$= \bigcup_{\alpha\in\lambda} \mu_\alpha(x) \Rightarrow \bigcup_{\alpha\in\lambda} \mu_\alpha(0) \geq \bigcup_{\alpha\in\lambda} \mu_\alpha(x)\ \forall\ x\in X$.

ii. Let $x,z\in Q, y\in X$. $\bigcup_{\alpha\in\lambda} \mu_\alpha(x*z^n) = \sup\{\ \mu_\alpha\ (x), \alpha\in\lambda\} \geq \sup\{\min\{\mu_\alpha((x*y)*z^n), \mu_\alpha(y)\}, \alpha\in\lambda\}$

[Since μ_α is a Q-Smarandache fuzzy n-foldstrong ideal, $\forall\alpha\in\lambda$. By definition 3(ii)]

But $\{\ _\alpha, \alpha\in\lambda\}$ is a chain $\Rightarrow$ there exist, $j\in\lambda$ such that

$\sup\{\ \min\{\mu_\alpha((x*y)*z^n),\ \mu_\alpha(y)\},\ \alpha\in\lambda\ \} = \min\{\mu_j((x*y)*z^n), \mu_j(y)\}$

$=\min\{\sup\{\mu_\alpha((x*y)*z^n), \alpha\in\lambda\}, \sup\{\mu_\alpha(y),\ \alpha\in\lambda\}\}$

$\Rightarrow \bigcup_{\alpha\in\lambda} \mu_\alpha(x*z^n) \geq \min\{\mu_j((x*y)*z^n)\ ,\ \mu_j(y)\}$

$\geq \min\{\sup\{\mu_\alpha((x*y)*z^n), \alpha\in\lambda\},\ \sup\{\mu_\alpha(y),\ \alpha\in\lambda\} = \min\{\ \bigcup_{\alpha\in\lambda} \mu_\alpha((x*y)*z^n),\ \bigcup_{\alpha\in\lambda} \mu_\alpha(y)\ \}$

$\Rightarrow \bigcup_{\alpha\in\lambda} \mu_\alpha(x*z^n) \geq \min\{\ \bigcup_{\alpha\in\lambda} \mu_\alpha((x*y)*z^n), \bigcup_{\alpha\in\lambda} \mu_\alpha(y)\} \Rightarrow$

$\bigcup_{\alpha\in\lambda} \mu_\alpha$ is a Q-Smarandache fuzzy n-fold strong ideal of X.

■

References

[1] A.B.Saeid and A. Namdar, "Smarandache BCH-algebras", World Applied Sciences Journal 7 (11), 1818-4952, pp.77-83, 2009.
[2] C. H. Park, "Interval-valued Fuzzy Ideal in BH-algebras", Advance in fuzzy set and systems 1(3), pp.231–240, 2006.
[3] E. M.kim and S.S. Ahn, " On fuzzy n-fold strong ideals of BH-algebras" , J. Appl. Math. & Informatics Vol. 30,No.3 – 4, pp. 665 - 676, 2012 .
[4] E. M. kim and S. S. Ahn, " Fuzzy strong ideals ofBH-algebras with degrees in the interval (0; 1]", J. Appl. Math. &Informatics Vol. 31, No. 1- 2, pp. 211 – 220, 2013.
[5] H. H. Abbass , "The Q-Smarandache closed ideal and Q-SmarandacheFuzzy Closed Ideal with Respect to an Element of a Q-Smarandache BCH-Algebra", Journal kerbala university, vol. 10, No.3 scientific, pp. 302-312, 2012 .
[6] H. H. Abbass and S. J. Mohammed "On a Q-Smarandache Fuzzy Completely Closed Ideal with Respect to an Element of a BH-algebra", Kufa University, M.Sc. thesis, 2013.
[7] L. A. Zadeh, "Fuzzy sets", Information and control ,Vol. 8, PP. 338-353, 1965.
[8] O. G. Xi, "Fuzzy BCK-algebra", Math. Japonica 36, No. 5, pp.935–942, 1991.
[9] Q. Zhang, Y. B. Jun and E. H. Roh, "On the branch of BH-algebras", Scientiae MathematicaeJaponicae Online, Vol.4 , pp.917- 921, 2001.
[10] Q. Zhang, E. H. Roh and Y. B. Jun, "On Fuzzy BH-algebras", J.Huanggang, Normal Univ. 21(3), pp.14–19, 2001.
[11] Y. B. Jun, "Closed Fuzzy ideals in BCI-algebras", Math. Japon.ica 38, No. 1, pp.199–202, 1993.
[12] Y. B. Jun, E. H. Roh and H. S. Kim,"On BH-algebras", Scientiae Mathematicae , 1(1) , pp.347–354, 1998.
[13] Y.B.Jun, "Fuzzy Closed Ideals and Fuzzy filters in BCH-algebras", J. Fuzzy Math. 7 , No. 2, pp.435–444, 1999.