|  |  |
| --- | --- |
|  | |
| Journal Name: | **[Asian Research Journal of Mathematics](https://journalarjom.com/index.php/ARJOM)** |
| Manuscript Number: | **Ms\_ARJOM\_138707** |
| Title of the Manuscript: | **Total Domination Polynomials - A new approach** |
| Type of the Article | **Original Research Article** |

|  |  |  |
| --- | --- | --- |
| PART 1: Comments | | |
|  | Reviewer’s comment **Artificial Intelligence (AI) generated or assisted review comments are strictly prohibited during peer review.** | **Author’s Feedback** (It is mandatory that authors should write his/her feedback here) |
| **Please write a few sentences regarding the importance of this manuscript for the scientific community. A minimum of 3-4 sentences may be required for this part.** | **The author briefly discussed Total Domination Polynomials**  **Many theorems are used in the main result**  **Proof of the main results are very clear and correct**  **They have investigate the relation between total domination sets and vertex covering sets is used to determine the total domination polynomial of different classes of graphs** | The approach in this paper provides a straight forward and structured framework linking vertex covers to total dominating sets, enabling a novel algebraic representation of the total domination polynomial. This methodology is applied to particular graph families, where the total domination polynomials are expressed using vertex cover polynomials. Beyond simplifying the computation for these graph classes, this strategy also reveals more profound relationships between domination and covering concepts in Graph theory. |
| **Is the title of the article suitable?**  **(If not please suggest an alternative title)** | **YES** | Certainly The title is changed as On a New Approach to Total Domination Polynomials |
| Is the abstract of the article comprehensive? Do you suggest the addition (or deletion) of some points in this section? Please write your suggestions here. | **YES it is a comprehensive abstract** | The abstract is modified. |
| Is the manuscript scientifically, correct? Please write here. | **YES it is appropriate** | Yes. The manuscript is scientifically correct |
| **Are the references sufficient and recent? If you have suggestions of additional references, please mention them in the review form.** | **Sufficient references also cited all the reference** | Reference list is modified. |
| Is the language/English quality of the article suitable for scholarly communications? | **Good communications** | Yes absolutely |
| Optional/General comments | **Hence, I recommend this paper for publication** | 1. Just before the section Main Results I added a section named Preliminaries. In which the first definition in Section Main Results is included. Otherwise it will be difficult to understand the paper 2. Type of the article is Original Research Article. |

|  |  |  |
| --- | --- | --- |
| **PART 2:** | | |
|  | **Reviewer’s comment** | **Author’s comment** *(if agreed with reviewer, correct the manuscript and highlight that part in the manuscript. It is mandatory that authors should write his/her feedback here)* |
| **Are there ethical issues in this manuscript?** | *(If yes, Kindly please write down the ethical issues here in details)* | Nil |