Reply to Reviewer #1

We are thankful for the time and efforts spent by the referee on reviewing our manuscript. We agree with all the comments of the referee. All the suggested changes have been duly incorporated in the revised version of the paper. Earlier, we wrote the manuscript in word, we have used latex in the revised version, in order to have better formatting and an overall presentation of the article. Due to change in the source file, page numbers in the revised manuscript have changed for various sections and subsections. However, we have mentioned the new page number against each comment. For the sake of completeness, we produce below all the comments as it is, and the action taken by us.

Suggestions/Corrections:

Comment 1**:** "GSA is better than the conventional optimization algorithm as it does not take exponential time with respect to the problem size." Besides GSA, some optimization algorithms do not use exponential time. Please change this sentence to be accurate.

Reply: We have modified the structure of the manuscript in the revised version. Now, there is a seprate "related work" and "proposed work" section. Method related to basic voting is prsented in "related work"

Comment 2**:** Page 8 line 38 and Page 10 line 36 GSA may lead to local optimum too. How to conquer this? Does using the k-means results as the input of GSA definitely lead to global optima? Please explain the effectiveness of k-means.
Reply: The revised manuscript has been written in latex. All variables are written in math mode. This takes care of your suggestion.

Comment 3**:** Page 9 line 38 What are the criteria for best d? Please explain in detail.
Reply: We thank the reviewer. Yes, it has been corrected in the revised manuscript.

Comment 4**:** Page 10 line 29 how to choose S to avoid the local optima?
Reply: In the data set section (section-5: page-11,12), we have removed all the computations related to S_v and others. Final value of such computation is presented in the Table 2, page no. 12.

Comment 5**:** Page 12 Fig 1 (b) (c) (d) all have x-axis and y-axis. Are the x-axis/y-axis in these three figures the same? Would you please name the x-axis, y-axis to make them clear?
Reply:
Comment 6**:** Page 12 line 39 for "each dataset chosen", please change as "for each chosen dataset"
Reply:
Comment 7**:** Please cite the famous paper in this research domain. community detection in graphs. https://arxiv.org/abs/0906.0612
Reply: