Available online at http://qu.edu.iq/journalsc/index.php/JOPS

Al-Qadisiyah Journal Of Pure Science (QJPS)

Vol. 24, No. 3, pp. 12 –16, Year2019

ISSN 2411-3514 ONLINE

ISSN 1997-2490PRINTED

ON FUZZY ANS – IDEAL OF B – ALGEBRA

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Received : 2/6/2019 Accepted :23/9/2019

ABSTRACT:

The purpose of this investigation is to characterize the ideal of fuzzy ANS – ideal of B – algebra and the relationship between it and the fuzzy α – translation , fuzzy ρ – multiplication, fuzzy extension and fuzzy magnified. Then we attach it by some theorems .

KEYWORDS: : *B – algebra, fuzzy ANS – ideal of B – algebra, fuzzy $\alpha -$ translation, fuzzy $\rho -$ multiplication , fuzzy extension and fuzzy magnified.*

1. INTRODUCTION

After the starter of fuzzy subsets by L. A. zadeh (Zadeh, et al.,1965) several researchers explored on the generalization of the notion of fuzzy subset . K. Iseki and Imai announced two classes of algebras BCK – algebra , BCI – algebra (Iseki, et al.,1978; Iseki, et al.,1980) .It is known that the the class of BCK-algebras is a subclass of the class of BCI-algebras. H.S.kim and Neggers (Neggers, et al.,1999) presented a new ideal, named a B – algebra which is a broad view of BCK – algebra during. 1998. C. Yamini and S. kailasavalli introduced the B – ideals and fuzzy B – ideals and investigate how to deal with cartesian product of B-ideals and strongest fuzzy relation in (Yamini, et al.,2014) .

Dr. A. Prasanna, M. Premkumar and Dr. S. Ismail Mohideen presented the ideal of a fuzzy translation and fuzzy multiplication on B – algedra (Prasanna, et al.,2018) .

In this papers we characterize the fuzzy ANS – ideal of B – algebra and we attach it with the notions of the fuzzy α – translation , fuzzy ρ – multiplication, fuzzy extension and fuzzy *magnified by use some definitions, examples and theorems.*

2- Preliminaries:

Definition (2.1):(Neggers, et al.,1999)

A ***B – algebra*** *is a non – blank set* Λ *with a constant 0 and a binary operation * fulfilling the subsequent axioms :*

1. $r * r = 0,$
2. $r * 0 = r,$
3. $(r * p) * q = r * \big(q * (0 * p)\big)$

For all r, p, q *in* Λ.

Definition (2.2):(Yamini, et al.,2014)

A non – blank subset η *of a B – algebra* $(\Lambda; * ,0)$ *is named a* ***B – Ideal of*** $\boldsymbol{\Lambda}$ *if it holds for* $r, p, q \in \Lambda$ *:*

1. $0 \in \eta,$
2. $(r * p) \in \eta$, $(q * r) \in \eta$, *imply* $(p * q) \in \eta$.

Definition (2.3):(Yamini, et al.,2014)

Let $(\Lambda; * ,0)$ *be a B – algebra , a fuzzy subset* η *in* Λ *is named a* ***fuzzy B – ideal of*** $\boldsymbol{\Lambda}$ *if it holds the ensuing requirements* $\forall r, p, q \in \Lambda$.

1. $\eta(0) \geq \eta(r)$,
2. $\eta(p * q) \geq min\{\eta(r * p),\ \eta(q * r)\}$

Definition (2.4):(Yamini, et al.,2014)

Let $(\Lambda; *, 0_\Lambda)$ *and* $(\theta; \Delta, 0_\theta)$ *be B – algebras . A mapping* $f: \Lambda \to \theta$ *is named* ***homomorphism*** *if:* $f(r * p) = f(r)\Delta f(p), \forall\, r, p \in \Lambda$.

Definition (2.5):(Yamini, et al.,2014)

For any homomorphism $f: \Lambda \to \theta$ *the set* $\{r \in \Lambda / f(r) = 0_\theta\}$ *is titled the* ***kernel of f*** *, signified by* $ker(f)$ *, the set* $\{f(r) / r \in \Lambda\}$ *is named the* ***image of f*** *symbolized by* $Im(f)$.

Definition (2.6): (Yamini, et al.,2014)

Assume $f: \Lambda \to \theta$ *be a mapping of B – algebras and* η *be a fuzzy set of* θ*. The map* η^f *is the* ***pre – image of*** $\boldsymbol{\eta}$ ***under f*** *if* $\eta^f(r) = ç\big(f(r)\big)$, $\forall\, r \in \Lambda$.

Definition (2.7): (Yamini, et al.,2014)

Assume Λ *be a B – algebra ,ç be a fuzzy subset of* Λ *and* $T = 1 - sup\ \{ç(r) / r \in \Lambda\}$ *,á* $\in [0, T]$*. Amapping* $ç^T_{á}: \Lambda \to [0,1]$ *is known as a* ***fuzzy*** á $-$ ***translation of*** ç *if it holds:*

$ç^T_{á} = ç(r) + á\ , \forall\, r \in \Lambda$.

Definition (2.8): (Prasanna, et al.,2018)

Assume ç *be a fuzzy subset of* Λ *and* ñ $\in [0,1]$*. A mapping* $ç^T_{ñ}: \Lambda \to [0,1]$ *is known as a* ***fuzzy*** ñ $-$ ***multiplication of*** ç *if it fulfils* $ç^M_{ñ} = ñç(r), \forall\, r \in \Lambda$.

Definition (2.9): (Prasanna, et al.,2018)

Suppose that $ç_1$ *and* $ç_2$ *be a fuzzy subsets of* Λ *. If* $ç_1(r) \leq ç_2(r)$*, for all* $r \in$ ç*. Then we take* $ç_2$ ***is a fuzzy extension of*** $ç_1$ *. By means of this description of* á $-$ *translation, we recognize that* $ç^T_{á}(r) \geq ç(r), \forall\, r \in \Lambda$.

Definition (2.10):(Prasanna, et al.,2018)

Assume ç *be a fuzzy subset of* Λ *,* á $\in [0, T]$ *and* ñ $\in [0,1]$ *. A mapping* $ç^{MT}_{ñá}: \Lambda \to [0,1]$ *is understood to be a* ***fuzzy magnified*** $-$ ñá $-$ ***translation of*** ç *if it fulfils* $ç^{MT}_{ñá}(r) = ñç(r) + á, \forall\, r \in \Lambda$.

Remark(2.11):

In the next part of our research we will symbolize to B-algebra $(Ù; * ,0)$ *by* Ù .

3- A Fuzzy ANS $-$ ideal of B – algebra

Definition (3.1):

A fuzzy ideal γ *of* Ω *is named a* ***fuzzy ANS*** $-$ ***ideal of*** Ù *if it holds the situation :* $\forall$ ꝺ, ʒ, ꞩ $\in \Omega$, *if* ã(ꝺ) $\geq$ $sup(min\{$ ã(ꞩ), ã(ʒ)$\})$, *where* ꝺ = ꞩ $*$ ʒ .

Example (3.2) :

Assume $\Omega = \{0$, ʉ, ᵽ, ɨ$\}$ *be a set with the next table :*

*	0	ʉ	ᵽ	ɨ
0	0	ɨ	ᵽ	ʉ
ʉ	ʉ	0	ɨ	ᵽ
ᵽ	ᵽ	ʉ	0	ɨ
ɨ	ɨ	ᵽ	ʉ	0

Then Ω *is a B – algebra . Describe a fuzzy set* ã$: \Omega \to [0,1]$ *by*

$$ã(ꝺ) = \begin{cases} 0.9 & ꝺ = 0 \\ 0.5 & ꝺ = ᵽ \\ 0.1 & ꝺ \in \{ʉ, ɨ\} \end{cases}$$

Then ã*is a fuzzy ANS – ideal of* Ω .

Propostion (3.3) :

Assume ã *is a fuzzy subset of* Ω *. If the fuzzy* á $-$ *translation* $ã^T_{á}$(ꝺ) *of* ã *is a fuzzy ANS* $-$ *ideal for some* á $\in [0, T]$*, then* ã *is a fuzzy ANS – ideal of* Ω .

Proof :

Assume ꝺ, ʒ, ꞩ $\in$ Ù, á $\in [0, T]$

$\because$ $ã^T_{á}$ *is a fuzzy ANS – ideal of* Ω

$\therefore$ $ã^T_{á}$(ꝺ) $\geq sup\big(min\{ã^T_{á}$(ꞩ), $ã^T_{á}$(ʒ)$\}\big)$, *where* ꝺ = ꞩ $*$ ʒ

ã(ꝺ) + á $\geq sup(min\{$ã(ꞩ) + á, ã(ʒ) + á$\})$

$ã(ɗ) + á \geq sup(min\{ã(ʂ), ã(ʒ)\}) + á$

$ã(ɗ) \geq sup(min\{ã(ʂ), ã(ʒ)\})$

$\therefore ã(ɗ)$ *is a fuzzy ANS – ideal of* Ω . ■

Propostion (3.4) :

If ã *is a fuzzy ANS – ideal* Ω *and* $á \in [0, T]$, *then the fuzzy* $á -$ *transtation* $ã_{á}^{T}(ɗ)$ *of* ã *is a fuzzy ANS – ideal of* Ω .

Proof :

Let $ɗ, ʒ, ʂ \in \Omega$ *and* $á \in [0, T]$, *when* $T = 1 - sup\{ã(ɗ)/ ɗ \in \Omega\}$

$\because$ ã *is a fuzzy ANS – ideal of* Ω

$\therefore ã(ɗ) \geq sup(min\{ã(ʂ), ã(ʒ)\})$, *when* $ɗ = ʂ * ʒ$

$ã_{á}^{T}(ɗ) = ã(ɗ) + á$, $\forall ɗ \in \Omega$

$ã(ɗ) + á \geq sup(min\{ã(ʂ), ã(ʒ)\}) + á$

$ã(ɗ) + á \geq sup(min\{ã(ʂ) + á, ã(ʒ) + á\})$

$ã_{á}^{T}(ɗ) \geq sup\left(min\{ã_{á}^{T}(ʂ) + ã_{á}^{T}(ʒ)\}\right)$

$\therefore ã_{á}^{T}(ɗ)$ *is a fuzzy ANS – ideal of* Ω . ■

Propostion (3.5):

Assume $f: \Omega \rightarrow \emptyset$ *be a homomorphism of B – algebras . If* ã *is a fuzzy ANS* $-$ *ideal of* $\emptyset \rightarrow ã^{f}$ *is a fuzzy ANS* $-$ *ideal of* Ω ***Proof :***

Assume $ɗ, ʒ, ʂ \in \Omega$

$ã^{f}(ɗ) = \{ã(f(ɗ)) : \forall ɗ \in \Omega\}$

$ã(f(ɗ)) \geq sup(min\{ã(f(ʂ)), ã(f(ʒ))\}$, *where* $ɗ = ʂ * ʒ$

$ã^{f}(ɗ) \geq sup\left(min\{ã^{f}(ʂ), ã^{f}(ʒ)\}\right)$

$\therefore ã^{f}(ɗ)$ *is a fuzzy ANS* $-$ *ideal of* Ω . ■

Propostion (3.6) :

If ã *is a fuzzy ANS – ideal of* Ω *and* $ñ \in [0,1]$, *then the fuzzy* $ñ -$ *multiplication* $ã_{ñ}^{M}(ɗ)$ *of* ã *is a fuzzy ANS – ideal of* Ω .

Proof :

Presume that $ɗ , ʒ, ʂ \in \Omega$, $ñ \in [0,1]$ *and* ã *is a fuzzy ANS – ideal of* Ω

$\therefore ã(ɗ) \geq sup(min\{ã(ʂ), ã(ʒ)\})$, *where* $ɗ = ʂ * ʒ$

$ñã(ɗ) \geq ñ[sup(min\{ã(ʂ), ã(ʒ)\})]$

$ñã(ɗ) \geq [sup(min\{ñã(ʂ), ñã(ʒ)\})$

$ã_{ñ}^{M}(ɗ) \geq sup\left(min\{ã_{ñ}^{M}(ʂ), ã_{ñ}^{M}(ʒ)\}\right)$

$\therefore ã_{ñ}^{M}(ɗ)$ *is a fuzzy ANS – ideal of* Ω .■

Theorem (3.7) :

Assume ã *is a fuzzy subset of* Ω . *If the fuzzy* $ñ -$*multiplication* $ã_{ñ}^{M}(ɗ)$ *is a fuzzy ANS – ideal of* Ω *for some* $ñ \in [0,1]$, *then* ã *is a fuzzy ANS – ideal of* Ω .

Proof :

presume $ɗ, ʒ, ʂ \in \Omega$, $ñ \in [0,1]$

Since $ã_{ñ}^{M}(ɗ)$ *is a fuzzy ANS – ideal*

$ã_{ñ}^{M}(ɗ) \geq sup\left(min\{ã_{ñ}^{M}(ʂ), ã_{ñ}^{M}(ʒ)\}\right)$

$\because ã_{ñ}^{M}(ɗ) = ñã(ɗ)$

$ñã(ɗ) \geq sup(min\{ñã(ʂ), ñã(ʒ)\})$

$ñã(ɗ) \geq ñ[sup(min\{ã(ʂ), ã(ʒ)\})]$

$ã(ɗ) \geq sup(min\{ã(ʂ), ã(ʒ)\})$

$\therefore ã(ɗ)$ *is a fuzzy ANS – ideal of* Ω . ■

Notice (3.8) :

We will apply the definition of the fuzzy magnified, we mentioned it in definition [2.10] in B – algebra Ω *and we will us it in the following theorem .*

Theorem (3.9) :

If ã *is a fuzzy ANS – ideal of* Ω , $á \in [0, T]$ *and* $ñ \in [0, 1]$, *then the fuzzy magnified* $ñá -$ *translation* $ã_{ñá}^{MT}(ɗ)$ *of* ã *is a fuzzy ANS – ideal of* Ω .

Proof :

suppose $ɗ, ʒ, ʂ \in Ù$ *and* $á \in [0, T]$, $ñ \in [0,1]$

Since $ã(ɗ)$ *is a fuzzy ANS – ideal of* Ù

$\Rightarrow ã_{á}^{T}$ *is a fuzzy ANS – ideal of* Ù *(By theorem (3.6))*

And $ã_{ñ}^{M}(ɗ)$ *is a fuzzy – ideal of* Ω *(By theorem (3.7))*

$\because ã_{á}^{T}(ɗ) \geq sup\left(min\{ã_{á}^{T}(ʂ), ã_{á}^{T}(ʒ)\}\right)$

$ñã_{á}^{T}(ɗ) \geq ñ\left[sup\left(min\{ã_{á}^{T}(ʂ), ã_{á}^{T}(ʒ)\}\right)\right]$

$ñã(ɗ) + á \geq sup(min\{ñã(ʂ) + á, ñã(ʒ) + á\})$

$ã_{ñá}^{MT}(ɗ) \geq sup\left(min\{ã_{ñá}^{MT}(ʂ), ã_{ñá}^{MT}(ʒ)\}\right)$

$\therefore ã_{ñá}^{MT}(ɗ)$ *is a fuzzy ANS – ideal of* Ù . ■

Theorem (3.10) :

*presume*ã *is a fuzzy subset of* Ω . *If the fuzzy magnified* $ñá -$ *translation* $ã_{ñá}^{MT}(ɗ)$ *is a fuzzy ANS – ideal of , then* $ã(ɗ)$ *is a fuzzy ANS – ideal of* Ù .

Proof :

Suppose $ɗ, ʒ, ʂ \in Ù$, $á \in [0, T]$, $ñ \in [0,1]$

Since $ã_{ñá}^{MT}(ɗ)$ *is a fuzzy ANS – ideal of* Ù

$ã_{ñá}^{MT}(ɗ) \geq sup(min\{ ã_{ñá}^{MT}(ʂ), ã_{ñá}^{MT}(ʒ)\})$

$\because ã_{ñá}^{MT}(ɗ) = ñã(ɗ) + á$

$ã_{ñá}^{MT}(ʒ) = ñã(ʒ) + á$, *and* $ã_{ñá}^{MT}(ʂ) = ñã(ʂ) + á$

$ñã(ɗ) + á \geq sup(min\{ñã(ʂ) + á , ñã(ʒ) + á\})$

$ñã(ɗ) + á \geq sup(min\{ñã(ʂ) , ñã(ʒ)\}) + á$

$ñã(ɗ) \geq sup(min\{ñã(ʂ) , ñã(ʒ)\})$

$ñã(ɗ) \geq ñ[sup(min\{ã(ʂ) , ã(ʒ)\})]$

$ã(ɗ) \geq sup(min\{ã(ʂ) , ã(ʒ)\})$, *where* $ɗ = ʂ * ʒ$

$\therefore$ ã(ɒ) *is a fuzzy ANS – ideal of* Ù . ■

Theorem (3.11) :

Suppose that ë(ɒ) *and* ã(ɒ) *be two fuzzy ANS – ideals of* Ω*, then* ë(ɒ) ∩ ã(ɒ) *is a fuzzy ANS – ideal of* Ù *where* ë(ɒ) ∩ ã(ɒ) = $min\{$ë(ɒ) , ã(ɒ)$\}$

Proof :

$\because$ ë(ɒ) ∩ ã(ɒ) = $min\{$ë(ɒ) , ⁖ (ɒ)$\}$.

And since ë(ɒ) *and* ã(ɒ) *are fuzzy ANS – ideals of* Ù .

ë(ɒ) ∩ ã(ɒ) ≥

$min\{sup(min\{$ë(ꞩ), ë(ʒ)$\})$, $sup(min\{$ã(ꞩ), ã(ʒ)$\})\}$,

Where ɒ = ꞩ ∗ ʒ

ë(ɒ) ∩ ã(ɒ) ≥

$min\{sup(min\{$ë(ꞩ), ë(ʒ)$\}$, $min\{$⁖(ꞩ), ã(ʒ)$\})\}$

ë(ɒ) ∩ ã(ɒ) ≥

$min\{sup(min\{\{$ë(ꞩ), ã(ꞩ)$\}$, $min\{$ë(ʒ), ã(ʒ)$\}\})\}$

ë(ɒ) ∩ ã(ɒ) ≥ $min\{sup(min\{\{$ë(ꞩ), ã(ꞩ)$\}$, $\{$ë(ʒ), ã(ʒ)$\}\})\}$

ë(ɒ) ∩ ã(ɒ) ≥

$sup\left(min\left\{min\{\{\right.\right.$ë(ꞩ), ã(ꞩ)$\}$, $\{$ë(ʒ), ã(ʒ)$\}\}\}\big)$

ë(ɒ) ∩ ã(ɒ) ≥ $sup(min\{\{$ë(ꞩ), ã(ꞩ)$\}$, $\{$ë(ʒ), ã(ʒ)$\}\})$

ë(ɒ) ∩ ã(ɒ) ≥ $sup(min\{\{$ë(ꞩ), ë(ʒ)$\}$, $\{$ã(ꞩ), ã(ʒ)$\}\})$

$\therefore$ ë(ɒ) ∩ ã(ɤ) *is a fuzzy ANS – ideal of* Ù.■

Theorem (3.12) :

Assume ë(ɒ) , ã(ɒ) *be two fuzzy ANS – ideals of* Ω *, then* ë(ɒ) ∪ ã(ɒ) *is a fuzzy ANS – ideal of* Ù . *wherever* ë(ɒ) ∪ ã(ɒ) = $max\{$ë(ɒ), ã(ɒ)$\}$.

Proof :

$\because$ ë(ɒ) *and* ã(ɒ) *are fuzzy ANS – ideals of* Ù .

And ë(ɒ) ∪ ã(ɒ) = $max\{$ë(ɒ), ã(ɒ)$\}$

ë(ɒ) ∪ ã(ɒ) ≥

$max\{sup(min\{\{$ë(ꞩ), ë(ʒ)$\}\})$, $sup(min\{$ã(ꞩ), ã(ʒ)$\}\}$

ë(ɒ) ∪ ã(ɒ) ≥

$max\{sup(min\{\{$ë(ꞩ), ë(ʒ)$\}$, $min\{$ã(ꞩ), ã(ʒ)$\}\})\}$

ë(ɒ) ∪ ã(ɒ) ≥ $max\{sup(min\{\{$ë(ꞩ), 牆

(ꞩ)$\}$, $min\{$ë(ʒ), ã(ʒ)$\}\})\}$

ë(ɒ) ∪ ã(ɒ) ≥

$max\{sup(min\{\{$ë(ꞩ), ã(ꞩ)$\}$, $\{$ë(ʒ), ã(ʒ)$\}\})\}$

ë(ɒ) ∪ ã(ɒ) ≥

$sup(max\{min\{\{$ë(ꞩ), ã(ꞩ)$\}$, $\{$ë(ʒ), ã(ʒ)$\}\}\})$

ë(ɒ) ∪ ã(ɒ) ≥ $sup(min\{\{$ë(ꞩ), ã(ꞩ)$\}$, $\{$ë(ʒ), ã(ʒ)$\}\})$

ë(ɒ) ∪ ã(ɒ) = $sup(min\{\{$ë(ꞩ), ë(ʒ)$\}$, $\{$ã(ꞩ), ã(ʒ)$\}\})$

$\therefore$ ë(ɒ) ∪ ã(ɒ) *is a fuzzy ANS – ideal of* Ù . ■

Propostion (3.13):

If $\tilde{a}^{T}_{á}$(ɒ) *is a fuzzy ANS – ideal of* Ω *, then it is a fuzzy extension to the fuzzy ANS – ideal* ã(ɒ) *of* Ù .

Proof :

suppose ɒ, ʒ, ꞩ ∈ Ù , á ∈ $[0, T]$

$\because$ $\tilde{a}^{T}_{á}$(ɒ) = ã(ɒ) + á

Since $\tilde{a}^{T}_{á}$(ɒ) *is a fuzzy ANS – ideal of* Ù

$\tilde{a}^{T}_{á}$(ɒ) ≥ $sup(min\{$ã(ꞩ), ã(ʒ)$\})$ + á *, where* ɒ = ꞩ ∗ ʒ

And $sup(min\{$ã(ꞩ), ã(ʒ)$\})$ + á ≥ $sup(min\{$ã(Ꝋ), ã(ʒ)$\})$

$\therefore$ ã(ɒ) ≤ $\tilde{a}^{T}_{á}$(ɒ) . *By the definition (2.9)*

$\therefore$ $\tilde{a}^{T}_{á}$ *is a fuzzy extension of* ã(ɒ) . ■

Propostion (3.14) :

If $\tilde{a}^{T}_{á}$(ɒ) *is a fuzzy ANS – ideal of* Ω →$\tilde{a}^{T}_{á}$(ɒ) *is a fuzzy extension to the fuzzy ANS – ideal* $\tilde{a}^{M}_{ñ}$(ɒ).

Proof :

Assume ɒ, ʒ, ꞩ ∈ Ù , á ∈ $[0, T]$, ñ ∈ $[0,1]$ *and* $T = 1 - sup\{$ã(ɒ)/ ɒ ∈ Ù$\}$

$\because$ $\tilde{a}^{T}_{á}$ *is a fuzzy ANS – ideal*

$\therefore$ $\tilde{a}^{T}_{á}$(ɒ) ≥ $sup(min\{\tilde{a}^{T}_{á}$(ꞩ), $\tilde{a}^{T}_{á}$(ʒ)$\})$ *, where* ɒ = ꞩ ∗ ʒ

$\tilde{a}^{T}_{á}$ ≥ $sup(min\{\tilde{a}^{T}_{á}$(ꞩ), $\tilde{a}^{T}_{á}$(ʒ)$\})$ ≥ ã(ɒ)

ã(ɒ) > $\tilde{a}^{M}_{ñ}$(ɒ) ≥ $sup(min\{\tilde{a}^{M}_{ñ}$(ꞩ), $\tilde{a}^{M}_{ñ}$(ʒ)$\})$

$\because$ ã(ɒ) ≥ $sup(min\{\tilde{a}^{M}_{ñ}$(ꞩ), $\tilde{a}^{M}_{ñ}$(ʒ)$\})$

$sup(min\{\tilde{a}^{T}_{á}$(ꞩ), $\tilde{a}^{T}_{á}$(ʒ)$\})$ ≥ $sup(min\{\tilde{a}^{M}_{ñ}$(ꞩ), $\tilde{a}^{M}_{ñ}$(ʒ)$\})$

$\therefore$ $\#^{M}_{ñ}$(ɒ) ≤ $\tilde{a}^{T}_{á}$(ɒ) . *By the definition (2.9)*

$\therefore$ $\tilde{a}^{T}_{á}$ *is a fuzzy extension to the* $\tilde{a}^{M}_{ñ}$. ■

Propostion (3.15) :

If ã(ɒ) *is a fuzzy ANS – ideal of* Ω →*it is a fuzzy extension to the fuzzy ANS – ideal* $\tilde{a}^{M}_{ñ}$(ɒ) .

Proof :

Assume ɒ , ʒ, ꞩ ∈ Ù , ñ ∈ $[0,1]$

Since ã(ɒ) *is a fuzzy ANS – ideal of* Ù

ã(ɒ) ≥ $sup(min\{$ã(ꞩ), ã(ʒ)$\})$ *, where* ɒ = ꞩ ∗ ʒ

And $\tilde{a}^{M}_{ñ}$(ɒ) *is a fuzzy ANS – ideal of* Ω .

$\therefore$ $\tilde{a}^{M}_{ñ}$(ɒ) ≥ $sup(min\{$ñã(ꞩ), ñã(ʒ)$\})$

Since ñ ∈ $[0,1]$

$sup(min\{$ã(ꞩ), ã(ʒ)$\})$ ≥ $sup(min\{$ñã(ꞩ), ñã(ʒ)$\})$

$\therefore$ ã(ɒ) ≥ ñã(ɒ) . $\therefore$ *By definition (2.9)*

a fuzzy ANS – ideal ã(ɒ) *is a fuzzy extension to the fuzzy ANS – ideal* $\tilde{a}^{M}_{ñ}$(ɒ) . ■

Propostion (3.16):

If $\tilde{a}^{T}_{á}$(ɒ) *is a fuzzy ANS – ideal of* B *– algebra* (Ù;∗,0) →*it is a fuzzy extension to the fuzzy ANS – ideal* $\tilde{a}^{Mô}_{ñá}$(ɒ) .

Proof :

Assume $\mathfrak{d}, \mathfrak{z}, \mathfrak{s} \in \grave{\mathrm{U}}$, $\acute{a} \in [0, T]$ *and* $\tilde{n} \in [0,1]$

Since $\tilde{a}\,(\mathfrak{d}) \leq \tilde{a}_{\acute{a}}^{\hat{o}}(\mathfrak{d})$ *, (by theorem (3.13))*

$\because\ \tilde{a}_{\tilde{n}}^{M}(\mathfrak{d}) \leq \tilde{a}(\mathfrak{d})$ *, (by theorem (3.15))*

$\tilde{n}\tilde{a}(\mathfrak{d}) \leq \tilde{a}(\mathfrak{d})$

$\tilde{n}\tilde{a}(\mathfrak{d}) + \acute{a} \leq \tilde{a}(\mathfrak{d}) + \acute{a}$

$\therefore\ \tilde{a}_{\tilde{n}\acute{a}}^{M\hat{o}}(\mathfrak{d}) \leq \tilde{a}_{\acute{a}}^{\hat{o}}(\mathfrak{d})$. *By definition (2.9)*

$\therefore\ \tilde{a}_{\acute{a}}^{\hat{o}}(\mathfrak{d})$ *is a fuzzy extension to the* $\tilde{a}_{\tilde{n}\acute{a}}^{M\hat{o}}(\mathfrak{d})$. ■

4-Conclusion:

In this paper , fuzzy ANS – ideal of B – algebra are introduced with same of their useful properties investigated . The relationships between fuzzy á *– translation , fuzzy* ñ *– multiplications fuzzy extension and fuzzy magnified and fuzzy ANS-ideal have constructed . It's our hope that this work would become another foundations for further study of the theory of B – algebra .*

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