

Appendices

Appendix I	
Example 1: $X = \{a, b, c\}$ $\tau = \{\phi, \{a\}, X\}$ $\Lambda\text{-set} = \{\phi, \{a\}, X\}$	Closed set = $\{\phi, \{b, c\}, X\}$
α -open sets $\phi, \{a\}, \{a, b\}, \{a, c\}, X$	α -closed sets $\phi, \{b\}, \{c\}, \{b, c\}, X$
semi-open sets $\phi, \{a\}, \{a, b\}, \{a, c\}, X$	semi-closed sets $\phi, \{b\}, \{c\}, \{b, c\}, X$
pre-open sets $\phi, \{a\}, \{a, b\}, \{a, c\}, X$	pre-closed sets $\phi, \{b\}, \{c\}, \{b, c\}, X$
g -open sets $\phi, \{a\}, \{b\}, \{c\}, \{a, b\}, \{a, c\}, X$	g -closed sets $\phi, \{b\}, \{c\}, \{a, b\}, \{b, c\}, \{a, c\}, X$
g^* -open sets $\phi, \{a\}, X$	g^* -closed sets $\phi, \{b, c\}, X$
$g\alpha$ -open sets $\phi, \{a\}, \{a, b\}, \{a, c\}, X$	$g\alpha$ -closed sets $\phi, \{b\}, \{c\}, \{b, c\}, X$
αg -open sets $\phi, \{a\}, \{b\}, \{c\}, \{a, b\}, \{a, c\}, X$	αg -closed sets $\phi, \{b\}, \{c\}, \{a, b\}, \{b, c\}, \{a, c\}, X$
λ -open sets $\phi, \{a\}, \{b, c\}, X$	λ -closed sets $\phi, \{a\}, \{b, c\}, X$
$g\Lambda$ -open sets $\phi, \{a\}, \{b\}, \{c\}, \{a, b\}, \{b, c\}, \{a, c\}, X$	$g\Lambda$ -closed sets $\phi, \{a\}, \{b\}, \{c\}, \{a, b\}, \{b, c\}, \{a, c\}, X$
Λ - g -open sets $\phi, \{a\}, \{b\}, \{c\}, \{a, b\}, \{b, c\}, \{a, c\}, X$	Λ - g -closed sets $\phi, \{a\}, \{b\}, \{c\}, \{a, b\}, \{b, c\}, \{a, c\}, X$
Λ_g -open sets $\phi, \{a\}, \{b\}, \{c\}, \{a, b\}, \{a, c\}, X$	Λ_g -closed sets $\phi, \{b\}, \{c\}, \{a, b\}, \{b, c\}, \{a, c\}, X$
$g^*\Lambda$ -open sets $\phi, \{a\}, \{b, c\}, X$	$g^*\Lambda$ -closed sets $\phi, \{a\}, \{b, c\}, X$
$g^{**}\Lambda$ -open sets $\phi, \{a\}, \{b\}, \{c\}, \{a, b\}, \{b, c\}, \{a, c\}, X$	$g^{**}\Lambda$ -closed sets $\phi, \{a\}, \{b\}, \{c\}, \{a, b\}, \{b, c\}, \{a, c\}, X$
$\Lambda_{g\alpha}$ -open sets $\phi, \{a\}, \{b\}, \{c\}, \{a, b\}, \{a, c\}, X$	$\Lambda_{g\alpha}$ -closed sets $\phi, \{b\}, \{c\}, \{a, b\}, \{b, c\}, \{a, c\}, X$

$gs\Lambda$ -open sets $\phi, \{a\}, \{b, c\}, X$	$gs\Lambda$ -closed sets $\phi, \{a\}, \{b, c\}, X$
λ_g^α-open sets $\phi, \{a\}, \{b, c\}, X$	λ_g^α-closed sets $\phi, \{a\}, \{b, c\}, X$

Example 2: $X = \{a, b, c\}$ $\tau = \{\phi, \{a, b\}, X\}$ Λ-set = $\{\phi, \{a, b\}, X\}$	Closed set = $\{\phi, \{c\}, X\}$
α -open sets $\phi, \{a, b\}, X$	α -closed sets $\phi, \{c\}, X$
semi-open sets $\phi, \{a, b\}, X$	semi-closed sets $\phi, \{c\}, X$
pre-open sets $\phi, \{a\}, \{b\}, \{a, b\}, \{a, c\}, \{b, c\}, X$	pre-closed sets $\phi, \{a\}, \{b\}, \{c\}, \{a, c\}, \{b, c\}, X$
g -open sets $\phi, \{a\}, \{b\}, \{a, b\}, X$	g -closed sets $\phi, \{c\}, \{a, c\}, \{b, c\}, X$
g^* -open sets $\phi, \{a\}, \{b\}, \{a, b\}, X$	g^* -closed sets $\phi, \{c\}, \{a, c\}, \{b, c\}, X$
$g\alpha$ -open sets $\phi, \{a\}, \{b\}, \{a, b\}, X$	$g\alpha$ -closed sets $\phi, \{c\}, \{a, c\}, \{b, c\}, X$
αg -open sets $\phi, \{a\}, \{b\}, \{a, b\}, X$	αg -closed sets $\phi, \{c\}, \{a, c\}, \{b, c\}, X$
λ -open sets $\phi, \{c\}, \{a, b\}, X$	λ -closed sets $\phi, \{c\}, \{a, b\}, X$
$g\Lambda$ -open sets $\phi, \{a\}, \{b\}, \{c\}, \{a, b\}, \{a, c\}, \{b, c\}, X$	$g\Lambda$ -closed sets $\phi, \{a\}, \{b\}, \{c\}, \{a, b\}, \{a, c\}, \{b, c\}, X$
Λ - g -open sets $\phi, \{a\}, \{b\}, \{c\}, \{a, b\}, \{a, c\}, \{b, c\}, X$	Λ - g -closed sets $\phi, \{a\}, \{b\}, \{c\}, \{a, b\}, \{a, c\}, \{b, c\}, X$
Λ_g -open sets $\phi, \{a\}, \{b\}, \{a, b\}, X$	Λ_g -closed sets $\phi, \{c\}, \{a, c\}, \{b, c\}, X$
$g^*\Lambda$ -open sets $\phi, \{a\}, \{b\}, \{c\}, \{a, b\}, X$	$g^*\Lambda$ -closed sets $\phi, \{c\}, \{a, b\}, \{a, c\}, \{b, c\}, X$
$g^{**}\Lambda$ -open sets $\phi, \{a\}, \{b\}, \{c\}, \{a, b\}, X$	$g^{**}\Lambda$ -closed sets $\phi, \{c\}, \{a, b\}, \{a, c\}, \{b, c\}, X$

$\Lambda_{g\alpha}$ -open sets $\phi, \{a\}, \{b\}, \{a, b\}, X$	$\Lambda_{g\alpha}$ -closed sets $\phi, \{c\}, \{a, c\}, \{b, c\}, X$
$gs\Lambda$ -open sets $\phi, \{a\}, \{b\}, \{c\}, \{a, b\}, \{a, c\}, \{b, c\}, X$	$gs\Lambda$ -closed sets $\phi, \{a\}, \{b\}, \{c\}, \{a, b\}, \{a, c\}, \{b, c\}, X$
λ_g^α-open sets $\phi, \{a\}, \{b\}, \{c\}, \{a, b\}, \{a, c\}, \{b, c\}, X$	λ_g^α-closed sets $\phi, \{a\}, \{b\}, \{c\}, \{a, b\}, \{a, c\}, \{b, c\}, X$

Example 3: $X = \{a, b, c\}$ $\tau = \{\phi, \{a\}, \{a, b\}, X\}$ Λ-set = $\{\phi, \{a\}, \{a, b\}, X\}$	Closed set = $\{\phi, \{c\}, \{b, c\}, X\}$
α -open sets $\phi, \{a\}, \{a, b\}, \{a, c\}, X$	α -closed sets $\phi, \{b\}, \{c\}, \{b, c\}, X$
semi-open sets $\phi, \{a\}, \{a, b\}, \{a, c\}, X$	semi-closed sets $\phi, \{b\}, \{c\}, \{b, c\}, X$
pre-open sets $\phi, \{a\}, \{a, b\}, \{a, c\}, X$	pre-closed sets $\phi, \{b\}, \{c\}, \{b, c\}, X$
g -open sets $\phi, \{a\}, \{b\}, \{a, b\}, X$	g -closed sets $\phi, \{c\}, \{a, c\}, \{b, c\}, X$
g^* -open sets $\phi, \{a\}, \{b\}, \{a, b\}, X$	g^* -closed sets $\phi, \{c\}, \{a, c\}, \{b, c\}, X$
$g\alpha$ -open sets $\phi, \{a\}, \{a, b\}, \{a, c\}, X$	$g\alpha$ -closed sets $\phi, \{b\}, \{c\}, \{b, c\}, X$
αg -open sets $\phi, \{a\}, \{b\}, \{a, b\}, \{a, c\}, X$	αg -closed sets $\phi, \{b\}, \{c\}, \{a, c\}, \{b, c\}, X$
λ -open sets $\phi, \{a\}, \{b\}, \{c\}, \{a, b\}, \{a, c\}, \{b, c\}, X$	λ -closed sets $\phi, \{a\}, \{b\}, \{c\}, \{a, b\}, \{b, c\}, X$
$g\Lambda$ -open sets $\phi, \{a\}, \{b\}, \{c\}, \{a, b\}, \{a, c\}, \{b, c\}, X$	$g\Lambda$ -closed sets $\phi, \{a\}, \{b\}, \{c\}, \{a, b\}, \{a, c\}, \{b, c\}, X$
Λ - g -open sets $\phi, \{a\}, \{b\}, \{c\}, \{a, b\}, \{a, c\}, \{b, c\}, X$	Λ - g -closed sets $\phi, \{a\}, \{b\}, \{c\}, \{a, b\}, \{b, c\}, X$
Λ_g -open sets $\phi, \{a\}, \{a, b\}, X$	Λ_g -closed sets $\phi, \{c\}, \{b, c\}, X$
$g^*\Lambda$ -open sets $\phi, \{a\}, \{b\}, \{c\}, \{a, b\}, \{a, c\}, \{b, c\}, X$	$g^*\Lambda$ -closed sets $\phi, \{a\}, \{b\}, \{c\}, \{a, b\}, \{a, c\}, \{b, c\}, X$

$g^{**}\Lambda$ -open sets $\phi, \{a\}, \{b\}, \{c\}, \{a, b\}, \{b, c\}, \{a, c\}, X$	$g^{**}\Lambda$ -closed sets $\phi, \{a\}, \{b\}, \{c\}, \{a, b\}, \{a, c\}, \{b, c\}, X$
$\Lambda_{g\alpha}$ -open sets $\phi, \{a\}, \{a, b\}, \{a, c\}, X$	$\Lambda_{g\alpha}$ -closed sets $\phi, \{b\}, \{c\}, \{b, c\}, X$
$gS\Lambda$ -open sets $\phi, \{a\}, \{c\}, \{a, b\}, \{a, c\}, \{b, c\}, X$	$gS\Lambda$ -closed sets $\phi, \{a\}, \{b\}, \{c\}, \{a, b\}, \{b, c\}, X$
λ_g^α-open sets $\phi, \{a\}, \{c\}, \{a, b\}, \{a, c\}, \{b, c\}, X$	λ_g^α-closed sets $\phi, \{a\}, \{b\}, \{c\}, \{a, b\}, \{b, c\}, X$

Example 4: $X = \{a, b, c\}$ $\tau = \{\phi, \{a\}, \{b\}, \{a, b\}, X\}$ Λ-set = $\{\phi, \{a\}, \{b\}, \{a, b\}, X\}$	Closed set = $\{\phi, \{c\}, \{a, c\}, \{b, c\}, X\}$
α -open sets $\phi, \{a\}, \{b\}, \{a, b\}, X$	α -closed sets $\phi, \{c\}, \{a, c\}, \{b, c\}, X$
semi-open sets $\phi, \{a\}, \{b\}, \{a, b\}, \{a, c\}, \{b, c\}, X$	semi-closed sets $\phi, \{a\}, \{b\}, \{c\}, \{a, c\}, \{b, c\}, X$
pre-open sets $\phi, \{a\}, \{b\}, \{a, b\}, X$	pre-closed sets $\phi, \{c\}, \{a, c\}, \{b, c\}, X$
g -open sets $\phi, \{a\}, \{b\}, \{a, b\}, X$	g -closed sets $\phi, \{c\}, \{a, c\}, \{b, c\}, X$
g^* -open sets $\phi, \{a\}, \{b\}, \{a, b\}, X$	g^* -closed sets $\phi, \{c\}, \{a, c\}, \{b, c\}, X$
$g\alpha$ -open sets $\phi, \{a\}, \{b\}, \{a, b\}, X$	$g\alpha$ -closed sets $\phi, \{c\}, \{a, c\}, \{b, c\}, X$
αg -open sets $\phi, \{a\}, \{b\}, \{a, b\}, X$	αg -closed sets $\phi, \{c\}, \{a, c\}, \{b, c\}, X$
λ -open sets $\phi, \{a\}, \{b\}, \{c\}, \{a, b\}, \{a, c\}, \{b, c\}, X$	λ -closed sets $\phi, \{a\}, \{b\}, \{c\}, \{a, b\}, \{a, c\}, \{b, c\}, X$
$g\Lambda$ -open sets $\phi, \{a\}, \{b\}, \{c\}, \{a, b\}, \{a, c\}, \{b, c\}, X$	$g\Lambda$ -closed sets $\phi, \{a\}, \{b\}, \{c\}, \{a, b\}, \{a, c\}, \{b, c\}, X$
Λ - g -open sets $\phi, \{a\}, \{b\}, \{c\}, \{a, b\}, \{a, c\}, \{b, c\}, X$	Λ - g -closed sets $\phi, \{a\}, \{b\}, \{c\}, \{a, b\}, \{a, c\}, \{b, c\}, X$
Λ_g -open sets $\phi, \{a\}, \{b\}, \{a, b\}, X$	Λ_g -closed sets $\phi, \{c\}, \{a, c\}, \{b, c\}, X$

$g^*\Lambda$ -open sets $\phi, \{a\}, \{b\}, \{c\}, \{a, b\}, \{a, c\}, \{b, c\}, X$	$g^*\Lambda$ -closed sets $\phi, \{a\}, \{b\}, \{c\}, \{a, b\}, \{a, c\}, \{b, c\}, X$
$g^{**}\Lambda$ -open sets $\phi, \{a\}, \{b\}, \{c\}, \{a, b\}, \{b, c\}, \{a, c\}, X$	$g^{**}\Lambda$ -closed sets $\phi, \{a\}, \{b\}, \{c\}, \{a, b\}, \{a, c\}, \{b, c\}, X$
$\Lambda_{g\alpha}$ -open sets $\phi, \{a\}, \{b\}, \{a, b\}, X$	$\Lambda_{g\alpha}$ -closed sets $\phi, \{c\}, \{a, c\}, \{b, c\}, X$
$gs\Lambda$ -open sets $\phi, \{a\}, \{b\}, \{c\}, \{a, b\}, \{a, c\}, \{b, c\}, X$	$gs\Lambda$ -closed sets $\phi, \{a\}, \{b\}, \{c\}, \{a, b\}, \{a, c\}, \{b, c\}, X$
λ_g^α-open sets $\phi, \{a\}, \{b\}, \{c\}, \{a, b\}, \{a, c\}, \{b, c\}, X$	λ_g^α-closed sets $\phi, \{a\}, \{b\}, \{c\}, \{a, b\}, \{a, c\}, \{b, c\}, X$

Example 5: $X = \{a, b, c\}$ $\tau = \{\phi, \{a\}, \{b\}, \{a, b\}, \{a, c\}, X\}$ Λ-set = $\{\phi, \{a\}, \{b\}, \{a, b\}, \{a, c\}, X\}$	Closed set = $\{\phi, \{b\}, \{c\}, \{a, c\}, \{b, c\}, X\}$
α -open sets $\phi, \{a\}, \{b\}, \{a, b\}, \{a, c\}, X$	α -closed sets $\phi, \{b\}, \{c\}, \{a, c\}, \{b, c\}, X$
semi-open sets $\phi, \{a\}, \{b\}, \{a, b\}, \{a, c\}, X$	semi-closed sets $\phi, \{b\}, \{c\}, \{a, c\}, \{b, c\}, X$
pre-open sets $\phi, \{a\}, \{b\}, \{a, b\}, \{a, c\}, X$	pre-closed sets $\phi, \{b\}, \{c\}, \{a, c\}, \{b, c\}, X$
g -open sets $\phi, \{a\}, \{b\}, \{a, b\}, \{a, c\}, X$	g -closed sets $\phi, \{b\}, \{c\}, \{a, c\}, \{b, c\}, X$
g^* -open sets $\phi, \{a\}, \{b\}, \{a, b\}, \{a, c\}, X$	g^* -closed sets $\phi, \{b\}, \{c\}, \{a, c\}, \{b, c\}, X$
$g\alpha$ -open sets $\phi, \{a\}, \{b\}, \{a, b\}, \{a, c\}, X$	$g\alpha$ -closed sets $\phi, \{b\}, \{c\}, \{a, c\}, \{b, c\}, X$
αg -open sets $\phi, \{a\}, \{b\}, \{a, b\}, \{a, c\}, X$	αg -closed sets $\phi, \{b\}, \{c\}, \{a, c\}, \{b, c\}, X$
λ -open sets $\phi, \{a\}, \{b\}, \{c\}, \{a, b\}, \{a, c\}, \{b, c\}, X$	λ -closed sets $\phi, \{a\}, \{b\}, \{c\}, \{a, b\}, \{a, c\}, \{b, c\}, X$
$g\Lambda$ -open sets $\phi, \{a\}, \{b\}, \{c\}, \{a, b\}, \{a, c\}, \{b, c\}, X$	$g\Lambda$ -closed sets $\phi, \{a\}, \{b\}, \{c\}, \{a, b\}, \{a, c\}, \{b, c\}, X$
Λ - g -open sets $\phi, \{a\}, \{b\}, \{c\}, \{a, b\}, \{a, c\}, \{b, c\}, X$	Λ - g -closed sets $\phi, \{a\}, \{b\}, \{c\}, \{a, b\}, \{a, c\}, \{b, c\}, X$

Λ_g -open sets $\phi, \{a\}, \{b\}, \{a, b\}, \{a, c\}, X$	Λ_g -closed sets $\phi, \{b\}, \{c\}, \{b, c\}, \{a, c\}, X$
$g^*\Lambda$ -open sets $\phi, \{a\}, \{b\}, \{c\}, \{a, b\}, \{a, c\}, \{b, c\}, X$	$g^*\Lambda$ -closed sets $\phi, \{a\}, \{b\}, \{c\}, \{a, b\}, \{a, c\}, \{b, c\}, X$
$g^{**}\Lambda$ -open sets $\phi, \{a\}, \{b\}, \{c\}, \{a, b\}, \{b, c\}, \{a, c\}, X$	$g^{**}\Lambda$ -closed sets $\phi, \{a\}, \{b\}, \{c\}, \{a, b\}, \{a, c\}, \{b, c\}, X$
$\Lambda_{g\alpha}$ -open sets $\phi, \{a\}, \{b\}, \{a, b\}, \{a, c\}, X$	$\Lambda_{g\alpha}$ -closed sets $\phi, \{b\}, \{c\}, \{b, c\}, \{a, c\}, X$
$gs\Lambda$ -open sets $\phi, \{a\}, \{b\}, \{c\}, \{a, b\}, \{a, c\}, \{b, c\}, X$	$gs\Lambda$ -closed sets $\phi, \{a\}, \{b\}, \{c\}, \{a, b\}, \{a, c\}, \{b, c\}, X$
λ_g^α-open sets $\phi, \{a\}, \{b\}, \{c\}, \{a, b\}, \{a, c\}, \{b, c\}, X$	λ_g^α-closed sets $\phi, \{a\}, \{b\}, \{c\}, \{a, b\}, \{a, c\}, \{b, c\}, X$

Example 6: $X = \{a, b, c\}$ $\tau = \{\phi, \{a\}, \{a, b\}, \{a, c\}, X\}$ Λ-set = $\{\phi, \{a\}, \{a, b\}, \{a, c\}, X\}$	Closed set = $\{\phi, \{b\}, \{c\}, \{b, c\}, X\}$
α -open sets $\phi, \{a\}, \{a, b\}, \{a, c\}, X$	α -closed sets $\phi, \{b\}, \{c\}, \{b, c\}, X$
semi-open sets $\phi, \{a\}, \{a, b\}, \{a, c\}, X$	semi-closed sets $\phi, \{b\}, \{c\}, \{b, c\}, X$
pre-open sets $\phi, \{a\}, \{a, b\}, \{a, c\}, X$	pre-closed sets $\phi, \{b\}, \{c\}, \{b, c\}, X$
g -open sets $\phi, \{a\}, \{a, b\}, \{a, c\}, X$	g -closed sets $\phi, \{b\}, \{c\}, \{b, c\}, X$
g^* -open sets $\phi, \{a\}, \{a, b\}, \{a, c\}, X$	g^* -closed sets $\phi, \{b\}, \{c\}, \{b, c\}, X$
$g\alpha$ -open sets $\phi, \{a\}, \{a, b\}, \{a, c\}, X$	$g\alpha$ -closed sets $\phi, \{b\}, \{c\}, \{b, c\}, X$
αg -open sets $\phi, \{a\}, \{a, b\}, \{a, c\}, X$	αg -closed sets $\phi, \{b\}, \{c\}, \{b, c\}, X$
λ -open sets $\phi, \{a\}, \{b\}, \{c\}, \{a, b\}, \{a, c\}, \{b, c\}, X$	λ -closed sets $\phi, \{a\}, \{b\}, \{c\}, \{a, b\}, \{a, c\}, \{b, c\}, X$
$g\Lambda$ -open sets $\phi, \{a\}, \{b\}, \{c\}, \{a, b\}, \{a, c\}, \{b, c\}, X$	$g\Lambda$ -closed sets $\phi, \{a\}, \{b\}, \{c\}, \{a, b\}, \{a, c\}, \{b, c\}, X$
Λ - g -open sets $\phi, \{a\}, \{b\}, \{c\}, \{a, b\}, \{a, c\}, \{b, c\}, X$	Λ - g -closed sets $\phi, \{a\}, \{b\}, \{c\}, \{a, b\}, \{a, c\}, \{b, c\}, X$

Λ_g -open sets $\phi, \{a\}, \{a, b\}, \{a, c\}, X$	Λ_g -closed sets $\phi, \{b\}, \{c\}, \{b, c\}, X$
$g^*\Lambda$ -open sets $\phi, \{a\}, \{b\}, \{c\}, \{a, b\}, \{a, c\}, \{b, c\}, X$	$g^*\Lambda$ -closed sets $\phi, \{a\}, \{b\}, \{c\}, \{a, b\}, \{a, c\}, \{b, c\}, X$
$g^{**}\Lambda$ -open sets $\phi, \{a\}, \{b\}, \{c\}, \{a, b\}, \{b, c\}, \{a, c\}, X$	$g^{**}\Lambda$ -closed sets $\phi, \{a\}, \{b\}, \{c\}, \{a, b\}, \{a, c\}, \{b, c\}, X$
$\Lambda_{g\alpha}$ -open sets $\phi, \{a\}, \{a, b\}, \{a, c\}, X$	$\Lambda_{g\alpha}$ -closed sets $\phi, \{b\}, \{c\}, \{b, c\}, X$
$gs\Lambda$ -open sets $\phi, \{a\}, \{b\}, \{c\}, \{a, b\}, \{a, c\}, \{b, c\}, X$	$gs\Lambda$ -closed sets $\phi, \{a\}, \{b\}, \{c\}, \{a, b\}, \{a, c\}, \{b, c\}, X$
λ_g^α-open sets $\phi, \{a\}, \{b\}, \{c\}, \{a, b\}, \{a, c\}, \{b, c\}, X$	λ_g^α-closed sets $\phi, \{a\}, \{b\}, \{c\}, \{a, b\}, \{a, c\}, \{b, c\}, X$

Example 7: $X = \{a, b, c\}$ $\tau = \{\phi, \{a\}, \{b, c\}, X\}$ Λ-set = $\{\phi, \{a\}, \{b, c\}, X\}$	Closed set = $\{\phi, \{a\}, \{b, c\}, X\}$
α -open sets $\phi, \{a\}, \{b, c\}, X$	α -closed sets $\phi, \{a\}, \{b, c\}, X$
semi-open sets $\phi, \{a\}, \{b, c\}, X$	semi-closed sets $\phi, \{a\}, \{b, c\}, X$
pre-open sets $\phi, \{a\}, \{b\}, \{c\}, \{a, b\}, \{a, c\}, \{b, c\}, X$	pre-closed sets $\phi, \{a\}, \{b\}, \{c\}, \{a, b\}, \{a, c\}, \{b, c\}, X$
g -open sets $\phi, \{a\}, \{b\}, \{c\}, \{a, b\}, \{a, c\}, \{b, c\}, X$	g -closed sets $\phi, \{a\}, \{b\}, \{c\}, \{a, b\}, \{a, c\}, \{b, c\}, X$
g^* -open sets $\phi, \{a\}, \{b, c\}, X$	g^* -closed sets $\phi, \{a\}, \{b, c\}, X$
$g\alpha$ -open sets $\phi, \{a\}, \{b\}, \{c\}, \{a, b\}, \{a, c\}, \{b, c\}, X$	$g\alpha$ -closed sets $\phi, \{a\}, \{b\}, \{c\}, \{a, b\}, \{a, c\}, \{b, c\}, X$
αg -open sets $\phi, \{a\}, \{b\}, \{c\}, \{a, b\}, \{a, c\}, \{b, c\}, X$	αg -closed sets $\phi, \{a\}, \{b\}, \{c\}, \{a, b\}, \{a, c\}, \{b, c\}, X$
λ -open sets $\phi, \{a\}, \{b, c\}, X$	λ -closed sets $\phi, \{a\}, \{b, c\}, X$
$g\Lambda$ -open sets $\phi, \{a\}, \{b\}, \{c\}, \{a, b\}, \{a, c\}, \{b, c\}, X$	$g\Lambda$ -closed sets $\phi, \{a\}, \{b\}, \{c\}, \{a, b\}, \{a, c\}, \{b, c\}, X$

Λ - g -open sets $\phi, \{a\}, \{b\}, \{c\}, \{a, b\}, \{a, c\}, \{b, c\}, X$	Λ - g -closed sets $\phi, \{a\}, \{b\}, \{c\}, \{a, b\}, \{a, c\}, \{b, c\}, X$
Λ_g -open sets $\phi, \{a\}, \{b\}, \{c\}, \{a, b\}, \{a, c\}, \{b, c\}, X$	Λ_g -closed sets $\phi, \{a\}, \{b\}, \{c\}, \{a, b\}, \{a, c\}, \{b, c\}, X$
$g^*\Lambda$ -open sets $\phi, \{a\}, \{b, c\}, X$	$g^*\Lambda$ -closed sets $\phi, \{a\}, \{b, c\}, X$
$g^{**}\Lambda$ -open sets $\phi, \{a\}, \{b\}, \{c\}, \{a, b\}, \{b, c\}, \{a, c\}, X$	$g^{**}\Lambda$ -closed sets $\phi, \{a\}, \{b\}, \{c\}, \{a, b\}, \{a, c\}, \{b, c\}, X$
$\Lambda_{g\alpha}$ -open sets $\phi, \{a\}, \{b\}, \{c\}, \{a, b\}, \{b, c\}, \{a, c\}, X$	$\Lambda_{g\alpha}$ -closed sets $\phi, \{a\}, \{b\}, \{c\}, \{a, b\}, \{b, c\}, \{a, c\}, X$
$gs\Lambda$ -open sets $\phi, \{a\}, \{b\}, \{c\}, \{a, b\}, \{a, c\}, \{b, c\}, X$	$gs\Lambda$ -closed sets $\phi, \{a\}, \{b\}, \{c\}, \{a, b\}, \{a, c\}, \{b, c\}, X$
λ_g^α -open sets $\phi, \{a\}, \{b\}, \{c\}, \{a, b\}, \{a, c\}, \{b, c\}, X$	λ_g^α -closed sets $\phi, \{a\}, \{b\}, \{c\}, \{a, b\}, \{a, c\}, \{b, c\}, X$

Appendix II	
Example 1: $X = \{a, b, c, d\}$ $\tau = \{\phi, \{a\}, X\}$ $\Lambda\text{-set} = \{\phi, \{a\}, X\}$	Closed set = $\{\phi, \{b, c, d\}, X\}$
α -open sets $\phi, \{a\}, \{a, b\}, \{a, c\}, \{a, d\}, \{a, b, c\}, \{a, b, d\}, \{a, c, d\}, X$	α -closed sets $\phi, \{b\}, \{c\}, \{d\}, \{b, c\}, \{b, d\}, \{c, d\}, \{b, c, d\}, X$
semi-open sets $\phi, \{a\}, \{a, b\}, \{a, c\}, \{a, d\}, \{a, b, c\}, \{a, b, d\}, \{a, c, d\}, X$	semi-closed sets $\phi, \{b\}, \{c\}, \{d\}, \{b, c\}, \{b, d\}, \{c, d\}, \{b, c, d\}, X$
pre-open sets $\phi, \{a\}, \{a, b\}, \{a, c\}, \{a, d\}, \{a, b, c\}, \{a, b, d\}, \{a, c, d\}, X$	pre-closed sets $\phi, \{b\}, \{c\}, \{d\}, \{b, c\}, \{b, d\}, \{c, d\}, \{b, c, d\}, X$
g -open sets $\phi, \{a\}, \{b\}, \{c\}, \{d\}, \{a, b\}, \{a, c\}, \{a, d\}, \{b, c\}, \{b, d\}, \{c, d\}, \{a, b, c\}, \{a, b, d\}, \{a, c, d\}, X$	g -closed sets $\phi, \{b\}, \{c\}, \{d\}, \{a, b\}, \{a, c\}, \{a, d\}, \{b, c\}, \{b, d\}, \{c, d\}, \{a, b, c\}, \{a, b, d\}, \{a, c, d\}, \{b, c, d\}, X$
g^* -open sets $\phi, \{a\}, X$	g^* -closed sets $\phi, \{b, c, d\}, X$
$g\alpha$ -open sets $\phi, \{a\}, \{a, b\}, \{a, c\}, \{a, d\}, \{a, b, c\}, \{a, b, d\}, \{a, c, d\}, X$	$g\alpha$ -closed sets $\phi, \{b\}, \{c\}, \{d\}, \{b, c\}, \{b, d\}, \{c, d\}, \{b, c, d\}, X$
αg -open sets $\phi, \{a\}, \{b\}, \{c\}, \{d\}, \{a, b\}, \{a, c\}, \{a, d\}, \{b, c\}, \{b, d\}, \{c, d\}, \{a, b, c\}, \{a, b, d\}, \{a, c, d\}, X$	αg -closed sets $\phi, \{b\}, \{c\}, \{d\}, \{a, b\}, \{a, c\}, \{a, d\}, \{b, c\}, \{b, d\}, \{c, d\}, \{a, b, c\}, \{a, b, d\}, \{a, c, d\}, \{b, c, d\}, X$
λ -open sets $\phi, \{a\}, \{b, c, d\}, X$	λ -closed sets $\phi, \{a\}, \{b, c, d\}, X$
$g\Lambda$ -open sets $\phi, \{a\}, \{b\}, \{c\}, \{d\}, \{a, b\}, \{a, c\}, \{a, d\}, \{b, c\}, \{b, d\}, \{c, d\}, \{a, b, c\}, \{a, b, d\}, \{a, c, d\}, \{b, c, d\}, X$	$g\Lambda$ -closed sets $\phi, \{a\}, \{b\}, \{c\}, \{d\}, \{a, b\}, \{a, c\}, \{a, d\}, \{b, c\}, \{b, d\}, \{c, d\}, \{a, b, c\}, \{a, b, d\}, \{a, c, d\}, \{b, c, d\}, X$
Λg -open sets $\phi, \{a\}, \{b\}, \{c\}, \{d\}, \{a, b\}, \{a, c\}, \{a, d\}, \{b, c\}, \{b, d\}, \{c, d\}, \{a, b, c\}, \{a, b, d\}, \{a, c, d\}, \{b, c, d\}, X$	Λg -closed sets $\phi, \{a\}, \{b\}, \{c\}, \{d\}, \{a, b\}, \{a, c\}, \{a, d\}, \{b, c\}, \{b, d\}, \{c, d\}, \{a, b, c\}, \{a, b, d\}, \{a, c, d\}, \{b, c, d\}, X$
Λ_g -open sets $\phi, \{a\}, \{b\}, \{c\}, \{d\}, \{a, b\}, \{a, c\}, \{a, d\}, \{b, c\}, \{b, d\}, \{c, d\}, \{a, b, c\}, \{a, b, d\}, \{a, c, d\}, X$	Λ_g -closed sets $\phi, \{b\}, \{c\}, \{d\}, \{a, b\}, \{a, c\}, \{a, d\}, \{b, c\}, \{b, d\}, \{c, d\}, \{a, b, c\}, \{a, b, d\}, \{a, c, d\}, \{b, c, d\}, X$
$g^*\Lambda$ -open sets $\phi, \{a\}, \{b, c, d\}, X$	$g^*\Lambda$ -closed sets $\phi, \{a\}, \{b, c, d\}, X$
$g^{**}\Lambda$ -open sets $\phi, \{a\}, \{b\}, \{c\}, \{d\}, \{a, b\}, \{a, c\}, \{a, d\}, \{b, c\}, \{b, d\}, \{c, d\}, \{a, b, c\}, \{a, b, d\}, \{a, c, d\}, \{b, c, d\}, X$	$g^{**}\Lambda$ -closed sets $\phi, \{a\}, \{b\}, \{c\}, \{d\}, \{a, b\}, \{a, c\}, \{a, d\}, \{b, c\}, \{b, d\}, \{c, d\}, \{a, b, c\}, \{a, b, d\}, \{a, c, d\}, \{b, c, d\}, X$
$\Lambda_{g\alpha}$ -open sets $\phi, \{a\}, \{b\}, \{c\}, \{d\}, \{a, b\}, \{a, c\}, \{a, d\}, \{b, c\}, \{b, d\}, \{c, d\}, \{a, b, c\}, \{a, b, d\}, \{a, c, d\}, X$	$\Lambda_{g\alpha}$ -closed sets $\phi, \{b\}, \{c\}, \{d\}, \{a, b\}, \{a, c\}, \{a, d\}, \{b, c\}, \{b, d\}, \{c, d\}, \{a, b, c\}, \{a, b, d\}, \{a, c, d\}, \{b, c, d\}, X$

$gs\Lambda$ -open sets $\phi, \{a\}, \{b, c, d\}, X$	$gs\Lambda$ -closed sets $\phi, \{a\}, \{b, c, d\}, X$
λ_g^α-open sets $\phi, \{a\}, \{b, c, d\}, X$	λ_g^α-closed sets $\phi, \{a\}, \{b, c, d\}, X$

Example 2: $X = \{a, b, c, d\}$ $\tau = \{\phi, \{a, b\}, X\}$ Λ-set = $\{\phi, \{a, b\}, X\}$	Closed set = $\{\phi, \{c, d\}, X\}$
α -open sets $\phi, \{a, b\}, \{a, b, c\}, \{a, b, d\}, X$	α -closed sets $\phi, \{c\}, \{d\}, \{c, d\}, X$
semi-open sets $\phi, \{a, b\}, \{a, b, c\}, \{a, b, d\}, X$	semi-closed sets $\phi, \{c\}, \{d\}, \{c, d\}, X$
pre-open sets $\phi, \{a\}, \{b\}, \{a, b\}, \{a, c\}, \{a, d\}, \{b, c\}, \{b, d\},$ $\{a, b, c\}, \{a, b, d\}, \{a, c, d\}, \{b, c, d\}, X$	pre-closed sets $\phi, \{a\}, \{b\}, \{c\}, \{d\}, \{a, c\}, \{a, d\}, \{b, c\}, \{b, d\},$ $\{c, d\}, \{a, c, d\}, \{b, c, d\}, X$
g -open sets $\phi, \{a\}, \{b\}, \{c\}, \{d\}, \{a, b\}, \{a, c\}, \{a, d\},$ $\{b, c\}, \{b, d\}, \{a, b, c\}, \{a, b, d\}, X$	g -closed sets $\phi, \{c\}, \{d\}, \{a, c\}, \{a, d\}, \{b, c\}, \{b, d\}, \{c, d\}, \{a, b, c\},$ $\{a, b, d\}, \{a, c, d\}, \{b, c, d\}, X$
g^* -open sets $\phi, \{a\}, \{b\}, \{a, b\}, X$	g^* -closed sets $\phi, \{c, d\}, \{a, c, d\}, \{b, c, d\}, X$
$g\alpha$ -open sets $\phi, \{a\}, \{b\}, \{a, b\}, \{a, b, c\}, \{a, b, d\}, X$	$g\alpha$ -closed sets $\phi, \{c\}, \{d\}, \{c, d\}, \{a, c, d\}, \{b, c, d\}, X$
αg -open sets $\phi, \{a\}, \{b\}, \{c\}, \{d\}, \{a, b\}, \{a, c\}, \{a, d\}, \{b, c\},$ $\{b, d\}, \{a, b, c\}, \{a, b, d\}, X$	αg -closed sets $\phi, \{c\}, \{d\}, \{a, c\}, \{a, d\}, \{b, c\}, \{b, d\}, \{c, d\},$ $\{a, b, c\}, \{a, b, d\}, \{a, c, d\}, \{b, c, d\}, X$
λ -open sets $\phi, \{a, b\}, \{c, d\}, X$	λ -closed sets $\phi, \{a, b\}, \{c, d\}, X$
$g\Lambda$ -open sets $\phi, \{a\}, \{b\}, \{c\}, \{d\}, \{a, b\}, \{a, c\}, \{a, d\}, \{b, c\},$ $\{b, d\}, \{c, d\}, \{a, b, c\}, \{a, b, d\}, \{a, c, d\}, \{b, c, d\}, X$	$g\Lambda$ -closed sets $\phi, \{a\}, \{b\}, \{c\}, \{d\}, \{a, b\}, \{a, c\}, \{a, d\}, \{b, c\},$ $\{b, d\}, \{c, d\}, \{a, b, c\}, \{a, b, d\}, \{a, c, d\}, \{b, c, d\}, X$
Λ - g -open sets $\phi, \{a\}, \{b\}, \{c\}, \{d\}, \{a, b\}, \{a, c\}, \{a, d\}, \{b, c\},$ $\{b, d\}, \{c, d\}, \{a, b, c\}, \{a, b, d\}, \{a, c, d\}, \{b, c, d\}, X$	Λ - g -closed sets $\phi, \{a\}, \{b\}, \{c\}, \{d\}, \{a, b\}, \{a, c\}, \{a, d\}, \{b, c\},$ $\{b, d\}, \{c, d\}, \{a, b, c\}, \{a, b, d\}, \{a, c, d\}, \{b, c, d\}, X$
Λ_g -open sets $\phi, \{a\}, \{b\}, \{c\}, \{d\}, \{a, b\}, \{a, c\}, \{a, d\}, \{b, c\},$ $\{b, d\}, \{a, b, c\}, \{a, b, d\}, X$	Λ_g -closed sets $\phi, \{c\}, \{d\}, \{a, c\}, \{a, d\}, \{b, c\}, \{b, d\}, \{c, d\},$ $\{a, b, c\}, \{a, b, d\}, \{a, c, d\}, \{b, c, d\}, X$
$g^*\Lambda$ -open sets $\phi, \{a\}, \{b\}, \{a, b\}, \{c, d\}, X$	$g^*\Lambda$ -closed sets $\phi, \{a, b\}, \{c, d\}, \{a, c, d\}, \{b, c, d\}, X$
$g^{**}\Lambda$ -open sets $\phi, \{a\}, \{b\}, \{c\}, \{d\}, \{a, b\}, \{a, c\}, \{a, d\},$	$g^{**}\Lambda$ -closed sets $\phi, \{c\}, \{d\}, \{a, b\}, \{a, c\}, \{a, d\}, \{b, c\},$

$\{b, c\}, \{b, d\}, \{c, d\}, \{a, b, c\}, \{a, b, d\}, X$	$\{b, d\}, \{c, d\}, \{a, b, c\}, \{a, b, d\}, \{a, c, d\}, \{b, c, d\}, X$
$\Lambda_{g\alpha}$ -open sets $\phi, \{a\}, \{b\}, \{c\}, \{d\}, \{a, b\}, \{a, c\}, \{a, d\}, \{b, c\}, \{b, d\}, \{a, b, c\}, \{a, b, d\}, X$	$\Lambda_{g\alpha}$ -closed sets $\phi, \{c\}, \{d\}, \{a, c\}, \{a, d\}, \{b, c\}, \{b, d\}, \{c, d\}, \{a, b, c\}, \{a, b, d\}, \{a, c, d\}, \{b, c, d\}, X$
$gs\Lambda$ -open sets $\phi, \{a\}, \{b\}, \{a, b\}, \{c, d\}, \{a, c, d\}, \{b, c, d\}, X$	$gs\Lambda$ -closed sets $\phi, \{a\}, \{b\}, \{a, b\}, \{c, d\}, \{a, c, d\}, \{b, c, d\}, X$
λ_g^α-open sets $\phi, \{a\}, \{b\}, \{a, b\}, \{c, d\}, \{a, c, d\}, \{b, c, d\}, X$	λ_g^α-closed sets $\phi, \{a\}, \{b\}, \{a, b\}, \{c, d\}, \{a, c, d\}, \{b, c, d\}, X$

Example 3: $X = \{a, b, c, d\}$ $\tau = \{\phi, \{a, b, c\}, X\}$ Λ-set = $\{\phi, \{a, b, c\}, X\}$	Closed set = $\{\phi, \{d\}, X\}$
α -open sets $\phi, \{a, b, c\}, X$	α -closed sets $\phi, \{d\}, X$
semi-open sets $\phi, \{a, b, c\}, X$	semi-closed sets $\phi, \{d\}, X$
pre-open sets $\phi, \{a\}, \{b\}, \{c\}, \{a, b\}, \{a, c\}, \{a, d\}, \{b, c\}, \{b, d\}, \{c, d\}, \{a, b, c\}, \{a, b, d\}, \{a, c, d\}, \{b, c, d\}, X$	pre-closed sets $\phi, \{a\}, \{b\}, \{c\}, \{d\}, \{a, b\}, \{a, c\}, \{a, d\}, \{b, c\}, \{b, d\}, \{c, d\}, \{a, b, d\}, \{a, c, d\}, \{b, c, d\}, X$
g -open sets $\phi, \{a\}, \{b\}, \{c\}, \{a, b\}, \{a, c\}, \{b, c\}, \{a, b, c\}, X$	g -closed sets $\phi, \{d\}, \{a, d\}, \{b, d\}, \{c, d\}, \{a, b, d\}, \{a, c, d\}, \{b, c, d\}, X$
g^* -open sets $\phi, \{a\}, \{b\}, \{c\}, \{a, b\}, \{a, c\}, \{b, c\}, \{a, b, c\}, X$	g^* -closed sets $\phi, \{d\}, \{a, d\}, \{b, d\}, \{c, d\}, \{a, b, d\}, \{a, c, d\}, \{b, c, d\}, X$
$g\alpha$ -open sets $\phi, \{a\}, \{b\}, \{c\}, \{a, b\}, \{a, c\}, \{b, c\}, \{a, b, c\}, X$	$g\alpha$ -closed sets $\phi, \{d\}, \{a, d\}, \{b, d\}, \{c, d\}, \{a, b, d\}, \{a, c, d\}, \{b, c, d\}, X$
αg -open sets $\phi, \{a\}, \{b\}, \{c\}, \{a, b\}, \{a, c\}, \{b, c\}, \{a, b, c\}, X$	αg -closed sets $\phi, \{d\}, \{a, d\}, \{b, d\}, \{c, d\}, \{a, b, d\}, \{a, c, d\}, \{b, c, d\}, X$
λ -open sets $\phi, \{d\}, \{a, b, c\}, X$	λ -closed sets $\phi, \{d\}, \{a, b, c\}, X$
$g\Lambda$ -open sets $\phi, \{a\}, \{b\}, \{c\}, \{d\}, \{a, b\}, \{a, c\}, \{a, d\}, \{b, c\}, \{b, d\}, \{c, d\}, \{a, b, c\}, \{a, b, d\}, \{a, c, d\}, \{b, c, d\}, X$	$g\Lambda$ -closed sets $\phi, \{a\}, \{b\}, \{c\}, \{d\}, \{a, b\}, \{a, c\}, \{a, d\}, \{b, c\}, \{b, d\}, \{c, d\}, \{a, b, c\}, \{a, b, d\}, \{a, c, d\}, \{b, c, d\}, X$
Λ - g -open sets $\phi, \{a\}, \{b\}, \{c\}, \{d\}, \{a, b\}, \{a, c\}, \{a, d\}, \{b, c\}, \{b, d\}, \{c, d\}, \{a, b, c\}, \{a, b, d\}, \{a, c, d\}, \{b, c, d\}, X$	Λ - g -closed sets $\phi, \{a\}, \{b\}, \{c\}, \{d\}, \{a, b\}, \{a, c\}, \{a, d\}, \{b, c\}, \{b, d\}, \{c, d\}, \{a, b, c\}, \{a, b, d\}, \{a, c, d\}, \{b, c, d\}, X$
Λ_g -open sets $\phi, \{a\}, \{b\}, \{c\}, \{a, b\}, \{a, c\}, \{b, c\}, \{a, b, c\}, X$	Λ_g -closed sets $\phi, \{d\}, \{a, d\}, \{b, d\}, \{c, d\}, \{a, b, d\}, \{a, c, d\}, \{b, c, d\}, X$

$g^*\Lambda$ -open sets $\phi, \{a\}, \{b\}, \{c\}, \{d\}, \{a, b\}, \{a, c\}, \{b, c\}, \{a, b, c\}, X$	$g^*\Lambda$ -closed sets $\phi, \{d\}, \{a, d\}, \{b, d\}, \{c, d\}, \{a, b, c\}, \{a, b, d\}, \{a, c, d\}, \{b, c, d\}, X$
$g^{**}\Lambda$ -open sets $\phi, \{a\}, \{b\}, \{c\}, \{d\}, \{a, b\}, \{a, c\}, \{b, c\}, \{a, b, c\}, X$	$g^{**}\Lambda$ -closed sets $\phi, \{d\}, \{a, d\}, \{b, d\}, \{c, d\}, \{a, b, c\}, \{a, b, d\}, \{a, c, d\}, \{b, c, d\}, X$
$\Lambda_{g\alpha}$ -open sets $\phi, \{b\}, \{c\}, \{a, b\}, \{a, c\}, \{b, c\}, \{a, b, c\}, X$	$\Lambda_{g\alpha}$ -closed sets $\phi, \{d\}, \{a, d\}, \{b, d\}, \{c, d\}, \{a, b, d\}, \{a, c, d\}, X$
$g\Lambda$ -open sets $\phi, \{a\}, \{b\}, \{c\}, \{d\}, \{a, b\}, \{a, c\}, \{a, d\}, \{b, c\}, \{b, d\}, \{c, d\}, \{a, b, c\}, \{a, b, d\}, \{a, c, d\}, \{b, c, d\}, X$	$g\Lambda$ -closed sets $\phi, \{a\}, \{b\}, \{c\}, \{d\}, \{a, b\}, \{a, c\}, \{a, d\}, \{b, c\}, \{b, d\}, \{c, d\}, \{a, b, c\}, \{a, b, d\}, \{a, c, d\}, \{b, c, d\}, X$
λ_g^α -open sets $\phi, \{a\}, \{b\}, \{c\}, \{d\}, \{a, b\}, \{a, c\}, \{a, d\}, \{b, c\}, \{b, d\}, \{c, d\}, \{a, b, c\}, \{a, b, d\}, \{a, c, d\}, \{b, c, d\}, X$	λ_g^α -closed sets $\phi, \{a\}, \{b\}, \{c\}, \{d\}, \{a, b\}, \{a, c\}, \{a, d\}, \{b, c\}, \{b, d\}, \{c, d\}, \{a, b, c\}, \{a, b, d\}, \{a, c, d\}, \{b, c, d\}, X$

Example 4: $X = \{a, b, c, d\}$ $\tau = \{\phi, \{a\}, \{a, b\}, X\}$ Λ -set = $\{\phi, \{a\}, \{a, b\}, X\}$	Closed set = $\{\phi, \{c, d\}, \{b, c, d\}, X\}$
α -open sets $\phi, \{a\}, \{a, b\}, \{a, c\}, \{a, d\}, \{a, b, c\}, \{a, b, d\}, \{a, c, d\}, X$	α -closed sets $\phi, \{b\}, \{c\}, \{d\}, \{b, c\}, \{b, d\}, \{c, d\}, \{b, c, d\}, X$
semi-open sets $\phi, \{a\}, \{a, b\}, \{a, c\}, \{a, d\}, \{a, b, c\}, \{a, b, d\}, \{a, c, d\}, X$	semi-closed sets $\phi, \{b\}, \{c\}, \{d\}, \{b, c\}, \{b, d\}, \{c, d\}, \{b, c, d\}, X$
pre-open sets $\phi, \{a\}, \{a, b\}, \{a, c\}, \{a, d\}, \{a, b, c\}, \{a, b, d\}, \{a, c, d\}, X$	pre-closed sets $\phi, \{b\}, \{c\}, \{d\}, \{b, c\}, \{b, d\}, \{c, d\}, \{b, c, d\}, X$
g -open sets $\phi, \{a\}, \{b\}, \{c\}, \{d\}, \{a, b\}, \{a, c\}, \{a, d\}, \{b, c\}, \{b, d\}, \{a, b, c\}, \{a, b, d\}, X$	g -closed sets $\phi, \{c\}, \{d\}, \{a, c\}, \{a, d\}, \{b, c\}, \{b, d\}, \{c, d\}, \{a, b, c\}, \{a, b, d\}, \{a, c, d\}, \{b, c, d\}, X$
g^* -open sets $\phi, \{a\}, \{b\}, \{a, b\}, X$	g^* -closed sets $\phi, \{c, d\}, \{a, c, d\}, \{b, c, d\}, X$
$g\alpha$ -open sets $\phi, \{a\}, \{a, b\}, \{a, c\}, \{a, d\}, \{a, b, c\}, \{a, b, d\}, \{a, c, d\}, X$	$g\alpha$ -closed sets $\phi, \{b\}, \{c\}, \{d\}, \{b, c\}, \{b, d\}, \{c, d\}, \{b, c, d\}, X$
αg -open sets $\phi, \{a\}, \{b\}, \{c\}, \{d\}, \{a, b\}, \{a, c\}, \{a, d\}, \{b, c\}, \{b, d\}, \{a, b, c\}, \{a, b, d\}, \{a, c, d\}, X$	αg -closed sets $\phi, \{b\}, \{c\}, \{d\}, \{a, c\}, \{a, d\}, \{b, c\}, \{b, d\}, \{c, d\}, \{a, b, c\}, \{a, b, d\}, \{a, c, d\}, \{b, c, d\}, X$
λ -open sets $\phi, \{a\}, \{a, b\}, \{c, d\}, \{a, c, d\}, \{b, c, d\}, X$	λ -closed sets $\phi, \{a\}, \{b\}, \{a, b\}, \{c, d\}, \{b, c, d\}, X$
$g\Lambda$ -open sets $\phi, \{a\}, \{b\}, \{c\}, \{d\}, \{a, b\}, \{a, c\}, \{a, d\}, \{b, c\}, \{b, d\}, \{c, d\}, \{a, b, c\}, \{a, b, d\}, \{a, c, d\}, \{b, c, d\}, X$	$g\Lambda$ -closed sets $\phi, \{a\}, \{b\}, \{c\}, \{d\}, \{a, b\}, \{a, c\}, \{a, d\}, \{b, c\}, \{b, d\}, \{c, d\}, \{a, b, c\}, \{a, b, d\}, \{a, c, d\}, \{b, c, d\}, X$

Λ - g -open sets $\phi, \{a\}, \{c\}, \{d\}, \{a, b\}, \{a, c\}, \{a, d\}, \{c, d\},$ $\{a, b, c\}, \{a, b, d\}, \{a, c, d\}, \{b, c, d\}, X$	Λ - g -closed sets $\phi, \{a\}, \{b\}, \{c\}, \{d\}, \{a, b\}, \{b, c\}, \{b, d\},$ $\{c, d\}, \{a, b, c\}, \{a, b, d\}, \{b, c, d\}, X$
Λ_g -open sets $\phi, \{a\}, \{c\}, \{d\}, \{a, b\}, \{a, c\}, \{a, d\}, X$	Λ_g -closed sets $\phi, \{b, c\}, \{b, d\}, \{c, d\}, \{a, b, c\}, \{a, b, d\}, \{b, c, d\}, X$
$g^*\Lambda$ -open sets $\phi, \{a\}, \{c\}, \{a, b\}, \{a, c\}, \{c, d\}, \{a, b, c\}, \{a, c, d\},$ $\{b, c, d\}, X$	$g^*\Lambda$ -closed sets $\phi, \{a\}, \{b\}, \{d\}, \{a, b\}, \{b, d\}, \{c, d\}, \{a, b, d\}, \{b, c, d\}, X$
$g^{**}\Lambda$ -open sets $\phi, \{a\}, \{c\}, \{a, b\}, \{a, c\}, \{c, d\}, \{a, b, c\}, \{a, c, d\},$ $\{b, c, d\}, X$	$g^{**}\Lambda$ -closed sets $\phi, \{a\}, \{b\}, \{d\}, \{a, b\}, \{b, d\}, \{c, d\}, \{a, b, d\}, \{b, c, d\}, X$
$\Lambda_{g\alpha}$ -open sets $\phi, \{a\}, \{c\}, \{d\}, \{a, b\}, \{a, c\}, \{a, d\}, \{a, b, c\}, \{a, b, d\},$ $\{a, c, d\}, X$	$\Lambda_{g\alpha}$ -closed sets $\phi, \{b\}, \{c\}, \{d\}, \{b, c\}, \{b, d\}, \{c, d\}, \{a, b, c\},$ $\{a, b, d\}, \{b, c, d\}, X$
$gs\Lambda$ -open sets $\phi, \{a\}, \{a, b\}, \{c, d\}, \{a, c, d\}, \{b, c, d\}, X$	$gs\Lambda$ -closed sets $\phi, \{a\}, \{b\}, \{a, b\}, \{c, d\}, \{b, c, d\}, X$
λ_g^α -open sets $\phi, \{a\}, \{a, b\}, \{c, d\}, \{a, c, d\}, \{b, c, d\}, X$	λ_g^α -closed sets $\phi, \{a\}, \{b\}, \{a, b\}, \{c, d\}, \{b, c, d\}, X$

Example 5: $X = \{a, b, c, d\}$ $\tau = \{\phi, \{a\}, \{c\}, \{a, b\}, \{a, c\}, \{a, b, c\}, \{a, c, d\}, X\}$ Λ -set = $\{\phi, \{a\}, \{c\}, \{a, b\}, \{a, c\}, \{a, b, c\}, \{a, c, d\}, X\}$	Closed set = $\{\phi, \{b\}, \{d\}, \{b, d\}, \{c, d\}, \{a, b, d\},$ $\{b, c, d\}, X\}$
α -open sets $\{\phi, \{a\}, \{c\}, \{a, b\}, \{a, c\}, \{a, b, c\}, \{a, c, d\}, X\}$	α -closed sets $\{\phi, \{b\}, \{d\}, \{b, d\}, \{c, d\}, \{a, b, d\}, \{b, c, d\}, X\}$
semi-open sets $\phi, \{a\}, \{c\}, \{a, b\}, \{a, c\}, \{a, d\}, \{c, d\}, \{a, b, c\},$ $\{a, b, d\}, \{a, c, d\}, X$	semi-closed sets $\phi, \{b\}, \{c\}, \{d\}, \{a, b\}, \{b, c\}, \{b, d\}, \{c, d\},$ $\{a, b, d\}, \{b, c, d\}, X$
pre-open sets $\phi, \{a\}, \{c\}, \{a, b\}, \{a, c\}, \{a, b, c\}, \{a, c, d\}, X$	pre-closed sets $\phi, \{b\}, \{d\}, \{b, d\}, \{c, d\}, \{a, b, d\}, \{b, c, d\}, X$
g -open sets $\phi, \{a\}, \{c\}, \{a, b\}, \{a, c\}, \{a, b, c\}, \{a, c, d\}, X$	g -closed sets $\phi, \{b\}, \{d\}, \{b, d\}, \{c, d\}, \{a, b, d\}, \{b, c, d\}, X$
g^* -open sets $\phi, \{a\}, \{c\}, \{a, b\}, \{a, c\}, \{a, b, c\}, \{a, c, d\}, X$	g^* -closed sets $\phi, \{b\}, \{d\}, \{b, d\}, \{c, d\}, \{a, b, d\}, \{b, c, d\}, X$
$g\alpha$ -open sets $\phi, \{a\}, \{c\}, \{a, b\}, \{a, c\}, \{a, b, c\}, \{a, c, d\}, X$	$g\alpha$ -closed sets $\phi, \{b\}, \{d\}, \{b, d\}, \{c, d\}, \{a, b, d\}, \{b, c, d\}, X$
αg -open sets $\phi, \{a\}, \{c\}, \{a, b\}, \{a, c\}, \{a, b, c\}, \{a, c, d\}, X$	αg -closed sets $\phi, \{b\}, \{d\}, \{b, d\}, \{c, d\}, \{a, b, d\}, \{b, c, d\}, X$
λ -open sets $\phi, \{a\}, \{b\}, \{c\}, \{d\}, \{a, b\}, \{a, c\}, \{a, d\}, \{b, c\},$ $\{b, d\}, \{c, d\}, \{a, b, c\}, \{a, b, d\}, \{a, c, d\}, \{b, c, d\}, X$	λ -closed sets $\phi, \{a\}, \{b\}, \{c\}, \{d\}, \{a, b\}, \{a, c\}, \{a, d\}, \{b, c\},$ $\{b, d\}, \{c, d\}, \{a, b, c\}, \{a, b, d\}, \{a, c, d\}, \{b, c, d\}, X$

$g\Lambda$ -open sets $\phi, \{a\}, \{b\}, \{c\}, \{d\}, \{a, b\}, \{a, c\}, \{a, d\}, \{b, c\}, \{b, d\}, \{c, d\}, \{a, b, c\}, \{a, b, d\}, \{a, c, d\}, \{b, c, d\}, X$	$g\Lambda$ -closed sets $\phi, \{a\}, \{b\}, \{c\}, \{d\}, \{a, b\}, \{a, c\}, \{a, d\}, \{b, c\}, \{b, d\}, \{c, d\}, \{a, b, c\}, \{a, b, d\}, \{a, c, d\}, \{b, c, d\}, X$
Λ - g -open sets $\phi, \{a\}, \{b\}, \{c\}, \{d\}, \{a, b\}, \{a, c\}, \{a, d\}, \{b, c\}, \{b, d\}, \{c, d\}, \{a, b, c\}, \{a, b, d\}, \{a, c, d\}, \{b, c, d\}, X$	Λ - g -closed sets $\phi, \{a\}, \{b\}, \{c\}, \{d\}, \{a, b\}, \{a, c\}, \{a, d\}, \{b, c\}, \{b, d\}, \{c, d\}, \{a, b, c\}, \{a, b, d\}, \{a, c, d\}, \{b, c, d\}, X$
Λ_g -open sets $\phi, \{a\}, \{c\}, \{a, b\}, \{a, c\}, \{a, b, c\}, \{a, c, d\}, X$	Λ_g -closed sets $\phi, \{b\}, \{d\}, \{b, d\}, \{c, d\}, \{a, b, d\}, \{b, c, d\}, X$
$g^*\Lambda$ -open sets $\phi, \{a\}, \{b\}, \{c\}, \{d\}, \{a, b\}, \{a, c\}, \{a, d\}, \{b, c\}, \{b, d\}, \{c, d\}, \{a, b, c\}, \{a, b, d\}, \{a, c, d\}, \{b, c, d\}, X$	$g^*\Lambda$ -closed sets $\phi, \{a\}, \{b\}, \{c\}, \{d\}, \{a, b\}, \{a, c\}, \{a, d\}, \{b, c\}, \{b, d\}, \{c, d\}, \{a, b, c\}, \{a, b, d\}, \{a, c, d\}, \{b, c, d\}, X$
$g^{**}\Lambda$ -open sets $\phi, \{a\}, \{b\}, \{c\}, \{d\}, \{a, b\}, \{a, c\}, \{a, d\}, \{b, c\}, \{b, d\}, \{c, d\}, \{a, b, c\}, \{a, b, d\}, \{a, c, d\}, \{b, c, d\}, X$	$g^{**}\Lambda$ -closed sets $\phi, \{a\}, \{b\}, \{c\}, \{d\}, \{a, b\}, \{a, c\}, \{a, d\}, \{b, c\}, \{b, d\}, \{c, d\}, \{a, b, c\}, \{a, b, d\}, \{a, c, d\}, \{b, c, d\}, X$
$\Lambda_{g\alpha}$ -open sets $\phi, \{a\}, \{c\}, \{a, b\}, \{a, c\}, \{a, b, c\}, \{a, c, d\}, X$	$\Lambda_{g\alpha}$ -closed sets $\phi, \{b\}, \{d\}, \{b, d\}, \{c, d\}, \{a, b, d\}, \{b, c, d\}, X$
$gs\Lambda$ -open sets $\phi, \{a\}, \{b\}, \{c\}, \{d\}, \{a, b\}, \{a, c\}, \{a, d\}, \{b, c\}, \{b, d\}, \{c, d\}, \{a, b, c\}, \{a, b, d\}, \{a, c, d\}, \{b, c, d\}, X$	$gs\Lambda$ -closed sets $\phi, \{a\}, \{b\}, \{c\}, \{d\}, \{a, b\}, \{a, c\}, \{a, d\}, \{b, c\}, \{b, d\}, \{c, d\}, \{a, b, c\}, \{a, b, d\}, \{a, c, d\}, \{b, c, d\}, X$
λ_g^α-open sets $\phi, \{a\}, \{b\}, \{c\}, \{d\}, \{a, b\}, \{a, c\}, \{a, d\}, \{b, c\}, \{b, d\}, \{c, d\}, \{a, b, c\}, \{a, b, d\}, \{a, c, d\}, \{b, c, d\}, X$	λ_g^α-closed sets $\phi, \{a\}, \{b\}, \{c\}, \{d\}, \{a, b\}, \{a, c\}, \{a, d\}, \{b, c\}, \{b, d\}, \{c, d\}, \{a, b, c\}, \{a, b, d\}, \{a, c, d\}, \{b, c, d\}, X$

Example 6: $X = \{a, b, c, d\}$ $\tau = \{\phi, \{a\}, \{b\}, \{a, b\}, \{a, b, c\}, \{a, b, d\}, X\}$ Λ-set = $\{\phi, \{a\}, \{b\}, \{a, b\}, \{a, b, c\}, \{a, b, d\}, X\}$	Closed set = $\{\phi, \{c\}, \{d\}, \{c, d\}, \{a, c, d\}, \{b, c, d\}, X\}$
α -open sets $\phi, \{a\}, \{b\}, \{a, b\}, \{a, b, c\}, \{a, b, d\}, X$	α -closed sets $\phi, \{c\}, \{d\}, \{c, d\}, \{a, c, d\}, \{b, c, d\}, X$
semi-open sets $\phi, \{a\}, \{b\}, \{a, b\}, \{a, c\}, \{a, d\}, \{b, c\}, \{b, d\}, \{a, b, c\}, \{a, b, d\}, \{a, c, d\}, \{b, c, d\}, X$	semi-closed sets $\phi, \{a\}, \{b\}, \{c\}, \{d\}, \{a, c\}, \{a, d\}, \{b, c\}, \{b, d\}, \{c, d\}, \{a, c, d\}, \{b, c, d\}, X$
pre-open sets $\phi, \{a\}, \{b\}, \{a, b\}, \{a, b, c\}, \{a, b, d\}, X$	pre-closed sets $\phi, \{c\}, \{d\}, \{c, d\}, \{a, c, d\}, \{b, c, d\}, X$
g -open sets $\phi, \{a\}, \{b\}, \{a, b\}, \{a, b, c\}, \{a, b, d\}, X$	g -closed sets $\phi, \{c\}, \{d\}, \{c, d\}, \{a, c, d\}, \{b, c, d\}, X$
g^* -open sets $\phi, \{a\}, \{b\}, \{a, b\}, \{a, b, c\}, \{a, b, d\}, X$	g^* -closed sets $\phi, \{c\}, \{d\}, \{c, d\}, \{a, c, d\}, \{b, c, d\}, X$
$g\alpha$ -open sets $\phi, \{a\}, \{b\}, \{a, b\}, \{a, b, c\}, \{a, b, d\}, X$	$g\alpha$ -closed sets $\phi, \{c\}, \{d\}, \{c, d\}, \{a, c, d\}, \{b, c, d\}, X$

αg -open sets $\phi, \{a\}, \{b\}, \{a, b\}, \{a, b, c\}, \{a, b, d\}, X$	αg -closed sets $\phi, \{c\}, \{d\}, \{c, d\}, \{a, c, d\}, \{b, c, d\}, X$
λ -open sets $\phi, \{a\}, \{b\}, \{c\}, \{d\}, \{a, b\}, \{a, c\}, \{a, d\}, \{b, c\}, \{b, d\}, \{c, d\}, \{a, b, c\}, \{a, b, d\}, \{a, c, d\}, \{b, c, d\}, X$	λ -closed sets $\phi, \{a\}, \{b\}, \{c\}, \{d\}, \{a, b\}, \{a, c\}, \{a, d\}, \{b, c\}, \{b, d\}, \{c, d\}, \{a, b, c\}, \{a, b, d\}, \{a, c, d\}, \{b, c, d\}, X$
$g\Lambda$ -open sets $\phi, \{a\}, \{b\}, \{c\}, \{d\}, \{a, b\}, \{a, c\}, \{a, d\}, \{b, c\}, \{b, d\}, \{c, d\}, \{a, b, c\}, \{a, b, d\}, \{a, c, d\}, \{b, c, d\}, X$	$g\Lambda$ -closed sets $\phi, \{a\}, \{b\}, \{c\}, \{d\}, \{a, b\}, \{a, c\}, \{a, d\}, \{b, c\}, \{b, d\}, \{c, d\}, \{a, b, c\}, \{a, b, d\}, \{a, c, d\}, \{b, c, d\}, X$
Λ - g -open sets $\phi, \{a\}, \{b\}, \{c\}, \{d\}, \{a, b\}, \{a, c\}, \{a, d\}, \{b, c\}, \{b, d\}, \{c, d\}, \{a, b, c\}, \{a, b, d\}, \{a, c, d\}, \{b, c, d\}, X$	Λ - g -closed sets $\phi, \{a\}, \{b\}, \{c\}, \{d\}, \{a, b\}, \{a, c\}, \{a, d\}, \{b, c\}, \{b, d\}, \{c, d\}, \{a, b, c\}, \{a, b, d\}, \{a, c, d\}, \{b, c, d\}, X$
Λ_g -open sets $\phi, \{a\}, \{b\}, \{a, b, c\}, \{a, b, d\}, X$	Λ_g -closed sets $\phi, \{c\}, \{d\}, \{a, c, d\}, \{b, c, d\}, X$
$g^*\Lambda$ -open sets $\phi, \{a\}, \{b\}, \{c\}, \{d\}, \{a, b\}, \{a, c\}, \{a, d\}, \{b, c\}, \{b, d\}, \{c, d\}, \{a, b, c\}, \{a, b, d\}, \{a, c, d\}, \{b, c, d\}, X$	$g^*\Lambda$ -closed sets $\phi, \{a\}, \{b\}, \{c\}, \{d\}, \{a, b\}, \{a, c\}, \{a, d\}, \{b, c\}, \{b, d\}, \{c, d\}, \{a, b, c\}, \{a, b, d\}, \{a, c, d\}, \{b, c, d\}, X$
$g^{**}\Lambda$ -open sets $\phi, \{a\}, \{b\}, \{c\}, \{d\}, \{a, b\}, \{a, c\}, \{a, d\}, \{b, c\}, \{b, d\}, \{c, d\}, \{a, b, c\}, \{a, b, d\}, \{a, c, d\}, \{b, c, d\}, X$	$g^{**}\Lambda$ -closed sets $\phi, \{a\}, \{b\}, \{c\}, \{d\}, \{a, b\}, \{a, c\}, \{a, d\}, \{b, c\}, \{b, d\}, \{c, d\}, \{a, b, c\}, \{a, b, d\}, \{a, c, d\}, \{b, c, d\}, X$
$\Lambda_{g\alpha}$ -open sets $\phi, \{a\}, \{b\}, \{a, b, c\}, \{a, b, d\}, X$	$\Lambda_{g\alpha}$ -closed sets $\phi, \{c\}, \{d\}, \{a, c, d\}, \{b, c, d\}, X$
$gs\Lambda$ -open sets $\phi, \{a\}, \{b\}, \{c\}, \{d\}, \{a, b\}, \{a, c\}, \{a, d\}, \{b, c\}, \{b, d\}, \{c, d\}, \{a, b, c\}, \{a, b, d\}, \{a, c, d\}, \{b, c, d\}, X$	$gs\Lambda$ -closed sets $\phi, \{a\}, \{b\}, \{c\}, \{d\}, \{a, b\}, \{a, c\}, \{a, d\}, \{b, c\}, \{b, d\}, \{c, d\}, \{a, b, c\}, \{a, b, d\}, \{a, c, d\}, \{b, c, d\}, X$
λ_g^α-open sets $\phi, \{a\}, \{b\}, \{c\}, \{d\}, \{a, b\}, \{a, c\}, \{a, d\}, \{b, c\}, \{b, d\}, \{c, d\}, \{a, b, c\}, \{a, b, d\}, \{a, c, d\}, \{b, c, d\}, X$	λ_g^α-closed sets $\phi, \{a\}, \{b\}, \{c\}, \{d\}, \{a, b\}, \{a, c\}, \{a, d\}, \{b, c\}, \{b, d\}, \{c, d\}, \{a, b, c\}, \{a, b, d\}, \{a, c, d\}, \{b, c, d\}, X$

Example 7: $X = \{a, b, c, d\}$ $\tau = \{\phi, \{d\}, \{a, b\}, \{a, b, d\}, X\}$ Λ-set = $\{\phi, \{d\}, \{a, b\}, \{a, b, d\}, X\}$	Closed set = $\{\phi, \{c\}, \{c, d\}, \{a, b, c\}, X\}$
α -open sets $\phi, \{d\}, \{a, b\}, \{a, b, d\}, X$	α -closed sets $\phi, \{c\}, \{c, d\}, \{a, b, c\}, X$
semi-open sets $\phi, \{d\}, \{a, b\}, \{c, d\}, \{a, b, c\}, \{a, b, d\}, X$	semi-closed sets $\phi, \{c\}, \{d\}, \{a, b\}, \{c, d\}, \{a, b, c\}, X$
pre-open sets $\phi, \{a\}, \{b\}, \{d\}, \{a, b\}, \{a, d\}, \{b, d\}, \{a, b, d\}, \{a, c, d\}, \{b, c, d\}, X$	pre-closed sets $\phi, \{a\}, \{b\}, \{c\}, \{a, c\}, \{b, c\}, \{c, d\}, \{a, b, c\}, \{a, c, d\}, \{b, c, d\}, X$
g -open sets $\phi, \{a\}, \{b\}, \{d\}, \{a, b\}, \{a, d\}, \{b, d\}, \{a, b, d\}, X$	g -closed sets $\phi, \{c\}, \{a, c\}, \{b, c\}, \{c, d\}, \{a, b, c\}, \{a, c, d\}, \{b, c, d\}, X$

g^* -open sets $\phi, \{a\}, \{b\}, \{d\}, \{a, b\}, \{a, d\}, \{b, d\}, \{a, b, d\}, X$	g^* -closed sets $\phi, \{c\}, \{a, c\}, \{b, c\}, \{c, d\}, \{a, b, c\}, \{a, c, d\}, \{b, c, d\}, X$
$g\alpha$ -open sets $\phi, \{a\}, \{b\}, \{d\}, \{a, b\}, \{a, d\}, \{b, d\}, \{a, b, d\}, X$	$g\alpha$ -closed sets $\phi, \{c\}, \{a, c\}, \{b, c\}, \{c, d\}, \{a, b, c\}, \{a, c, d\}, \{b, c, d\}, X$
αg -open sets $\phi, \{a\}, \{b\}, \{d\}, \{a, b\}, \{a, d\}, \{b, d\}, \{a, b, d\}, X$	αg -closed sets $\phi, \{c\}, \{a, c\}, \{b, c\}, \{c, d\}, \{a, b, c\}, \{b, c, d\}, X$
λ -open sets $\phi, \{c\}, \{d\}, \{a, b\}, \{c, d\}, \{a, b, c\}, \{a, b, d\}, X$	λ -closed sets $\phi, \{c\}, \{d\}, \{a, b\}, \{c, d\}, \{a, b, c\}, \{a, b, d\}, X$
$g\Lambda$ -open sets $\phi, \{a\}, \{b\}, \{c\}, \{d\}, \{a, b\}, \{a, c\}, \{a, d\}, \{b, c\},$ $\{b, d\}, \{c, d\}, \{a, b, c\}, \{a, b, d\}, \{a, c, d\}, \{b, c, d\}, X$	$g\Lambda$ -closed sets $\phi, \{a\}, \{b\}, \{c\}, \{d\}, \{a, b\}, \{a, c\}, \{a, d\}, \{b, c\},$ $\{b, d\}, \{c, d\}, \{a, b, c\}, \{a, b, d\}, \{a, c, d\}, \{b, c, d\}, X$
Λ - g -open sets $\phi, \{a\}, \{b\}, \{c\}, \{d\}, \{a, b\}, \{a, c\}, \{a, d\}, \{b, c\},$ $\{b, d\}, \{c, d\}, \{a, b, c\}, \{a, b, d\}, \{a, c, d\}, \{b, c, d\}, X$	Λ - g -closed sets $\phi, \{a\}, \{b\}, \{c\}, \{d\}, \{a, b\}, \{a, c\}, \{a, d\}, \{b, c\},$ $\{b, d\}, \{c, d\}, \{a, b, c\}, \{a, b, d\}, \{a, c, d\}, \{b, c, d\}, X$
Λ_g -open sets $\phi, \{a\}, \{b\}, \{d\}, \{a, b\}, \{a, d\}, \{b, d\}, \{a, b, d\}, X$	Λ_g -closed sets $\phi, \{c\}, \{a, c\}, \{b, c\}, \{c, d\}, \{a, b, c\}, \{a, c, d\}, \{b, c, d\}, X$
$g^*\Lambda$ -open sets $\phi, \{a\}, \{b\}, \{c\}, \{d\}, \{a, b\}, \{a, d\}, \{b, d\}, \{c, d\},$ $\{a, b, c\}, \{a, b, d\}, \{a, c, d\}, X$	$g^*\Lambda$ -closed sets $\phi, \{b\}, \{c\}, \{d\}, \{a, b\}, \{a, c\}, \{b, c\}, \{c, d\},$ $\{a, b, c\}, \{a, b, d\}, \{a, c, d\}, \{b, c, d\}, X$
$g^{**}\Lambda$ -open sets $\phi, \{a\}, \{b\}, \{c\}, \{d\}, \{a, b\}, \{a, d\}, \{b, d\}, \{c, d\},$ $\{a, b, c\}, \{a, b, d\}, \{a, c, d\}, X$	$g^{**}\Lambda$ -closed sets $\phi, \{b\}, \{c\}, \{d\}, \{a, b\}, \{a, c\}, \{b, c\}, \{c, d\},$ $\{a, b, c\}, \{a, b, d\}, \{a, c, d\}, \{b, c, d\}, X$
$\Lambda_{g\alpha}$ -open sets $\phi, \{a\}, \{b\}, \{d\}, \{a, b\}, \{a, d\}, \{b, d\}, \{a, b, d\}, X$	$\Lambda_{g\alpha}$ -closed sets $\phi, \{c\}, \{a, c\}, \{b, c\}, \{c, d\}, \{a, b, c\}, \{a, c, d\}, \{b, c, d\}, X$
$gs\Lambda$ -open sets $\phi, \{a\}, \{b\}, \{c\}, \{d\}, \{a, b\}, \{a, c\}, \{a, d\}, \{b, c\},$ $\{b, d\}, \{c, d\}, \{a, b, c\}, \{a, b, d\}, \{a, c, d\}, \{b, c, d\}, X$	$gs\Lambda$ -closed sets $\phi, \{a\}, \{b\}, \{c\}, \{d\}, \{a, b\}, \{a, c\}, \{a, d\}, \{b, c\},$ $\{b, d\}, \{c, d\}, \{a, b, c\}, \{a, b, d\}, \{a, c, d\}, \{b, c, d\}, X$
λ_g^α -open sets $\phi, \{a\}, \{b\}, \{c\}, \{d\}, \{a, b\}, \{a, c\}, \{a, d\}, \{b, c\},$ $\{b, d\}, \{c, d\}, \{a, b, c\}, \{a, b, d\}, \{a, c, d\}, \{b, c, d\}, X$	λ_g^α -closed sets $\phi, \{a\}, \{b\}, \{c\}, \{d\}, \{a, b\}, \{a, c\}, \{a, d\}, \{b, c\}, \{b, d\},$ $\{c, d\}, \{a, b, c\}, \{a, b, d\}, \{a, c, d\}, \{b, c, d\}, X$

Appendix III	
Example 1: $X = \{a, b, c, d, e\}$ $\tau = \{\emptyset, \{a\}, \{b, c, d\}, \{a, b, c, d\}, \{b, c, d, e\}, X\}$ Λ -set = $\{\emptyset, \{a\}, \{b, c, d\}, \{a, b, c, d\}, \{b, c, d, e\}, X\}$	Closed set = $\{\emptyset, \{a\}, \{e\}, \{a, e\}, \{b, c, d, e\}, X\}$
α -open sets $\emptyset, \{a\}, \{b, c, d\}, \{a, b, c, d\}, \{b, c, d, e\}, X$	α -closed sets $\emptyset, \{a\}, \{e\}, \{a, e\}, \{b, c, d, e\}, X$
g -open sets $\emptyset, \{a\}, \{b\}, \{c\}, \{d\}, \{a, b\}, \{a, c\}, \{a, d\}, \{b, c\},$ $\{b, d\}, \{c, d\}, \{a, b, c\}, \{a, b, d\}, \{a, c, d\}, \{b, c, d\},$ $\{a, b, c, d\}, \{b, c, d, e\}, X$	g -closed sets $\emptyset, \{a\}, \{e\}, \{a, e\}, \{b, e\}, \{c, e\}, \{d, e\},$ $\{a, b, e\}, \{a, c, e\}, \{a, d, e\}, \{b, c, e\}, \{b, d, e\}$ $\{c, d, e\}, \{a, b, c, e\}, \{a, b, d, e\}, \{a, c, d, e\}, \{b, c, d, e\}, X$
g^* -open sets $\emptyset, \{a\}, \{b\}, \{c\}, \{d\}, \{a, b\}, \{a, c\}, \{a, d\},$ $\{b, c\}, \{b, d\}, \{c, d\}, \{a, b, c\}, \{a, b, d\}, \{a, c, d\}, \{b, c, d\},$ $\{a, b, c, d\}, \{b, c, d, e\}, X$	g^* -closed sets $\emptyset, \{a\}, \{e\}, \{a, e\}, \{b, e\}, \{c, e\}, \{d, e\}, \{a, b, e\},$ $\{a, c, e\}, \{a, d, e\}, \{b, c, e\}, \{b, d, e\}, \{c, d, e\}$ $\{a, b, c, e\}, \{a, b, d, e\}, \{a, c, d, e\}, \{b, c, d, e\}, X$
λ -open sets $\emptyset, \{a\}, \{e\}, \{a, e\}, \{b, c, d\}, \{a, b, c, d\}, \{b, c, d, e\}, X$	λ -closed sets $\emptyset, \{a\}, \{e\}, \{a, e\}, \{b, c, d\}, \{a, b, c, d\}, \{b, c, d, e\}, X$
$g\Lambda$ -open sets $\emptyset, \{a\}, \{b\}, \{c\}, \{d\}, \{e\}, \{a, b\}, \{a, c\}, \{a, d\},$ $\{a, e\}, \{b, c\}, \{b, d\}, \{b, e\}, \{c, d\}, \{c, e\}, \{d, e\},$ $\{a, b, c\}, \{a, b, d\}, \{a, b, e\}, \{a, c, d\}, \{a, c, e\},$ $\{a, d, e\}, \{b, c, d\}, \{b, c, e\}, \{b, d, e\}, \{c, d, e\},$ $\{a, b, c, d\}, \{a, b, c, e\}, \{a, b, d, e\}, \{a, c, d, e\},$ $\{b, c, d, e\}, X$	$g\Lambda$ -closed sets $\emptyset, \{a\}, \{b\}, \{c\}, \{d\}, \{e\}, \{a, b\}, \{a, c\}, \{a, d\},$ $\{a, e\}, \{b, c\}, \{b, d\}, \{b, e\}, \{c, d\}, \{c, e\}, \{d, e\},$ $\{a, b, c\}, \{a, b, d\}, \{a, b, e\}, \{a, c, d\}, \{a, c, e\},$ $\{a, d, e\}, \{b, c, d\}, \{b, c, e\}, \{b, d, e\}, \{c, d, e\},$ $\{a, b, c, d\}, \{a, b, c, e\}, \{a, b, d, e\}, \{a, c, d, e\},$ $\{b, c, d, e\}, X$
Λ - g -open sets $\emptyset, \{a\}, \{b\}, \{c\}, \{d\}, \{e\}, \{a, b\}, \{a, c\}, \{a, d\},$ $\{a, e\}, \{b, c\}, \{b, d\}, \{b, e\}, \{c, d\}, \{c, e\}, \{d, e\},$ $\{a, b, c\}, \{a, b, d\}, \{a, b, e\}, \{a, c, d\}, \{a, c, e\},$ $\{a, d, e\}, \{b, c, d\}, \{b, c, e\}, \{b, d, e\}, \{c, d, e\},$ $\{a, b, c, d\}, \{a, b, c, e\}, \{a, b, d, e\}, \{a, c, d, e\},$ $\{b, c, d, e\}, X$	Λ - g -closed sets $\emptyset, \{a\}, \{b\}, \{c\}, \{d\}, \{e\}, \{a, b\}, \{a, c\}, \{a, d\},$ $\{a, e\}, \{b, c\}, \{b, d\}, \{b, e\}, \{c, d\}, \{c, e\}, \{d, e\},$ $\{a, b, c\}, \{a, b, d\}, \{a, b, e\}, \{a, c, d\}, \{a, c, e\},$ $\{a, d, e\}, \{b, c, d\}, \{b, c, e\}, \{b, d, e\}, \{c, d, e\},$ $\{a, b, c, d\}, \{a, b, c, e\}, \{a, b, d, e\}, \{a, c, d, e\},$ $\{b, c, d, e\}, X$
Λ_g -open sets $\emptyset, \{a\}, \{b\}, \{c\}, \{d\}, \{e\}, \{a, b\}, \{a, c\}, \{a, d\},$ $\{b, c\}, \{b, d\}, \{c, d\}, \{a, b, c\}, \{a, b, d\}, \{a, c, d\}, \{b, c, d\},$ $\{a, b, c, d\}, \{b, c, d, e\}, X$	Λ_g -closed sets $\emptyset, \{a\}, \{e\}, \{a, e\}, \{b, e\}, \{c, e\}, \{d, e\}, \{a, b, e\}, \{a, c, e\},$ $\{a, d, e\}, \{b, c, e\}, \{b, d, e\}, \{c, d, e\}, \{a, b, c, d\}, \{a, b, c, e\},$ $\{a, b, d, e\}, \{a, c, d, e\}, \{b, c, d, e\}, X$
$g^*\Lambda$ -open sets $\emptyset, \{a\}, \{b\}, \{c\}, \{d\}, \{e\}, \{a, b\}, \{a, c\}, \{a, d\},$ $\{a, e\}, \{b, c\}, \{b, d\}, \{c, d\}, \{a, b, c\},$ $\{a, b, d\}, \{a, c, d\}, \{b, c, d\}, \{a, b, c, d\}, \{b, c, d, e\}, X$	$g^*\Lambda$ -closed sets $\emptyset, \{a\}, \{e\}, \{a, e\}, \{b, e\}, \{c, e\}, \{d, e\}, \{a, b, e\},$ $\{a, c, e\}, \{a, d, e\}, \{b, c, d\}, \{b, c, e\}, \{b, d, e\},$ $\{c, d, e\}, \{a, b, c, d\}, \{a, b, c, e\}, \{a, b, d, e\},$ $\{a, c, d, e\}, \{b, c, d, e\}, X$
$g^{**}\Lambda$ -open sets $\emptyset, \{a\}, \{b\}, \{c\}, \{d\}, \{e\}, \{a, b\}, \{a, c\}, \{a, d\}, \{a, e\}, \{b, c\},$ $\{b, d\}, \{a, b, c\}, \{a, b, d\}, \{a, c, d\}, \{b, c, d\},$ $\{a, b, c, d\}, \{b, c, d, e\}, X$	$g^{**}\Lambda$ -closed sets $\emptyset, \{a\}, \{e\}, \{a, e\}, \{b, e\}, \{c, e\}, \{d, e\},$ $\{a, c, e\}, \{a, d, e\}, \{b, c, d\}, \{b, c, e\}, \{b, d, e\}, \{c, d, e\},$ $\{a, b, c, d\}, \{a, b, c, e\}, \{a, b, d, e\}, \{a, c, d, e\},$ $\{b, c, d, e\}, X$

$\{a, b, c\}, \{a, b, d\}, \{a, b, e\}, \{a, c, d\}, \{a, c, e\},$ $\{a, d, e\}, \{b, c, d\}, \{b, c, e\}, \{b, d, e\}, \{c, d, e\},$ $\{a, b, c, d\}, \{a, b, c, e\}, \{a, b, d, e\}, \{a, c, d, e\},$ $\{b, c, d, e\}, X$	$\{a, b, c\}, \{a, b, d\}, \{a, b, e\}, \{a, c, d\}, \{a, c, e\},$ $\{a, d, e\}, \{b, c, d\}, \{b, c, e\}, \{b, d, e\}, \{c, d, e\},$ $\{a, b, c, d\}, \{a, b, c, e\}, \{a, b, d, e\}, \{a, c, d, e\},$ $\{b, c, d, e\}, X$
Example 4: $X = \{a, b, c, d, e\}$ $\tau = \{\phi, \{a\}, \{b, c\}, \{a, b, c\}, X\}$ Λ -set = $\{\phi, \{a\}, \{b, c\}, \{a, b, c\}, X\}$	Closed set = $\{\phi, \{d, e\}, \{a, d, e\}, \{b, c, d, e\}, X\}$
α -open sets $\phi, \{a\}, \{b, c\}, \{a, b, c\}, \{a, b, c, d\}, \{a, b, c, e\}, X$	α -closed sets $\phi, \{d\}, \{e\}, \{d, e\}, \{a, d, e\}, \{b, c, d, e\}, X$
g -open sets $\phi, \{a\}, \{b\}, \{c\}, \{d\}, \{e\}, \{a, b\}, \{a, c\}, \{a, d\}, \{a, e\}, \{b, c\},$ $\{b, d\}, \{b, e\}, \{c, d\}, \{c, e\}, \{a, b, c\}, \{a, b, d\}, \{a, b, e\},$ $\{a, c, d\}, \{a, c, e\}, \{b, c, d\}, \{b, c, e\}, \{a, b, c, d\},$ $\{a, b, c, e\}, X$	g -closed sets $\phi, \{d\}, \{e\}, \{a, d\}, \{a, e\}, \{b, d\}, \{b, e\}, \{c, d\}, \{c, e\},$ $\{d, e\}, \{a, b, d\}, \{a, b, e\}, \{a, c, d\}, \{a, c, e\}, \{a, d, e\},$ $\{b, c, d\}, \{b, c, e\}, \{b, d, e\}, \{c, d, e\}, \{a, b, c, d\}, \{a, b, c, e\},$ $\{a, b, d, e\}, \{a, c, d, e\}, \{b, c, d, e\}, X$
g^* -open sets $\phi, \{a\}, \{b\}, \{c\}, \{a, b\}, \{a, c\}, \{b, c\}, \{a, b, c\}, X$	g^* -closed sets $\phi, \{d, e\}, \{a, d, e\}, \{b, d, e\}, \{c, d, e\}, \{a, b, d, e\},$ $\{a, c, d, e\}, \{b, c, d, e\}, X$
λ -open sets $\phi, \{a\}, \{b, c\}, \{d, e\}, \{a, b, c\}, \{a, d, e\}, \{b, c, d, e\}, X$	λ -closed sets $\phi, \{a\}, \{b, c\}, \{d, e\}, \{a, b, c\}, \{a, d, e\}, \{b, c, d, e\}, X$
Λ - g -open sets $\phi, \{a\}, \{b\}, \{c\}, \{d\}, \{e\}, \{a, b\}, \{a, c\}, \{a, d\},$ $\{a, e\}, \{b, c\}, \{b, d\}, \{b, e\}, \{c, d\}, \{c, e\}, \{d, e\},$ $\{a, b, c\}, \{a, b, d\}, \{a, b, e\}, \{a, c, d\}, \{a, c, e\},$ $\{a, d, e\}, \{b, c, d\}, \{b, c, e\}, \{b, d, e\}, \{c, d, e\},$ $\{a, b, c, d\}, \{a, b, c, e\}, \{a, b, d, e\}, \{a, c, d, e\},$ $\{b, c, d, e\}, X$	Λ - g -closed sets $\phi, \{a\}, \{b\}, \{c\}, \{d\}, \{e\}, \{a, b\}, \{a, c\}, \{a, d\},$ $\{a, e\}, \{b, c\}, \{b, d\}, \{b, e\}, \{c, d\}, \{c, e\}, \{d, e\},$ $\{a, b, c\}, \{a, b, d\}, \{a, b, e\}, \{a, c, d\}, \{a, c, e\},$ $\{a, d, e\}, \{b, c, d\}, \{b, c, e\}, \{b, d, e\}, \{c, d, e\},$ $\{a, b, c, d\}, \{a, b, c, e\}, \{a, b, d, e\}, \{a, c, d, e\},$ $\{b, c, d, e\}, X$
g^* Λ -open sets $\phi, \{a\}, \{b\}, \{c\}, \{a, b\}, \{a, c\}, \{b, c\}, \{d, e\}, \{a, b, c\},$ $\{a, d, e\}, \{b, c, d, e\}, X$	g^* Λ -closed sets $\phi, \{a\}, \{b, c\}, \{d, e\}, \{a, b, c\}, \{a, d, e\}, \{b, d, e\}, \{c, d, e\},$ $\{a, b, d, e\}, \{a, c, d, e\}, \{b, c, d, e\}, X$
$g^{**}\Lambda$ -open sets $\phi, \{a\}, \{b\}, \{c\}, \{d\}, \{e\}, \{a, b\}, \{a, c\}, \{a, d\}, \{a, e\}, \{b, c\},$ $\{b, d\}, \{b, e\}, \{c, d\}, \{c, e\}, \{d, e\}, \{a, b, c\}, \{a, b, d\},$ $\{a, b, e\}, \{a, c, d\}, \{a, c, e\}, \{a, d, e\}, \{b, c, d\}, \{b, c, e\},$ $\{a, b, c, d\}, \{a, b, c, e\}, \{b, c, d, e\}, X$	$g^{**}\Lambda$ -closed sets $\phi, \{a\}, \{d\}, \{e\}, \{a, d\}, \{a, e\}, \{b, c\}, \{b, d\}, \{b, e\}, \{c, d\},$ $\{c, e\}, \{d, e\}, \{a, b, c\}, \{a, b, d\}, \{a, b, e\}, \{a, c, d\}, \{a, c, e\},$ $\{a, d, e\}, \{b, c, d\}, \{b, c, e\}, \{b, d, e\}, \{c, d, e\}, \{a, b, c, d\},$ $\{a, b, c, e\}, \{a, b, d, e\}, \{a, c, d, e\}, \{b, c, d, e\}, X$
$gs\Lambda$ -open sets $\phi, \{a\}, \{b\}, \{c\}, \{a, b\}, \{a, c\}, \{b, c\},$ $\{d, e\}, \{a, b, c\}, \{a, d, e\}, \{b, d, e\}, \{c, d, e\},$ $\{a, b, d, e\}, \{a, c, d, e\}, \{b, c, d, e\}, X$	$gs\Lambda$ -closed sets $\phi, \{a\}, \{b\}, \{c\}, \{a, b\}, \{a, c\}, \{b, c\}, \{d, e\}, \{a, b, c\},$ $\{a, d, e\}, \{b, d, e\}, \{c, d, e\}, \{a, b, d, e\}, \{a, c, d, e\},$ $\{b, c, d, e\}, X$
λ_g^α -open sets $\phi, \{a\}, \{b\}, \{c\}, \{a, b\}, \{a, c\}, \{b, c\},$ $\{d, e\}, \{a, b, c\}, \{a, d, e\}, \{b, d, e\}, \{c, d, e\},$ $\{a, b, d, e\}, \{a, c, d, e\}, \{b, c, d, e\}, X$	λ_g^α -closed sets $\phi, \{a\}, \{b\}, \{c\}, \{a, b\}, \{a, c\}, \{b, c\}, \{d, e\}, \{a, b, c\},$ $\{a, d, e\}, \{b, d, e\}, \{c, d, e\}, \{a, b, d, e\}, \{a, c, d, e\},$ $\{b, c, d, e\}, X$

<p>Example 5: $X = \{a, b, c, d, e\}$ $\tau = \{\phi, \{a\}, \{b\}, \{a, b\}, \{b, c\}, \{a, b, c\}, \{b, c, d\}, \{a, b, c, d\}, \{b, c, d, e\}, X\}$ Λ-set = $\{\phi, \{a\}, \{b\}, \{a, b\}, \{b, c\}, \{a, b, c\}, \{b, c, d\}, \{a, b, c, d\}, \{b, c, d, e\}, X\}$</p>	<p>Closed set = $\{\phi, \{a\}, \{e\}, \{a, e\}, \{d, e\}, \{a, d, e\}, \{c, d, e\}, \{a, c, d, e\}, \{b, c, d, e\}, X\}$</p>
<p>α-open sets $\phi, \{a\}, \{b\}, \{a, b\}, \{b, c\}, \{b, d\}, \{b, e\}, \{a, b, c\}, \{a, b, d\}, \{a, b, e\}, \{b, c, d\}, \{b, c, e\}, \{b, d, e\}, \{a, b, c, d\}, \{a, b, c, e\}, \{a, b, d, e\}, \{b, c, d, e\}, X$</p>	<p>α-closed sets $\phi, \{a\}, \{c\}, \{d\}, \{e\}, \{a, c\}, \{a, d\}, \{a, e\}, \{c, d\}, \{c, e\}, \{d, e\}, \{a, c, d\}, \{a, c, e\}, \{a, d, e\}, \{c, d, e\}, \{a, c, d, e\}, \{b, c, d, e\}, X$</p>
<p>g-open sets $\phi, \{a\}, \{b\}, \{c\}, \{d\}, \{a, b\}, \{a, c\}, \{a, d\}, \{b, c\}, \{b, d\}, \{c, d\}, \{a, b, c\}, \{a, b, d\}, \{a, c, d\}, \{b, c, d\}, \{a, b, c, d\}, \{b, c, d, e\}, X$</p>	<p>g-closed sets $\phi, \{a\}, \{e\}, \{a, e\}, \{b, e\}, \{c, e\}, \{d, e\}, \{a, b, e\}, \{a, c, e\}, \{a, d, e\}, \{b, c, e\}, \{b, d, e\}, \{c, d, e\}, \{a, b, c, e\}, \{a, b, d, e\}, \{a, c, d, e\}, \{b, c, d, e\}, X$</p>
<p>g^*-open sets $\phi, \{a\}, \{b\}, \{c\}, \{d\}, \{a, b\}, \{a, c\}, \{a, d\}, \{b, c\}, \{b, d\}, \{c, d\}, \{a, b, c\}, \{a, b, d\}, \{a, c, d\}, \{b, c, d\}, \{a, b, c, d\}, \{b, c, d, e\}, X$</p>	<p>g^*-closed sets $\phi, \{a\}, \{e\}, \{a, e\}, \{b, e\}, \{c, e\}, \{d, e\}, \{a, b, e\}, \{a, c, e\}, \{a, d, e\}, \{b, c, e\}, \{b, d, e\}, \{c, d, e\}, \{a, b, c, e\}, \{a, b, d, e\}, \{a, c, d, e\}, \{b, c, d, e\}, X$</p>
<p>λ-open sets $\phi, \{a\}, \{b\}, \{e\}, \{a, b\}, \{a, e\}, \{b, c\}, \{b, e\}, \{d, e\}, \{a, b, c\}, \{a, b, e\}, \{a, d, e\}, \{b, c, d\}, \{b, c, e\}, \{b, d, e\}, \{c, d, e\}, \{a, b, c, d\}, \{a, b, c, e\}, \{a, b, d, e\}, \{a, c, d, e\}, \{b, c, d, e\}, X$</p>	<p>λ-closed sets $\phi, \{a\}, \{b\}, \{c\}, \{d\}, \{e\}, \{a, b\}, \{a, c\}, \{a, d\}, \{a, e\}, \{b, c\}, \{c, d\}, \{d, e\}, \{a, b, c\}, \{a, c, d\}, \{a, d, e\}, \{b, c, d\}, \{c, d, e\}, \{a, b, c, d\}, \{a, c, d, e\}, \{b, c, d, e\}, X$</p>
<p>$g\Lambda$-open sets $\phi, \{a\}, \{b\}, \{c\}, \{d\}, \{e\}, \{a, b\}, \{a, c\}, \{a, d\}, \{a, e\}, \{b, c\}, \{b, d\}, \{b, e\}, \{c, d\}, \{c, e\}, \{d, e\}, \{a, b, c\}, \{a, b, d\}, \{a, b, e\}, \{a, c, e\}, \{a, d, e\}, \{b, c, d\}, \{b, c, e\}, \{b, d, e\}, \{c, d, e\}, \{a, b, c, d\}, \{a, b, c, e\}, \{a, b, d, e\}, \{a, c, d, e\}, \{b, c, d, e\}, X$</p>	<p>$g\Lambda$-closed sets $\phi, \{a\}, \{b\}, \{c\}, \{d\}, \{e\}, \{a, b\}, \{a, c\}, \{a, d\}, \{a, e\}, \{b, c\}, \{b, d\}, \{c, d\}, \{c, e\}, \{d, e\}, \{a, b, c\}, \{a, b, d\}, \{a, b, e\}, \{a, c, d\}, \{a, c, e\}, \{a, d, e\}, \{b, c, d\}, \{b, c, e\}, \{b, d, e\}, \{c, d, e\}, \{a, b, c, d\}, \{a, b, c, e\}, \{a, b, d, e\}, \{a, c, d, e\}, \{b, c, d, e\}, X$</p>
<p>Λ-g-open sets $\phi, \{a\}, \{b\}, \{e\}, \{a, b\}, \{a, e\}, \{b, c\}, \{b, e\}, \{d, e\}, \{a, b, c\}, \{a, b, e\}, \{a, d, e\}, \{b, c, d\}, \{b, c, e\}, \{b, d, e\}, \{c, d, e\}, \{a, b, c, d\}, \{a, b, c, e\}, \{a, b, d, e\}, \{a, c, d, e\}, \{b, c, d, e\}, X$</p>	<p>Λ-g-closed sets $\phi, \{a\}, \{b\}, \{c\}, \{d\}, \{e\}, \{a, b\}, \{a, c\}, \{a, d\}, \{a, e\}, \{b, c\}, \{c, d\}, \{d, e\}, \{a, b, c\}, \{a, c, d\}, \{a, d, e\}, \{b, c, d\}, \{c, d, e\}, \{a, b, c, d\}, \{a, c, d, e\}, \{b, c, d, e\}, X$</p>
<p>Λ_g-open sets $\phi, \{a\}, \{b\}, \{a, b\}, \{b, c\}, \{a, b, c\}, \{b, c, d\}, \{b, c, e\}, \{a, b, c, d\}, \{b, c, d, e\}, X$</p>	<p>Λ_g-closed sets $\phi, \{a\}, \{e\}, \{a, d\}, \{a, e\}, \{d, e\}, \{a, d, e\}, \{c, d, e\}, \{a, c, d, e\}, \{b, c, d, e\}, X$</p>
<p>$g^*\Lambda$-open sets $\phi, \{a\}, \{b\}, \{c\}, \{d\}, \{e\}, \{a, b\}, \{a, d\}, \{a, e\}, \{b, c\}, \{b, d\}, \{b, e\}, \{c, d\}, \{d, e\}, \{a, b, c\}, \{a, b, d\}, \{a, b, e\}, \{a, d, e\}, \{b, c, d\}, \{b, c, e\}, \{b, d, e\}, \{c, d, e\}, \{a, b, c, d\}, \{a, b, c, e\}, \{a, b, d, e\}, \{a, c, d, e\}, \{b, c, d, e\}, X$</p>	<p>$g^*\Lambda$-closed sets $\phi, \{a\}, \{b\}, \{c\}, \{d\}, \{e\}, \{a, b\}, \{a, c\}, \{a, d\}, \{a, e\}, \{b, c\}, \{c, d\}, \{c, e\}, \{d, e\}, \{a, b, c\}, \{a, b, e\}, \{a, c, d\}, \{a, c, e\}, \{a, d, e\}, \{b, c, d\}, \{b, c, e\}, \{c, d, e\}, \{a, b, c, d\}, \{a, b, c, e\}, \{a, b, d, e\}, \{a, c, d, e\}, \{b, c, d, e\}, X$</p>

$g^{**}\Lambda$ -open sets $\phi, \{a\}, \{b\}, \{e\}, \{a, b\}, \{a, e\}, \{b, c\},$ $\{b, e\}, \{a, b, c\}, \{a, b, e\}, \{b, c, d\}, \{b, c, e\}, \{a, b, c, d\}$ $\{a, b, c, e\}, \{b, c, d, e\}, X$	$g^{**}\Lambda$ -closed sets $\phi, \{a\}, \{d\}, \{e\}, \{a, d\}, \{a, e\}, \{c, d\}, \{d, e\}, \{a, c, d\},$ $\{a, d, e\}, \{b, c, d\}, \{c, d, e\}, \{a, b, c, d\},$ $\{a, c, d, e\}, \{b, c, d, e\}, X$
λ_g^α -open sets $\phi, \{a\}, \{b\}, \{e\}, \{a, b\}, \{a, e\}, \{b, c\},$ $\{b, e\}, \{d, e\}, \{a, b, c\}, \{a, b, e\}, \{a, d, e\}, \{b, c, d\},$ $\{b, c, e\}, \{b, d, e\}, \{c, d, e\}, \{a, b, c, d\},$ $\{a, b, c, e\}, \{a, b, d, e\}, \{a, c, d, e\}, \{b, c, d, e\}, X$	λ_g^α -closed sets $\phi, \{a\}, \{b\}, \{c\}, \{d\}, \{e\}, \{a, b\}, \{a, c\}, \{a, d\}, \{a, e\}, \{b, c\},$ $\{c, d\}, \{d, e\}, \{a, b, c\}, \{a, c, d\}, \{a, d, e\}, \{b, c, d\}, \{c, d, e\}$ $\{a, b, c, d\}, \{a, c, d, e\}, \{b, c, d, e\}, X$
<p>Example 6: $X = \{a, b, c, d, e\}$</p>	
$\tau = \{\phi, \{a\}, \{b\}, \{a, b\}, \{c, d\}, \{a, c, d\}, \{b, c, d\},$ $\{c, d, e\}, \{a, b, c, d\}, \{a, c, d, e\}, \{b, c, d, e\}, X\}$ Λ -set= $\{\phi, \{a\}, \{b\}, \{a, b\}, \{c, d\}, \{a, c, d\}, \{b, c, d\},$ $\{c, d, e\}, \{a, b, c, d\}, \{a, c, d, e\}, \{b, c, d, e\}, X\}$	Closed set $=\{\phi, \{a\}, \{b\}, \{e\}, \{a, b\}, \{a, e\}, \{b, e\}, \{a, b, e\}, \{c, d, e\},$ $\{a, c, d, e\}, \{b, c, d, e\}, X\}$
α -open sets $\phi, \{a\}, \{b\}, \{a, b\}, \{c, d\}, \{a, c, d\}, \{b, c, d\}, \{c, d, e\},$ $\{a, b, c, d\}, \{a, c, d, e\}, \{b, c, d, e\}, X$	α -closed sets $\phi, \{a\}, \{b\}, \{e\}, \{a, b\}, \{a, e\}, \{b, e\}, \{a, b, e\}, \{c, d, e\},$ $\{a, c, d, e\}, \{b, c, d, e\}, X$
λ -open sets $\phi, \{a\}, \{b\}, \{e\}, \{a, b\}, \{a, e\}, \{c, d\}, \{b, e\}, \{a, b, e\},$ $\{a, c, d\}, \{b, c, d\}, \{c, d, e\}, \{a, b, c, d\}, \{a, c, d, e\},$ $\{b, c, d, e\}, X$	λ -closed sets $\phi, \{a\}, \{b\}, \{e\}, \{a, b\}, \{a, e\}, \{b, e\}, \{c, d\}, \{a, c, d\},$ $\{a, b, e\}, \{b, c, d\}, \{c, d, e\}, \{a, b, c, d\}, \{a, c, d, e\},$ $\{b, c, d, e\}, X$
g -open sets $\phi, \{a\}, \{b\}, \{c\}, \{d\}, \{a, b\}, \{a, c\}, \{a, d\}, \{b, c\}, \{b, d\},$ $\{c, d\}, \{a, b, c\}, \{a, b, d\}, \{a, c, d\}, \{b, c, d\}, \{c, d, e\},$ $\{a, b, c, d\}, \{a, c, d, e\}, \{b, c, d, e\}, X$	g -closed sets $\phi, \{a\}, \{b\}, \{e\}, \{a, b\}, \{a, e\}, \{b, e\}, \{c, e\}, \{d, e\},$ $\{a, b, e\}, \{a, c, e\}, \{a, d, e\}, \{b, c, e\}, \{b, d, e\}, \{c, d, e\},$ $\{a, b, c, e\}, \{a, b, d, e\}, \{a, c, d, e\}, \{b, c, d, e\}, X$
λ_g^α -open sets $\phi, \{a\}, \{b\}, \{c\}, \{d\}, \{e\}, \{a, b\}, \{a, c\}, \{a, d\},$ $\{a, e\}, \{b, c\}, \{b, d\}, \{b, e\}, \{c, d\}, \{c, e\}, \{d, e\},$ $\{a, b, c\}, \{a, b, d\}, \{a, b, e\}, \{a, c, d\}, \{a, c, e\},$ $\{a, d, e\}, \{b, c, d\}, \{b, c, e\}, \{b, d, e\}, \{c, d, e\},$ $\{a, b, c, d\}, \{a, b, c, e\}, \{a, b, d, e\}, \{a, c, d, e\},$ $\{b, c, d, e\}, X$	λ_g^α -closed sets $\phi, \{a\}, \{b\}, \{c\}, \{d\}, \{e\}, \{a, b\}, \{a, c\}, \{a, d\},$ $\{a, e\}, \{b, c\}, \{b, d\}, \{b, e\}, \{c, d\}, \{c, e\}, \{d, e\},$ $\{a, b, c\}, \{a, b, d\}, \{a, b, e\}, \{a, c, d\}, \{a, c, e\},$ $\{a, d, e\}, \{b, c, d\}, \{b, c, e\}, \{b, d, e\}, \{c, d, e\},$ $\{a, b, c, d\}, \{a, b, c, e\}, \{a, b, d, e\}, \{a, c, d, e\},$ $\{b, c, d, e\}, X$

<p>Example 7: $X = \{a, b, c, d, e\}$</p> $\tau = \{\phi, \{a\}, \{d\}, \{a, d\}, \{c, d\}, \{d, e\},$ $\{a, c, d\}, \{a, d, e\}, \{c, d, e\}, \{a, c, d, e\}, X\}$ Λ -set= $\{\phi, \{a\}, \{d\}, \{a, d\}, \{c, d\}, \{d, e\},$ $\{a, c, d\}, \{a, d, e\}, \{c, d, e\}, \{a, c, d, e\}, X\}$	Closed set = $\{\phi, \{b\}, \{b, c\}, \{b, e\}, \{a, b\}, \{a, b, c\},$ $\{a, b, e\}, \{b, c, e\}, \{a, b, c, e\}, \{b, c, d, e\}, X\}$
α -open sets $\phi, \{a\}, \{d\}, \{a, d\}, \{c, d\}, \{d, e\}, \{a, b, d\}, \{a, c, d\},$ $\{a, d, e\}, \{c, d, e\}, \{a, b, c, d\}, \{a, b, d, e\}, \{a, c, d, e\}, X$	α -closed sets $\phi, \{b\}, \{c\}, \{e\}, \{a, b\}, \{b, c\}, \{b, e\}, \{c, e\}, \{a, b, c\}, \{a, b, e\},$ $\{b, c, e\}, \{a, b, c, e\}, \{b, c, d, e\}, X$

λ -open sets $\phi, \{a\}, \{b\}, \{d\}, \{b, c\}, \{a, b\}, \{b, e\}, \{a, d\}, \{c, d\}, \{d, e\},$ $\{a, b, c\}, \{a, b, e\}, \{a, c, d\}, \{a, d, e\}, \{b, c, e\}, \{c, d, e\},$ $\{a, b, c, e\}, \{a, c, d, e\}, \{b, c, d, e\}, X$	λ -closed sets $\phi, \{a\}, \{b\}, \{d\}, \{a, b\}, \{a, d\}, \{b, c\}, \{b, e\}, \{c, d\}, \{d, e\},$ $\{a, b, c\}, \{a, b, e\}, \{a, c, d\}, \{a, d, e\}, \{b, c, e\}, \{c, d, e\},$ $\{a, b, c, e\}, \{a, c, d, e\}, \{b, c, d, e\}, X$
g -open sets $\phi, \{a\}, \{c\}, \{d\}, \{e\}, \{a, c\}, \{a, d\}, \{a, e\}, \{c, d\}, \{c, e\},$ $\{d, e\}, \{a, c, d\}, \{a, c, e\}, \{a, d, e\}, \{c, d, e\}, \{a, c, d, e\}, X$	g -closed sets $\phi, \{b\}, \{a, b\}, \{b, c\}, \{b, d\}, \{b, e\},$ $\{a, b, c\}, \{a, b, d\}, \{a, b, e\}, \{b, c, d\}, \{b, c, e\}, \{b, d, e\},$ $\{a, b, c, d\}, \{a, b, c, e\}, \{a, b, d, e\}, \{b, c, d, e\}, X$
λ_g^α -open sets $\phi, \{a\}, \{b\}, \{d\}, \{a, b\}, \{a, d\}, \{b, c\}, \{b, e\}, \{c, d\}, \{d, e\},$ $\{a, b, c\}, \{a, b, d\}, \{a, b, e\}, \{a, c, d\}, \{a, d, e\}, \{b, c, d\},$ $\{b, c, e\}, \{b, d, e\}, \{c, d, e\}, \{a, b, c, d\},$ $\{a, b, c, e\}, \{a, b, d, e\}, \{a, c, d, e\}, \{b, c, d, e\}, X$	λ_g^α -closed sets $\phi, \{a\}, \{b\}, \{c\}, \{d\}, \{e\}, \{a, b\}, \{a, c\}, \{a, d\},$ $\{a, e\}, \{b, c\}, \{b, e\}, \{c, d\}, \{c, e\}, \{d, e\},$ $\{a, b, c\}, \{a, b, e\}, \{a, c, d\}, \{a, d, e\}, \{b, c, e\}, \{c, d, e\},$ $\{a, b, c, e\}, \{a, c, d, e\}, \{b, c, d, e\}, X$

Example 8: $X = \{a, b, c, d, e\}$ $\tau = \{\phi, \{a\}, \{b\}, \{a, b\}, \{a, b, e\}, \{a, b, c, e\},$ $\{a, b, d, e\}, X\}$ Λ -set = $\{\phi, \{a\}, \{b\}, \{a, b\}, \{a, b, e\}, \{a, b, c, e\},$ $\{a, b, d, e\}, X\}$	Closed set $= \{\phi, \{c\}, \{d\}, \{c, d\}, \{c, d, e\}, \{a, c, d, e\}, \{b, c, d, e\}, X\}$
α -open sets $\phi, \{a\}, \{b\}, \{a, b\}, \{a, b, c\}, \{a, b, d\},$ $\{a, b, e\}, \{a, b, c, d\}, \{a, b, c, e\}, \{a, b, d, e\}, X$	α -closed sets $\phi, \{c\}, \{d\}, \{e\}, \{c, d\}, \{c, e\}, \{d, e\}, \{c, d, e\},$ $\{a, c, d, e\}, \{b, c, d, e\}, X$
λ -open sets $\phi, \{a\}, \{b\}, \{c\}, \{d\}, \{a, b\}, \{c, d\}, \{a, b, e\}, \{c, d, e\},$ $\{a, b, c, e\}, \{a, b, d, e\}, \{a, c, d, e\}, \{b, c, d, e\}, X$	λ -closed sets $\phi, \{a\}, \{b\}, \{c\}, \{d\}, \{a, b\}, \{c, d\}, \{a, b, e\}, \{c, d, e\},$ $\{a, b, c, e\}, \{a, b, d, e\}, \{a, c, d, e\}, \{b, c, d, e\}, X$
g -open sets $\phi, \{a\}, \{b\}, \{e\}, \{a, b\}, \{a, e\}, \{b, e\}, \{a, b, e\},$ $\{a, b, c, e\}, \{a, b, d, e\}, X$	g -closed sets $\phi, \{c\}, \{d\}, \{c, d\}, \{a, c, d\}, \{b, c, d\}, \{c, d, e\},$ $\{a, b, c, d\}, \{a, c, d, e\}, \{b, c, d, e\}, X$
λ_g^α -open sets $\phi, \{a\}, \{b\}, \{c\}, \{d\}, \{a, b\}, \{b, c\}, \{b, d\}, \{c, d\},$ $\{a, b, c\}, \{a, b, d\}, \{a, b, e\}, \{a, c, d\}, \{b, c, d\},$ $\{c, d, e\}, \{a, b, c, d\}, \{a, b, c, e\}, \{a, b, d, e\}, \{a, c, d, e\},$ $\{b, c, d, e\}, X$	λ_g^α -closed sets $\phi, \{a\}, \{b\}, \{c\}, \{d\}, \{e\}, \{a, b\}, \{a, e\}, \{b, e\}, \{c, d\}, \{c, e\},$ $\{d, e\}, \{a, b, e\}, \{a, c, e\}, \{a, d, e\}, \{c, d, e\},$ $\{a, b, c, e\}, \{a, b, d, e\}, \{a, c, d, e\}, \{b, c, d, e\}, X$