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## Important of Combinatorial Properties of Metric Spaces using Fixed Point Theory

Dr. Shaikh Mohammed Sirajuddin Mohammed Salimuddin<sup>1</sup> and Dr. Mohmed Zafar Saber<sup>2</sup>

Assistant Professor, Department of Mathematics<sup>1</sup>
Associated Professor & Head of Department of Mathematics<sup>2</sup>
Kohinoor Arts, Commerce & Science College, Khultabad mohdsiraj0614@gmail.com and zafarmaths1@gmail.com

**Abstract:** In this paper, we investigate some approximate fixed point results in extended b-metric spaces using several contraction mappings such as the Mohseni-Saheli contraction, the B-contraction, and their consequences. Additionally, we prove some  $\epsilon$ -fixed point results by using rational type contraction mappings, Also, a few examples are included to illustrate the results. Finally, we discuss some applications that support our main results in the field of applied mathematics.

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