}{2}\left(S_{\frac{-1}{2},\frac{-1}{2}}(C(K_n))\right)$

$$= \frac{\sqrt{2}(n-1)}{\sqrt{6n^2 - 15n + 9}}$$

4. $RPS(C(K_n)) = \frac{1}{2}\left(S_{\frac{1}{2}\frac{1}{2}}(C(K_n))\right)$

$$= \frac{\sqrt{3}}{\sqrt{2}}\left(n^2(n-1)\sqrt{2n^2 - 5n + 3}\right)$$

5. $S_2^a(C(K_n)) = \frac{1}{2}\left(S_{a,a}(C(K_n))\right)$

$$= \frac{n^{2a+1}(n-1)(3n-3)^a(2n-3)^a}{2}$$

6. $F_1S(C(K_n)) = S_{2,0}(C(K_n))$

$$= \frac{25n^6 - 91n^5 + 111n^4 - 45n^3}{4}$$

7. $SGO_2(C(K_n)) = S_{2,1}(C(K_n))$

$$= \frac{42n^8 - 201n^7 + 357n^6 - 279n^5 + 81n^4}{4}$$

8. $SDS(C(K_n)) = S_{1,-1}(C(K_n))$

$$= n(n-1)\left(\frac{3n-3}{2(2n-3)}+\frac{2(2n-3)}{3n-3}\right)$$

Theorem 2.10.

$$S_{a,b}(C(W_n)) = 2n((5n+2)^a(8n-6)^b + (5n+2)^b(8n-6)^a) + n((5n+2)^a(7n-2)^b + (5n+2)^b(7n-2)^a) + n((7n-2)^a(6n)^b + (7n-2)^b(6n)^a) + (n^2-3n)(5n+2)^{a+b}$$

Proof. By definition of central graph, and by computation, we note that $C(W_k)$ *with* $k = n+1$ has $3n+1$ vertices and $\left(\frac{n^2+5n}{2}\right)$ edges. The edge set $E(C(W_k))$ can be divided into the following two parts.

$$E_1 = \{uv\epsilon E(C(W_k))/d(u) = n, d(v) = 2\}$$
$$E_2 = \{uv\epsilon E(C(W_k))/d(u) = n, d(v) = n\}$$

Calculating status of every vertex, we find that $(C(W_k))$ has the following four types of status edges:

Table 4: Details of status of vertices of $C(W_n)$

$(\sigma(u),\sigma(v))$ / $uv\epsilon E(C(W_n))$	Total edges
$(5n+2, 8n-6)$	$2n$
$(5n+2, 7n-2)$	n
$(7n-2, 6n)$	n
$(5n+2, 5n+2)$	$\frac{n^2-3n}{2}$

Using the above table and definition, we get,

$$S_{a,b}(C(W_n)) = 2n((5n+2)^a(8n-6)^b + (5n+2)^b(8n-6)^a) + n((5n+2)^a(7n-2)^b + (5n+2)^b(7n-2)^a) + n((7n-2)^a(6n)^b + (7n-2)^b(6n)^a) + (n^2-3n)(5n+2)^{a+b}$$

Theorem 2.11. For $n \geq 3$

$$SGO_1(C(W_n)) = \frac{25n^4+269n^3-52n^2-100n}{2}$$

Proof. By definition of first Gourava index[3], we have

$$SGO_1(C(W_n)) = \sum_{uv\epsilon E(C(W_k))}\{\sigma(u)+\sigma(v)+\sigma(u)\sigma(v)\}$$

Using table 4, we note that

$$SGO_1(C(W_n)) = 2n((5n+2)+(8n-6) + (5n+2)(8n-6)) + n((5n+2)+(7n-2) + (5n+2)(7n-2)) + n((7n-2)+6n+6n(7n-2)) + \left(\frac{n^2-3n}{2}\right)((5n+2)+(5n+2) + (5n+2)^2)$$
$$= \frac{25n^4+269n^3-52n^2-100n}{2}$$

Corollary 2.12.

1. $S_1(C(W_n)) = S_{1,0}(C(W_k))$
$$= 5n^3+38n^2-16n$$

2. $S_2(C(W_n)) = \frac{1}{2}\left(S_{1,1}(C(W_k))\right)$
$$= \frac{25n^4+259n^3-128n^2-68n}{2}$$

3. $PS(C(W_n)) = \frac{1}{2}\left(S_{\frac{-1}{2},\frac{-1}{2}}(C(W_k))\right)$
$$= \frac{2n}{\sqrt{40n^2-14n-12}}+\frac{n}{\sqrt{35n^2+14n-4}} + \frac{n}{\sqrt{42n^2-12n}}+\frac{n^2-3n}{(10n+4)}$$

4. $RPS(C(W_n)) = \frac{1}{2}\left(S_{\frac{1}{2},\frac{1}{2}}(C(W_k))\right)$
$$= 2n\sqrt{40n^2-14n-12} + n\sqrt{35n^2+14n-4} + n\sqrt{42n^2-12n}+\frac{(n^2-3n)(5n+2)}{2}$$

5. $S_2^a(C(W_n)) = \frac{1}{2}\left(S_{a,a}(C(W_k))\right)$
$$= 2n(5n+2)^a\ (8n-6)^a + n(5n+2)^a\ (7n-2)^a + n(7n-2)^a\ (6n)^a + \frac{(n^2-3n)(5n+2)^{2a}}{2}$$

6. $F_1S(C(W_n)) = S_{2,0}(C(W_n))$
$$= 25n^4+282n^3-244n^2+80n$$

7. $SGO_2(C(W_n)) = S_{2,1}(C(W_k))$
$$= 125n^5+1781n^4-1266n^3-396n^2 + 72n$$

8. $SDS(C(W_n)) = S_{1,-1}(C(W_n))$

Retrieval Number: 100.1/ijbsac.H0476048822
DOI:10.35940/ijbsac.H0476.048822
Journal Website: www.ijbsac.org

Published By:
Blue Eyes Intelligence Engineering
& Sciences Publication (IJBSAC)

$$= 2n\left(\frac{5n+2}{8n-6}+\frac{8n-6}{5n+2}\right) + n\left(\frac{5n+2}{7n-2}+\frac{7n-2}{5n+2}\right) + n\left(\frac{7n-2}{6n}+\frac{6n}{7n-2}\right) + (n^2-3n)$$

Theorem 2.13.

$$S_{a,b}(C(F_n)) = 2n\left((8n+1)^a(13n-4)^b + (8n+1)^b(13n-4)^a\right) + 2n\left((8n+1)^a(11n-2)^b + (8n+1)^b(11n-2)^a\right) + 2n\left((11n-2)^a(9n)^b + 11n-2)^b(9n)^a\right) + 2(2n^2-2n)(8n+1)^{a+b}$$

Proof. By definition of central graph, and by computation, we note that $C(F_n)$ has $(5n+1)$ vertices and $(2n^2+4n)$ edges. The edge set $E(C(F_n))$ can be divided into the following two parts.

$$E_1 = \{uv\epsilon E(M(F_n))/d(u) = 2n, d(v) = 2\} \text{ and}$$
$$E_2 = \{uv\epsilon E(M(F_n))/d(u) = 2n, d(v) = 2n\}$$

Calculating status of every vertex, we find that $(C(F_n))$ has the following four types of status edges:

Table 5: Details of status of vertices of $C(F_n)$

$(\sigma(u),\sigma(v))$ / $uv\epsilon E(C(F_n))$	Total edges
$(8n+1, 13n-4)$	$2n$
$(8n+1, 11n-2)$	$2n$
$(11n-2, 9n)$	$2n$
$(8n+1, 8n+1)$	$2n^2-2n$

Using the above table and definition, we get,

$$S_{a,b}(C(F_n)) = 2n\left((8n+1)^a(13n-4)^b + (8n+1)^b(13n-4)^a\right) + 2n\left((8n+1)^a(11n-2)^b + (8n+1)^b(11n-2)^a\right) + 2n\left((11n-2)^a(9n)^b + 11n-2)^b(9n)^a\right) + 2(2n^2-2n)(8n+1)^{a+b}$$

Theorem 2.14. For $n \geq 2$

$$SGO_1(C(F_n)) = 128n^4 + 518n^3 - 22n^2 - 30n$$

Proof. By definition of first Gourava index, we have

$$SGO_1(C(F_n)) = \sum_{uv\epsilon E(C(F_n))} \{\sigma(u)+\sigma(v)+\sigma(u)\sigma(v)\}$$

Using table 5, we note that

$$SGO_1(C(F_n)) = 2n\left((8n+1)+(13n-4) + (8n+1)(13n-4)\right) + 2n\left((8n+1)+(11n-2) + (8n+1)(11n-2)\right) + 2n\left((11n-2)+(9n)+9n(11n-2)\right) + (2n^2-2n)\left((8n+1)+(8n+1) + (8n+1)(8n+1)\right)$$
$$= 128n^4 + 518n^3 - 22n^2 - 30n$$

Corollary 2.15.

1. $S_1(C(F_n)) = S_{1,0}(C(F_n))$
$$= 32n^3 + 92n^2 - 16n$$

2. $S_2(C(F_n)) = \frac{1}{2}\left(S_{1,1}(C(F_n))\right)$
$$= 128n^4 + 486n^3 - 114n^2 - 14n$$

3. $PS(C(F_n)) = \frac{1}{2}\left(S_{\frac{-1}{2},\frac{-1}{2}}(C(F_n))\right)$
$$= \frac{2n}{\sqrt{104n^2-19n-4}} + \frac{2n}{\sqrt{88n^2-5n-2}} + \frac{2n}{\sqrt{99n^2-18n}} + \frac{4n^2-4n}{(8n+1)}$$

4. $RPS(C(F_n)) = \frac{1}{2}\left(S_{\frac{1}{2},\frac{1}{2}}(C(F_n))\right)$
$$= 2n\sqrt{104n^2-19n-4} + 2n\sqrt{88n^2-5n-2} + 2n\sqrt{99n^2-18n} + (4n^2-4n)(8n+1)$$

5. $S_2^a(C(F_n)) = \frac{1}{2}\left(S_{a,a}(C(F_n))\right)$
$$= 2n(8n+1)^a(13n-4)^a + 2n(8n+1)^a(11n-2)^a + 2n(11n-2)^a(9n)^a + (2n^2-2n)(8n+1)^{2a}$$

6. $F_1S(C(F_n)) = S_{2,0}(C(F_n))$
$$= 256n^4 + 1048n^3 - 380n^2 + 48n$$

7. $SGO_2(C(F_n)) = S_{2,1}(C(F_n))$
$$= 2048n^5 + 10392n^4 - 3567n^3 - 140n^2 + 24$$

8. $SDS(C(F_n)) = S_{1,-1}(C(F_n))$
$$= 2n\left(\frac{8n+1}{13n-4}+\frac{13n-4}{8n+1}\right)$$

Retrieval Number: 100.1/ijbsac.H0476048822
DOI:10.35940/ijbsac.H0476.048822
Journal Website: www.ijbsac.org

Published By:
Blue Eyes Intelligence Engineering
& Sciences Publication (IJBSAC)

III. CONCLUSION

In this article, we have obtained the (a, b) −status indices of central graphs of some standard graphs. We can find these indices for other derived graphs also. We can use status to define a new polynomial also.

REFERENCES

1. F.Haray, Graph Theory, Addison-Wesley, Reading- Mass (1969).
2. V.R.Kulli, College Graph Theory, Vishwa International Publications, Gulbarga, India (2012).
3. V.R.Kulli,The (a,b)-status index of graphs. Annals of Pure and Applied Mathematics Vol. 21, No. 2, 2020, 113-118 ISSN: 2279-087X (P), 2279-0888(online) Published on 2 May 2020 DOI:http://dx.doi.org/10.22457/apam.
4. H.S. Ramane, et al., Status connectivity indices and co-indices of graphs and its computation to some distance-balanced graphs, AKCE International Journal of Graphs and Combinatorics (2018), https:/doi.org/10.1016/j.akcej.2018.09.002
5. Mallikarjun Basanna Kattimani and Sridhara K.R. The (a,b) – status index of middle graphs of some standard graphs – submitted for publication.C. J. Kaufman, Rocky Mountain Research Lab., Boulder, CO, private communication, May 1995.
6. Mallikarjun Basanna Kattimani and Sridhara K.R. , Transitive domination polynomial of a graph, Studies in Indian Place Names(UGC Care journal), ISSN: 2394-3114, Vol-40-Issue-70-March -2020,pp 440-447.
7. Mallikarjun Basanna Kattimani and Sridhara K.R. Vertex polynomial of Middle, Line and Total Graphs of some standard graphs, International Journal of Management and Humanities (IJMH), ISSN: 2394-0913, Volume-4, Issue-8, April 2020, pp 86-89.

AUTHORS' PROFILE

Dr. Mallikarjun Basanna Kattimani, He is working as Professor and Head, Department of Mathematics & Dean of Examinations at The Oxford College of Engineering, Bangalore. His current area of research interest is Graph Theory. He has successfully guided one student for Ph.D. and presently guiding 6 students for Ph.D. He has introduced many domination parameters in Graph Theory and has published 16 research papers in national and international journals. In addition, he has 7 extended research articles to his credit. He has around 30 years of rich teaching experience.

Sridhara K.R., He is working as Assistant Professor and Head, Department of Mathematics, A.P.S. College of Engineering, Bangalore. His research area of interest is Graph Theory. He has around 24 years of teaching experience and has published 6 research articles in international journals and has presented 4 papers in international conferences.

Retrieval Number: 100.1/ijbsac.H0476048822
DOI:10.35940/ijbsac.H0476.048822
Journal Website: www.ijbsac.org

Published By:
Blue Eyes Intelligence Engineering
& Sciences Publication (IJBSAC)