South East Asian J. of Mathematics and Mathematical Sciences
Vol. 19, No. 1 (2023), pp. 149-174

DOI: 10.56827/SEAJMMS.2023.1901.13 **ISSN (Online): 2582-0850**

ISSN (Print): 0972-7752

COMMON FIXED POINT RESULTS FOR FOUR SELF - MAPS SATISFYING CONTRACTIVE INEQUALITY OF INTEGRAL TYPE IN METRIC SPACES

Preeti, Manoj Kumar and Poonam*

Department of Mathematics,
Baba Mastnath University,
Asthal Bohar, Rohtak - 124021, Haryana, INDIA

E-mail : preetichhikara2585@gmail.com, manojantil18@gmail.com

*Department of Mathematics,
Govt. College for Women, Jhajjar, Haryana, INDIA

E-mail : poonam.n129@gmail.com

(**Received:** *Oct. 26, 2021* **Accepted:** *Mar. 31, 2023* **Published:** *Apr. 30, 2023)*

Abstract: This manuscript consists a common fixed point result for four weakly compatible self-maps $\hat{P}, \hat{Q}, \hat{S}, \hat{T}$ on a metric space (M, d^*) satisfying the following contractive inequality of integral type:

$$\int_0^{d^*(\hat{T}\mu,\hat{S}\nu)} \xi(t)dt \leq \beta(d^*(\mu,\nu)) \int_0^{\Delta_1(\mu,\nu)} \xi(t)dt,$$

where $(\xi, \beta) \in \xi_1 \times \xi_3$ and for all μ, ν in M.

$$\begin{aligned}\Delta_1(\mu,\nu) = max\{&d^*(\hat{T}\mu,\hat{S}\nu), d^*(\hat{T}\mu,\hat{P}\mu), d^*(\hat{S}\nu,\hat{Q}\nu),\\ &\frac{1}{2}[d^*(\hat{P}\mu,\hat{S}\nu) + d^*(\hat{Q}\nu,\hat{T}\mu)], \frac{d^*(\hat{P}\mu,\hat{T}\mu).d^*(\hat{Q}\nu,\hat{S}\nu)}{1+d^*(\hat{T}\mu,\hat{S}\nu)},\\ &\frac{d^*(\hat{P}\mu,\hat{S}\nu).d^*(\hat{Q}\nu,\hat{T}\mu)}{1+d^*(\hat{T}\mu,\hat{S}\nu)}, d^*(\hat{T}\mu,\hat{P}\mu)[\frac{1+d^*(\hat{T}\mu,\hat{Q}\nu)+d^*(\hat{S}\nu,\hat{P}\mu)}{1+d^*(\hat{T}\mu,\hat{P}\mu)+d^*(\hat{S}\nu,\hat{Q}\nu)}]\}.\end{aligned}$$