Appendix I

$X = \{a, b, c\}$

1. $\tau = \{X, \phi, \{a\}\}$ closed sets are $X, \phi, \{b, c\}$

λ_g^δ-open sets $P(X)$	λ_g^δ-closed sets $P(X)$
(Λ, δ)-open sets X, ϕ	(Λ, δ)-closed sets X, ϕ
g-open sets $X, \phi, \{a\}, \{b\}, \{c\}, \{a, b\}, \{a, c\}$	g-closed sets $X, \phi, \{b\}, \{c\}, \{a, b\}, \{a, c\}, \{b, c\}$
$g\delta$-open sets $P(X)$	$g\delta$-closed sets $P(X)$
$g\delta s$-open sets $P(X)$	$g\delta s$-closed sets $P(X)$
pre-open sets $X, \phi, \{a\}, \{a, b\}, \{a, c\}$	pre-closed sets $X, \phi, \{b\}, \{c\}, \{b, c\}$
regular open sets X, ϕ	regular closed sets X, ϕ
semi-open sets $X, \phi, \{a\}, \{a, b\}, \{a, c\}$	semi-closed sets $X, \phi, \{b\}, \{c\}, \{b, c\}$
α-open sets $X, \phi, \{a\}, \{a, b\}, \{a, c\}$	α-closed sets $X, \phi, \{b\}, \{c\}, \{b, c\}$

δ-open sets X, ϕ	δ-closed sets X, ϕ
δ semi-open sets X, ϕ	δ semi-closed sets X, ϕ
δg-open sets $X, \phi, \{a\}, \{b\}, \{c\}, \{a, b\}, \{a, c\}$	δg-closed sets $X, \phi, \{b\}, \{c\}, \{a, b\}, \{a, c\}, \{b, c\}$
δg^*-open sets $P(X)$	δg^*-closed sets $P(X)$
δgs-open sets $P(X)$	δgs-closed sets $P(X)$

$X = \{a, b, c\}$

2. $\tau = \{X, \phi, \{a\}, \{a, b\}\}$ closed sets are $X, \phi, \{c\}, \{b, c\}$

λ_g^δ-open sets $P(X)$	λ_g^δ-closed sets $P(X)$
(Λ, δ)-open sets X, ϕ	(Λ, δ)-closed sets X, ϕ
g-open sets $X, \phi, \{a\}, \{b\}, \{a, b\}$	g-closed sets $X, \phi, \{c\}, \{a, c\}, \{b, c\}$
$g\delta$-open sets $P(X)$	$g\delta$-closed sets $P(X)$
$g\delta s$-open sets $P(X)$	$g\delta s$-closed sets $P(X)$
pre-open sets $X, \phi, \{a\}, \{a, b\}, \{a, c\}$	pre-closed sets $X, \phi, \{b\}, \{c\}, \{b, c\}$

regular open sets X, ϕ	regular closed sets X, ϕ
semi-open sets $X, \phi, \{a\}, \{a, b\}, \{a, c\}$	semi-closed sets $X, \phi, \{b\}, \{c\}, \{b, c\}$
α-open sets $X, \phi, \{a\}, \{a, b\}, \{a, c\}$	α-closed sets $X, \phi, \{b\}, \{c\}, \{b, c\}$
δ-open sets X, ϕ	δ-closed sets X, ϕ
δ semi-open sets X, ϕ	δ semi-closed sets X, ϕ
δg-open sets $X, \phi, \{a\}, \{b\}, \{a, b\}$	δg-closed sets $X, \phi, \{c\}, \{a, c\}, \{b, c\}$
δg^*-open sets $P(X)$	δg^*-closed sets $P(X)$
δgs-open sets $P(X)$	δgs-closed sets $P(X)$

$X = \{a, b, c\}$

3. $\tau = \{X, \phi, \{a, b\}\}$ closed sets are $X, \phi, \{c\}$

λ_g^δ-open sets $P(X)$	λ_g^δ-closed sets $P(X)$
(Λ, δ)-open sets X, ϕ	(Λ, δ)-closed sets X, ϕ
g-open sets $X, \phi, \{a\}, \{b\}, \{a, b\}$	g-closed sets $X, \phi, \{c\}, \{a, c\}, \{b, c\}$
$g\delta$-open sets $P(X)$	$g\delta$-closed sets $P(X)$

$g\delta s$-open sets $P(X)$	$g\delta s$-closed sets $P(X)$
pre-open sets $X, \phi, \{a\}, \{b\}, \{a, b\}, \{a, c\}, \{b, c\}$	pre-closed sets $X, \phi, \{a\}, \{b\}, \{c\}, \{a, c\}, \{b, c\}$
regular open sets X, ϕ	regular closed sets X, ϕ
semi-open sets $X, \phi, \{a, b\}$	semi-closed sets $X, \phi, \{c\}$
α-open sets $X, \phi, \{a, b\}$	α-closed sets $X, \phi, \{c\}$
δ-open sets X, ϕ	δ-closed sets X, ϕ
δ semi-open sets X, ϕ	δ semi-closed sets X, ϕ
δg-open sets $X, \phi, \{a\}, \{b\}, \{a, b\}$	δg-closed sets $X, \phi, \{c\}, \{a, c\}, \{b, c\}$
δg^*-open sets $P(X)$	δg^*-closed sets $P(X)$
δgs-open sets $P(X)$	δgs-closed sets $P(X)$

$X = \{a, b, c\}$

4. $\tau = \{X, \phi, \{a\}, \{b\}, \{a, b\}\}$ closed sets are $X, \phi, \{c\}, \{a, c\}, \{b, c\}$

λ_g^δ-open sets $X, \phi, \{a\}, \{b\}, \{a, b\}$	λ_g^δ-closed sets $X, \phi, \{c\}, \{a, c\}, \{b, c\}$
(Λ, δ)-open sets $P(X)$	(Λ, δ)-closed sets $P(X)$

g-open sets $X, \phi, \{a\}, \{b\}, \{a, b\}$	g-closed sets $X, \phi, \{c\}, \{a, c\}, \{b, c\}$
$g\delta$-open sets $X, \phi, \{a\}, \{b\}, \{a, b\}$	$g\delta$-closed sets $X, \phi, \{c\}, \{a, c\}, \{b, c\}$
$g\delta s$-open sets $X, \phi, \{a\}, \{b\}, \{a, b\}, \{a, c\}, \{b, c\}$	$g\delta s$-closed sets $X, \phi, \{a\}, \{b\}, \{c\}, \{a, c\}, \{b, c\}$
pre-open sets $X, \phi, \{a\}, \{b\}, \{a, b\}$	pre-closed sets $X, \phi, \{c\}, \{a, c\}, \{b, c\}$
regular open sets $X, \phi, \{a\}, \{b\}$	regular closed sets $X, \phi, \{a, c\}, \{b, c\}$
semi-open sets $X, \phi, \{a\}, \{b\}, \{a, b\}, \{a, c\}, \{b, c\}$	semi-closed sets $X, \phi, \{a\}, \{b\}, \{c\}, \{a, c\}, \{b, c\}$
α-open sets $X, \phi, \{a\}, \{b\}, \{a, b\}$	α-closed sets $X, \phi, \{c\}, \{a, c\}, \{b, c\}$
δ-open sets $X, \phi, \{a\}, \{b\}, \{a, b\}$	δ-closed sets $X, \phi, \{c\}, \{a, c\}, \{b, c\}$
δ semi-open sets $X, \phi, \{a\}, \{b\}, \{a, b\}, \{a, c\}, \{b, c\}$	δ semi-closed sets $X, \phi, \{a\}, \{b\}, \{c\}, \{a, c\}, \{b, c\}$
δg-open sets $X, \phi, \{a\}, \{b\}, \{a, b\}$	δg-closed sets $X, \phi, \{c\}, \{a, c\}, \{b, c\}$
δg^*-open sets $X, \phi, \{a\}, \{b\}, \{a, b\}$	δg^*-closed sets $X, \phi, \{c\}, \{a, c\}, \{b, c\}$
δgs-open sets $X, \phi, \{a\}, \{b\}, \{a, b\}, \{a, c\}, \{b, c\}$	δgs-closed sets $X, \phi, \{a\}, \{b\}, \{c\}, \{a, c\}, \{b, c\}$

$X = \{a, b, c\}$

5. $\tau = \{X, \phi, \{a\}, \{b\}, \{a, b\}, \{a, c\}\}$

closed sets are $X, \phi, \{b\}, \{c\}, \{a, c\}, \{b, c\}$

λ_g^δ-open sets $P(X)$	λ_g^δ-closed sets $P(X)$
(Λ, δ)-open sets $X, \phi, \{b\}, \{a, c\}$	(Λ, δ)-closed sets $X, \phi, \{b\}, \{a, c\}$
g-open sets $X, \phi, \{a\}, \{b\}, \{a, b\}, \{a, c\}$	g-closed sets $X, \phi, \{b\}, \{c\}, \{a, c\}, \{b, c\}$
$g\delta$-open sets $P(X)$	$g\delta$-closed sets $P(X)$
$g\delta s$-open sets $P(X)$	$g\delta s$-closed sets $P(X)$
pre-open sets $X, \phi, \{a\}, \{b\}, \{a, b\}, \{a, c\}$	pre-closed sets $X, \phi, \{b\}, \{c\}, \{a, c\}, \{b, c\}$
regular open sets $X, \phi, \{b\}, \{a, c\}$	regular closed sets $X, \phi, \{b\}, \{a, c\}$
semi-open sets $X, \phi, \{a\}, \{b\}, \{a, b\}, \{a, c\}$	semi-closed sets $X, \phi, \{b\}, \{c\}, \{a, c\}, \{b, c\}$
α-open sets $X, \phi, \{a\}, \{b\}, \{a, b\}, \{a, c\}$	α-closed sets $X, \phi, \{b\}, \{c\}, \{a, c\}, \{b, c\}$
δ-open sets $X, \phi, \{b\}, \{a, c\}$	δ-closed sets $X, \phi, \{b\}, \{a, c\}$
δ semi-open sets $X, \phi, \{b\}, \{a, c\}$	δ semi-closed sets $X, \phi, \{b\}, \{a, c\}$
δg-open sets $X, \phi, \{a\}, \{b\}, \{a, b\}, \{a, c\}$	δg-closed sets $X, \phi, \{b\}, \{c\}, \{a, c\}, \{b, c\}$
δg^*-open sets $P(X)$	δg^*-closed sets $P(X)$

δgs-open sets	δgs-closed sets
$P(X)$	$P(X)$

$X = \{a, b, c\}$

6. $\tau = \{X, \phi, \{a\}, \{a, b\}, \{a, c\}\}$

closed sets are $X, \phi, \{b\}, \{c\}, \{b, c\}$

λ_g^δ-open sets	λ_g^δ-closed sets
$P(X)$	$P(X)$
(Λ, δ)-open sets	(Λ, δ)-closed sets
X, ϕ	X, ϕ
g-open sets	g-closed sets
$X, \phi, \{a\}, \{a, b\}, \{a, c\}$	$X, \phi, \{b\}, \{c\}, \{b, c\}$
$g\delta$-open sets	$g\delta$-closed sets
$P(X)$	$P(X)$
$g\delta s$-open sets	$g\delta s$-closed sets
$P(X)$	$P(X)$
pre-open sets	pre-closed sets
$X, \phi, \{a\}, \{a, b\}, \{a, c\}$	$X, \phi, \{b\}, \{c\}, \{b, c\}$
regular open sets	regular closed sets
X, ϕ	X, ϕ
semi-open sets	semi-closed sets
$X, \phi, \{a\}, \{a, b\}, \{a, c\}$	$X, \phi, \{b\}, \{c\}, \{b, c\}$
α-open sets	α-closed sets
$X, \phi, \{a\}, \{a, b\}, \{a, c\}$	$X, \phi, \{b\}, \{c\}, \{b, c\}$
δ-open sets	δ-closed sets
X, ϕ	X, ϕ

δ semi-open sets X, ϕ	δ semi-closed sets X, ϕ
δg-open sets $X, \phi, \{a\}$	δg-closed sets $X, \phi, \{b, c\}$
δg^*-open sets $P(X)$	δg^*-closed sets $P(X)$
δgs-open sets $P(X)$	δgs-closed sets $P(X)$

$X = \{a, b, c\}$

7. $\tau = \{X, \phi, \{a\}, \{b, c\}\}$

closed sets are $X, \phi, \{a\}, \{b, c\}$

λ_g^δ-open sets $P(X)$	λ_g^δ-closed sets $P(X)$
(Λ, δ)-open sets $X, \phi, \{a\}, \{b, c\}$	(Λ, δ)-closed sets $X, \phi, \{a\}, \{b, c\}$
g-open sets $P(X)$	g-closed sets $P(X)$
$g\delta$-open sets $P(X)$	$g\delta$-closed sets $P(X)$
$g\delta s$-open sets $P(X)$	$g\delta s$-closed sets $P(X)$
pre-open sets $P(X)$	pre-closed sets $P(X)$
regular open sets $X, \phi, \{a\}, \{b, c\}$	regular closed sets $X, \phi, \{a\}, \{b, c\}$

semi-open sets $X, \phi, \{a\}, \{b, c\}$	semi-closed sets $X, \phi, \{a\}, \{b, c\}$
α-open sets $X, \phi, \{a\}, \{b, c\}$	α-closed sets $X, \phi, \{a\}, \{b, c\}$
δ-open sets $X, \phi, \{a\}, \{b, c\}$	δ-closed sets $X, \phi, \{a\}, \{b, c\}$
δ semi-open sets $X, \phi, \{a\}, \{b, c\}$	δ semi-closed sets $X, \phi, \{a\}, \{b, c\}$
δg-open sets $P(X)$	δg-closed sets $P(X)$
δg^*-open sets $P(X)$	δg^*-closed sets $P(X)$
δgs-open sets $P(X)$	δgs-closed sets $P(X)$

Appendix II

$X = \{a, b, c, d\}$

1. $\tau = \{X, \phi, \{a\}\}$

closed sets are $X, \phi, \{b, c, d\}$

λ_g^δ-open sets $P(X)$	λ_g^δ-closed sets $P(X)$
(Λ, δ)-open sets X, ϕ	(Λ, δ)-closed sets X, ϕ
g-open sets $X, \phi, \{a\}, \{b\}, \{c\}, \{d\}, \{a, b\}, \{a, c\},$ $\{a, d\}, \{b, c\}, \{b, d\}, \{c, d\}, \{a, b, c\},$ $\{a, b, d\}, \{a, c, d\}$	g-closed sets $X, \phi, \{b\}, \{c\}, \{d\}, \{a, b\}, \{a, c\}, \{a, d\},$ $\{b, c\}, \{b, d\}, \{c, d\}, \{a, b, c\}, \{a, b, d\},$ $\{a, c, d\}, \{b, c, d\}$
$g\delta$-open sets $P(X)$	$g\delta$-closed sets $P(X)$
$g\delta s$-open sets $P(X)$	$g\delta s$-closed sets $P(X)$
pre-open sets $X, \phi, \{a\}, \{a, b\}, \{a, c\}, \{a, d\}, \{a, b, c\},$ $\{a, b, d\}, \{a, c, d\}$	pre-closed sets $X, \phi, \{b\}, \{c\}, \{d\}, \{b, c\}, \{b, d\}, \{c, d\},$ $\{b, c, d\}$
regular open sets X, ϕ	regular closed sets X, ϕ

semi-open sets $X, \phi, \{a\}, \{a, b\}, \{a, c\}, \{a, d\}, \{a, b, c\}, \{a, b, d\}, \{a, c, d\}$	semi-closed sets $X, \phi, \{b\}, \{c\}, \{d\}, \{b, c\}, \{b, d\}, \{c, d\}, \{b, c, d\}$
α-open sets $X, \phi, \{a\}, \{a, b\}, \{a, c\}, \{a, d\}, \{a, b, c\}, \{a, b, d\}, \{a, c, d\}$	α-closed sets $X, \phi, \{b\}, \{c\}, \{d\}, \{b, c\}, \{b, d\}, \{c, d\}, \{b, c, d\}$
δ-open sets X, ϕ	δ-closed sets X, ϕ
δ semi-open sets X, ϕ	δ semi-closed sets X, ϕ
δg-open sets $X, \phi, \{a\}, \{b\}, \{c\}, \{d\}, \{a, b\}, \{a, c\}, \{a, d\}, \{b, c\}, \{b, d\}, \{c, d\}, \{a, b, c\}, \{a, b, d\}, \{a, c, d\}$	δg-closed sets $X, \phi, \{b\}, \{c\}, \{d\}, \{a, b\}, \{a, c\}, \{a, d\}, \{b, c\}, \{b, d\}, \{c, d\}, \{a, b, c\}, \{a, b, d\}, \{a, c, d\}, \{b, c, d\}$
δg^*-open sets $P(X)$	δg^*-closed sets $P(X)$
δgs-open sets $P(X)$	δgs-closed sets $P(X)$

$X = \{a, b, c, d\}$

2. $\{X, \phi, \{a, b\}\}$

closed sets are $X, \phi, \{c, d\}$

λ_g^δ-open sets $P(X)$	λ_g^δ-closed sets $P(X)$
(Λ, δ)-open sets X, ϕ	(Λ, δ)-closed sets X, ϕ

g-open sets $X, \phi, \{a\}, \{b\}, \{c\}, \{d\}, \{a, b\}, \{a, c\},$ $\{a, d\}, \{b, c\}, \{b, d\}, \{a, b, c\}, \{a, b, d\}$	g-closed sets $X, \phi, \{c\}, \{d\}, \{a, c\}, \{a, d\}, \{b, c\}, \{b, d\},$ $\{c, d\}, \{a, b, c\}, \{a, b, d\}, \{a, c, d\}, \{b, c, d\}$
$g\delta$-open sets $P(X)$	$g\delta$-closed sets $P(X)$
$g\delta s$-open sets $P(X)$	$g\delta s$-closed sets $P(X)$
pre-open sets $X, \phi, \{a\}, \{b\}, \{a, b\}, \{a, c\}, \{a, d\},$ $\{b, c\}, \{b, d\}, \{a, b, c\}, \{a, b, d\}, \{a, c, d\},$ $\{b, c, d\}$	pre-closed sets $X, \phi, \{a\}, \{b\}, \{c\}, \{d\}, \{a, c\}, \{a, d\},$ $\{b, c\}, \{b, d\}, \{c, d\}, \{a, c, d\}, \{b, c, d\}$
regular open sets X, ϕ	regular closed sets X, ϕ
semi-open sets $X, \phi, \{a, b\}, \{a, b, c\}, \{a, b, d\}$	semi-closed sets $X, \phi, \{c\}, \{d\}, \{c, d\}$
α-open sets $X, \phi, \{a, b\}, \{a, b, c\}, \{a, b, d\}$	α-closed sets $X, \phi, \{c\}, \{d\}, \{c, d\}$
δ-open sets X, ϕ	δ-closed sets X, ϕ
δ semi-open sets X, ϕ	δ semi-closed sets X, ϕ
δg-open sets $X, \phi, \{a\}, \{b\}, \{c\}, \{d\}, \{a, b\}, \{a, c\},$ $\{a, d\}, \{b, c\}, \{b, d\}, \{a, b, c\}, \{a, b, d\}$	δg-closed sets $X, \phi, \{c\}, \{d\}, \{a, c\}, \{a, d\}, \{b, c\},$ $\{b, d\}, \{c, d\}, \{a, b, c\}, \{a, b, d\}, \{a, c, d\},$ $\{b, c, d\}$
δg^*-open sets $P(X)$	δg^*-closed sets $P(X)$
δgs-open sets $P(X)$	δgs-closed sets $P(X)$

$X = \{a, b, c, d\}$

3. $\tau = \{X, \phi, \{a, b, c\}\}$

closed sets are $X, \phi, \{d\}$

λ_g^δ-open sets $P(X)$	λ_g^δ-closed sets $P(X)$
(Λ, δ)-open sets X, ϕ	(Λ, δ)-closed sets X, ϕ
g-open sets $X, \phi, \{a\}, \{b\}, \{c\}, \{a, b\}, \{a, c\},$ $\{b, c\}, \{a, b, c\}$	g-closed sets $X, \phi, \{d\}, \{a, d\}, \{b, d\}, \{c, d\}, \{a, b, d\},$ $\{a, c, d\}, \{b, c, d\}$
$g\delta$-open sets $P(X)$	$g\delta$-closed sets $P(X)$
$g\delta s$-open sets $P(X)$	$g\delta s$-closed sets $P(X)$
pre-open sets $X, \phi, \{a\}, \{b\}, \{c\}, \{a, b\}, \{a, c\}, \{a, d\},$ $\{b, c\}, \{b, d\}, \{c, d\}, \{a, b, c\}, \{a, b, d\},$ $\{a, c, d\}, \{b, c, d\}$	pre-closed sets $X, \phi, \{a\}, \{b\}, \{c\}, \{d\}, \{a, b\}, \{a, c\},$ $\{a, d\}, \{b, c\}, \{b, d\}, \{c, d\}, \{a, b, d\},$ $\{a, c, d\}, \{b, c, d\}$
regular open sets X, ϕ	regular closed sets X, ϕ
semi-open sets $X, \phi, \{a, b, c\}$	semi-closed sets $X, \phi, \{d\}$
α-open sets $X, \phi, \{a, b, c\}$	α-closed sets $X, \phi, \{d\}$
δ-open sets X, ϕ	δ-closed sets X, ϕ
δ semi-open sets X, ϕ	δ semi-closed sets X, ϕ

δg-open sets $X, \phi, \{a\}, \{b\}, \{c\}, \{a, b\}, \{a, c\}, \{b, c\}, \{a, b, c\}$	δg-closed sets $X, \phi, \{d\}, \{a, d\}, \{b, d\}, \{c, d\}, \{a, b, d\}, \{a, c, d\}, \{b, c, d\}$
δg^*-open sets $P(X)$	δg^*-closed sets $P(X)$
δgs-open sets $P(X)$	δgs-closed sets $P(X)$

$X = \{a, b, c, d\}$

4. $\tau = \{X, \phi, \{a\}, \{a, b\}\}$

closed sets are $X, \phi, \{c, d\}, \{b, c, d\}$

λ_g^δ-open sets $P(X)$	λ_g^δ-closed sets $P(X)$
(Λ, δ)-open sets X, ϕ	(Λ, δ)-closed sets X, ϕ
g-open sets $X, \phi, \{a\}, \{b\}, \{c\}, \{d\}, \{a, b\}, \{a, c\}, \{a, d\}, \{b, c\}, \{b, d\}, \{a, b, c\}, \{a, b, d\}$	g-closed sets $X, \phi, \{c\}, \{d\}, \{a, c\}, \{a, d\}, \{b, c\}, \{b, d\}, \{c, d\}, \{a, b, c\}, \{a, b, d\}, \{a, c, d\}, \{b, c, d\}$
$g\delta$-open sets $P(X)$	$g\delta$-closed sets $P(X)$
$g\delta s$-open sets $P(X)$	$g\delta s$-closed sets $P(X)$
pre-open sets $X, \phi, \{a\}, \{a, b\}, \{a, c\}, \{a, d\}, \{a, b, c\}, \{a, b, d\}, \{a, c, d\}$	pre-closed sets $X, \phi, \{b\}, \{c\}, \{d\}, \{b, c\}, \{b, d\}, \{c, d\}, \{b, c, d\}$
regular open sets X, ϕ	regular closed sets X, ϕ

semi-open sets $X, \phi, \{a\}, \{a, b\}, \{a, c\}, \{a, d\}, \{a, b, c\}, \{a, b, d\}, \{a, c, d\}$	semi-closed sets $X, \phi, \{b\}, \{c\}, \{d\}, \{b, c\}, \{b, d\}, \{c, d\}, \{b, c, d\}$
α-open sets $X, \phi, \{a\}, \{a, b\}, \{a, c\}, \{a, d\}, \{a, b, c\}, \{a, b, d\}, \{a, c, d\}$	α-closed sets $X, \phi, \{b\}, \{c\}, \{d\}, \{b, c\}, \{b, d\}, \{c, d\}, \{b, c, d\}$
δ-open sets X, ϕ	δ-closed sets X, ϕ
δ semi-open sets X, ϕ	δ semi-closed sets X, ϕ
δg-open sets $X, \phi, \{a\}, \{b\}, \{c\}, \{d\}, \{a, b\}, \{a, c\}, \{a, d\}, \{b, c\}, \{b, d\}, \{a, b, c\}, \{a, b, d\}$	δg-closed sets $X, \phi, \{c\}, \{d\}, \{a, c\}, \{a, d\}, \{b, c\}, \{b, d\}, \{c, d\}, \{a, b, c\}, \{a, b, d\}, \{a, c, d\}, \{b, c, d\}$
δg^*-open sets $P(X)$	δg^*-closed sets $P(X)$
δgs-open sets $P(X)$	δgs-closed sets $P(X)$

$X = \{a, b, c, d\}$

5. $\tau = \{X, \phi, \{a\}, \{c\}, \{a, b\}, \{a, c\}, \{a, b, c\}, \{a, c, d\}\}$

closed sets are $X, \phi, \{b\}, \{d\}, \{b, d\}, \{c, d\}, \{a, b, d\}, \{b, c, d\}$

λ_g^δ-open sets $X, \phi, \{a\}, \{b\}, \{c\}, \{a, b\}, \{a, c\}, \{b, c\}, \{a, b, c\}$	λ_g^δ-closed sets $X, \phi, \{d\}, \{a, d\}, \{b, d\}, \{c, d\}, \{a, b, d\}, \{a, c, d\}, \{b, c, d\}$
(Λ, δ)-open sets $X, \phi, \{c\}, \{d\}, \{a, b\}, \{c, d\}, \{a, b, c\}, \{a, b, d\}$	(Λ, δ)-closed sets $X, \phi, \{c\}, \{d\}, \{a, b\}, \{c, d\}, \{a, b, c\}, \{a, b, d\}$

g-open sets $X, \phi, \{a\}, \{c\}, \{a, b\}, \{a, c\}, \{a, b, c\}, \{a, c, d\}$	g-closed sets $X, \phi, \{b\}, \{d\}, \{b, d\}, \{c, d\}, \{a, b, d\}, \{b, c, d\}$
$g\delta$-open sets $X, \phi, \{a\}, \{b\}, \{c\}, \{a, b\}, \{a, c\}, \{b, c\}, \{a, b, c\}, \{a, c, d\}$	$g\delta$-closed sets $X, \phi, \{b\}, \{d\}, \{a, d\}, \{b, d\}, \{c, d\}, \{a, b, d\}, \{a, c, d\}, \{b, c, d\}$
$g\delta s$-open sets $X, \phi, \{a\}, \{b\}, \{c\}, \{a, b\}, \{a, c\}, \{a, d\}, \{b, c\}, \{a, b, c\}, \{a, c, d\}$	$g\delta s$-closed sets $X, \phi, \{b\}, \{d\}, \{a, d\}, \{b, c\}, \{b, d\}, \{c, d\}, \{a, b, d\}, \{a, c, d\}, \{b, c, d\}$
pre-open sets, Λ_g-open sets $X, \phi, \{a\}, \{c\}, \{a, b\}, \{a, c\}, \{a, b, c\}, \{a, c, d\}$	pre-closed sets, Λ_g-closed sets $X, \phi, \{b\}, \{d\}, \{b, d\}, \{c, d\}, \{a, b, d\}, \{b, c, d\}$
regular open sets $X, \phi, \{c\}, \{a, b\}$	regular closed sets $X, \phi, \{c, d\}, \{a, b, d\}$
semi-open sets $X, \phi, \{a\}, \{c\}, \{a, b\}, \{a, c\}, \{a, d\}, \{c, d\}, \{a, b, c\}, \{a, b, d\}, \{a, c, d\}$	semi-closed sets $X, \phi, \{b\}, \{c\}, \{d\}, \{a, b\}, \{b, c\}, \{b, d\}, \{c, d\}, \{a, b, d\}, \{b, c, d\}$
α-open sets, αg-open sets $X, \phi, \{a\}, \{c\}, \{a, b\}, \{a, c\}, \{a, b, c\}, \{a, c, d\}$	α-closed sets, αg-closed sets $X, \phi, \{b\}, \{d\}, \{b, d\}, \{c, d\}, \{a, b, d\}, \{b, c, d\}$
δ-open sets $X, \phi, \{c\}, \{a, b\}, \{a, b, c\}$	δ-closed sets $X, \phi, \{d\}, \{c, d\}, \{a, b, d\}$
δ semi-open sets $X, \phi, \{c\}, \{a, b\}, \{c, d\}, \{a, b, d\}$	δ semi-closed sets $X, \phi, \{c\}, \{a, b\}, \{c, d\}, \{a, b, d\}$
δg-open sets $X, \phi, \{a\}, \{c\}, \{a, b\}, \{a, c\}, \{a, b, c\}$	δg-closed sets $X, \phi, \{d\}, \{b, d\}, \{c, d\}, \{a, b, d\}, \{b, c, d\}$

δg^*-open sets $X, \phi, \{a\}, \{b\}, \{c\}, \{a,b\}, \{a,c\}, \{b,c\},$ $\{a,b,c\}$	δg^*-closed sets $X, \phi, \{d\}, \{a,d\}, \{b,d\}, \{c,d\}, \{a,b,d\},$ $\{a,c,d\}, \{b,c,d\}$
δgs-open sets $X, \phi, \{a\}, \{b\}, \{c\}, \{a,b\}, \{a,c\}, \{b,c\},$ $\{c,d\}, \{a,b,c\}, \{a,b,d\},$ $\{a,c,d\}, \{b,c,d\}$	δgs-closed sets $X, \phi, \{a\}, \{b\}, \{c\}, \{d\}, \{a,b\}, \{a,d\},$ $\{b,d\}, \{c,d\}, \{a,b,d\}, \{a,c,d\}, \{b,c,d\}$

$X = \{a, b, c, d\}$

6. $\tau = \{X, \phi, \{a\}, \{b\}, \{a,b\}, \{a,b,c\}, \{a,b,d\}\}$

closed sets are $X, \phi, \{c\}, \{d\}, \{c,d\}, \{a,c,d\}, \{b,c,d\}$

λ_g^δ-open sets $X, \phi, \{a\}, \{b\}, \{c\}, \{d\}, \{a,b\}, \{a,c\},$ $\{a,d\}, \{b,c\}, \{b,d\}, \{a,b,c\}, \{a,b,d\}$	λ_g^δ-closed sets $X, \phi, \{c\}, \{d\}, \{a,c\}, \{b,c\}, \{b,d\}, \{c,d\},$ $\{a,b,c\}, \{a,b,d\}, \{a,c,d\}, \{b,c,d\}$
(Λ, δ)-open sets $X, \phi, \{a\}, \{b\}, \{a,b\}, \{c,d\}, \{a,c,d\},$ $\{b,c,d\}$	(Λ, δ)-closed sets $X, \phi, \{a\}, \{b\}, \{a,b\}, \{c,d\}, \{a,c,d\},$ $\{b,c,d\}$
g-open sets $X, \phi, \{a\}, \{b\}, \{a,b\}, \{a,b,c\}, \{a,b,d\}$	g-closed sets $X, \phi, \{c\}, \{d\}, \{c,d\}, \{a,c,d\}, \{b,c,d\}$
$g\delta$-open sets $X, \phi, \{a\}, \{b\}, \{c\}, \{d\}, \{a,b\}, \{a,c\},$ $\{a,d\}, \{b,c\}, \{b,d\}, \{a,b,c\}, \{a,b,d\}$	$g\delta$-closed sets $X, \phi, \{c\}, \{d\}, \{a,c\}, \{a,d\}, \{b,c\},$ $\{b,d\}, \{c,d\}, \{a,b,c\}, \{a,b,d\}, \{a,c,d\},$ $\{b,c,d\}$
$g\delta s$-open sets $X, \phi, \{a\}, \{b\}, \{c\}, \{d\}, \{a,b\}, \{a,c\},$ $\{a,d\}, \{b,c\}, \{b,d\}, \{a,b,c\}, \{a,b,d\},$ $\{a,c,d\}, \{b,c,d\}$	$g\delta s$-closed sets $X, \phi, \{a\}, \{b\}, \{c\}, \{d\}, \{a,c\}, \{a,d\},$ $\{b,c\}, \{b,d\}, \{c,d\}, \{a,b,c\}, \{a,b,d\},$ $\{a,c,d\}, \{b,c,d\}$

pre-open sets $X, \phi, \{a\}, \{b\}, \{a, b\}, \{a, b, c\}, \{a, b, d\}$	pre-closed sets $X, \phi, \{c\}, \{d\}, \{c, d\}, \{a, c, d\}, \{b, c, d\}$
regular open sets $X, \phi, \{a\}, \{b\}$	regular closed sets $X, \phi, \{a, c, d\}, \{b, c, d\}$
semi-open sets $X, \phi, \{a\}, \{b\}, \{a, b\}, \{a, c\}, \{a, d\}, \{b, c\},$ $\{b, d\}, \{a, b, c\}, \{a, b, d\}, \{a, c, d\},$ $\{b, c, d\}$	semi-closed sets $X, \phi, \{a\}, \{b\}, \{c\}, \{d\}, \{a, c\},$ $\{a, d\}, \{b, c\}, \{b, d\}, \{c, d\}, \{a, c, d\},$ $\{b, c, d\}$
α-open sets $X, \phi, \{a\}, \{b\}, \{a, b\}, \{a, b, c\}, \{a, b, d\}$	α-closed sets $X, \phi, \{c\}, \{d\}, \{c, d\}, \{a, c, d\}, \{b, c, d\}$
δ-open sets $X, \phi, \{a\}, \{b\}, \{a, b\}$	δ-closed sets $X, \phi, \{c, d\}, \{a, c, d\}, \{b, c, d\}$
δ semi-open sets $X, \phi, \{a\}, \{b\}, \{a, c\}, \{a, d\}, \{b, c\}, \{b, d\},$ $\{a, b, c\}, \{a, b, d\}, \{a, c, d\}, \{b, c, d\}$	δ semi-closed sets $X, \phi, \{a\}, \{b\}, \{c\}, \{d\}, \{a, c\}, \{a, d\},$ $\{b, c\}, \{b, d\}, \{a, c, d\}, \{b, c, d\}$
δg-open sets $X, \phi, \{a\}, \{b\}, \{a, b\}$	δg-closed sets $X, \phi, \{c, d\}, \{a, c, d\}, \{b, c, d\}$
δg^*-open sets $X, \phi, \{a\}, \{b\}, \{c\}, \{d\}, \{a, b\}, \{a, c\},$ $\{a, d\}, \{b, c\}, \{b, d\}, \{a, b, c\}, \{a, b, d\}$	δg^*-closed sets $X, \phi, \{c\}, \{d\}, \{a, c\}, \{a, d\}, \{b, c\}, \{b, d\},$ $\{c, d\}, \{a, b, c\}, \{a, b, d\}, \{a, c, d\},$ $\{b, c, d\}$
δgs-open sets $X, \phi, \{a\}, \{b\}, \{c\}, \{d\}, \{a, b\}, \{a, c\},$ $\{a, d\}, \{b, c\}, \{b, d\}, \{a, b, c\}, \{a, b, d\},$ $\{a, c, d\}, \{b, c, d\}$	δgs-closed sets $X, \phi, \{a\}, \{b\}, \{c\}, \{d\}, \{a, c\}, \{a, d\},$ $\{b, c\}, \{b, d\}, \{c, d\}, \{a, b, c\}, \{a, b, d\},$ $\{a, c, d\}, \{b, c, d\}$

$X = \{a, b, c, d\}$

7. $\tau = \{X, \phi, \{a, b\}, \{a, b, c\}, \{a, b, d\}\}$

closed sets are $X, \phi, \{c\}, \{d\}, \{c, d\}$

λ_g^δ-open sets $P(X)$	λ_g^δ-closed sets $P(X)$
(Λ, δ)-open sets X, ϕ	(Λ, δ)-closed sets X, ϕ
g-open sets $X, \phi, \{a\}, \{b\}, \{a, b\}, \{a, b, c\}, \{a, b, d\}$	g-closed sets $X, \phi, \{c\}, \{d\}, \{c, d\}, \{a, c, d\}, \{b, c, d\}$
$g\delta$-open sets X, ϕ	$g\delta$-closed sets X, ϕ
$g\delta s$-open sets X, ϕ	$g\delta s$-closed sets X, ϕ
pre-open sets $X, \phi, \{a\}, \{b\}, \{a, b\}, \{a, c\}, \{a, d\}, \{b, c\},$ $\{b, d\}, \{a, b, c\}, \{a, b, d\}, \{a, c, d\}, \{b, c, d\}$	pre-closed sets $X, \phi, \{a\}, \{b\}, \{c\}, \{d\}, \{a, c\}, \{a, d\}$ $, \{b, c\}, \{b, d\}, \{c, d\}, \{a, c, d\}, \{b, c, d\}$
regular open sets X, ϕ	regular closed sets X, ϕ
semi-open sets $X, \phi, \{a, b\}, \{a, b, c\}, \{a, b, d\}$	semi-closed sets $X, \phi, \{c\}, \{d\}, \{c, d\}$
α-open sets $X, \phi, \{a, b\}, \{a, b, c\}, \{a, b, d\}$	α-closed sets $X, \phi, \{c\}, \{d\}, \{c, d\}$
δ-open sets X, ϕ	δ-closed sets X, ϕ
δ semi-open sets X, ϕ	δ semi-closed sets X, ϕ
δg-open sets $X, \phi, \{a\}, \{b\}, \{a, b\}$	δg-closed sets $X, \phi, \{c, d\}, \{a, c, d\}, \{b, c, d\}$
δg^*-open sets $P(X)$	δg^*-closed sets $P(X)$

δgs-open sets	δgs-closed sets
$P(X)$	$P(X)$

$X = \{a, b, c, d\}$

8. $\tau = \{X, \phi, \{c\}, \{a, b\}, \{a, b, c\}\}$

closed sets are $X, \phi, \{d\}, \{c, d\}, \{a, b, d\}$

λ_g^δ-open sets	λ_g^δ-closed sets
$X, \phi, \{a\}, \{b\}, \{c\}, \{a, b\}, \{a, c\}, \{b, c\}, \{a, b, c\}$	$X, \phi, \{d\}, \{a, d\}, \{b, d\}, \{c, d\}, \{a, b, d\}, \{a, c, d\}, \{b, c, d\}$
(Λ, δ)-open sets	(Λ, δ)-closed sets
$X, \phi, \{d\}, \{c, d\}, \{a, b, d\}, \{c\}, \{a, b\}, \{a, b, c\}$	$X, \phi, \{c\}, \{a, b\}, \{a, b, c\}, \{d\}, \{c, d\}, \{a, b, d\}$
g-open sets	g-closed sets
$X, \phi, \{a\}, \{b\}, \{c\}, \{a, b\}, \{a, c\}, \{b, c\}, \{a, b, c\}$	$X, \phi, \{d\}, \{a, d\}, \{b, d\}, \{c, d\}, \{a, b, d\}, \{a, c, d\}, \{b, c, d\}$
$g\delta$-open sets	$g\delta$-closed sets
$X, \phi, \{a\}, \{b\}, \{c\}, \{a, b\}, \{a, c\}, \{b, c\}, \{a, b, c\}$	$X, \phi, \{a\}, \{b\}, \{c\}, \{a, b\}, \{a, c\}, \{b, c\}, \{a, b, c\}$
$g\delta s$-open sets	$g\delta s$-closed sets
$X, \phi, \{a\}, \{b\}, \{c\}, \{a, b\}, \{a, c\}, \{b, c\}, \{c, d\}, \{a, b, c\}, \{a, b, d\}, \{a, c, d\}, \{b, c, d\}$	$X, \phi, \{a\}, \{b\}, \{c\}, \{d\}, \{a, b\}, \{a, d\}, \{b, d\}, \{c, d\}, \{a, b, d\}, \{a, c, d\}, \{b, c, d\}$
pre-open sets	pre-closed sets
$X, \phi, \{a\}, \{b\}, \{c\}, \{a, b, c\}, \{a, c, d\}, \{b, c, d\}$	$X, \phi, \{a\}, \{b\}, \{d\}, \{a, b, d\}, \{a, c, d\}, \{b, c, d\}$
regular open sets	regular closed sets
$X, \phi, \{c\}, \{a, b\}$	$X, \phi, \{c, d\}, \{a, b, d\}$

semi-open sets $X, \phi, \{c\}, \{a, b\}, \{c, d\}, \{a, b, c\}, \{a, b, d\}$	semi-closed sets $X, \phi, \{c\}, \{d\}, \{a, b\}, \{c, d\}, \{a, b, d\}$
α-open sets $X, \phi, \{c\}, \{a, b\}, \{a, b, c\}$	α-closed sets $X, \phi, \{d\}, \{c, d\}, \{a, b, d\}$
δ-open sets $X, \phi, \{c\}, \{a, b\}, \{a, b, c\}$	δ-closed sets $X, \phi, \{d\}, \{c, d\}, \{a, b, d\}$
δ semi-open sets $X, \phi, \{c\}, \{a, b\}, \{c, d\}, \{a, b, c\}, \{a, b, d\}$	δ semi-closed sets $X, \phi, \{c\}, \{d\}, \{a, b\}, \{c, d\}, \{a, b, d\}$
δg-open sets $X, \phi, \{a\}, \{b\}, \{c\}, \{a, b\}, \{a, c\}, \{b, c\}, \{a, b, c\}$	δg-closed sets $X, \phi, \{d\}, \{a, d\}, \{b, d\}, \{c, d\}, \{a, b, d\}, \{a, c, d\}, \{b, c, d\}$
δg^*-open sets $X, \phi, \{a\}, \{b\}, \{c\}, \{a, b\}, \{a, c\}, \{b, c\}, \{a, b, c\}$	δg^*-closed sets $X, \phi, \{d\}, \{a, d\}, \{b, d\}, \{c, d\}, \{a, b, d\}, \{a, c, d\}, \{b, c, d\}$
δgs-open sets $X, \phi, \{a\}, \{b\}, \{c\}, \{a, b\}, \{a, c\}, \{b, c\}, \{c, d\}, \{a, b, c\}, \{a, b, d\}, \{a, c, d\}, \{b, c, d\}$	δgs-closed sets $X, \phi, \{a\}, \{b\}, \{c\}, \{d\}, \{a, b\}, \{a, d\}, \{b, d\}, \{c, d\}, \{a, b, d\}, \{a, c, d\}, \{b, c, d\}$

$X = \{a, b, c, d\}$

9. $\tau = \{X, \phi, \{a\}, \{a, b\}, \{a, b, c\}, \{a, b, d\}\}$

closed sets are $X, \phi, \{c\}, \{d\}, \{c, d\}, \{b, c, d\}$

λ_g^δ-open sets $P(X)$	λ_g^δ-closed sets $P(X)$
(Λ, δ)-open sets X, ϕ	(Λ, δ)-closed sets X, ϕ
g-open sets $X, \phi, \{a\}, \{b\}, \{a, b\}, \{a, b, c\}, \{a, b, d\}$	g-closed sets $X, \phi, \{c\}, \{d\}, \{c, d\}, \{a, c, d\}, \{b, c, d\}$

$g\delta$-open sets $P(X)$	$g\delta$-closed sets $P(X)$
$g\delta s$-open sets $P(X)$	$g\delta s$-closed sets $P(X)$
pre-open sets $X, \phi, \{a\}, \{a, b\}, \{a, c\}, \{a, d\}, \{a, b, c\},$ $\{a, b, d\}, \{a, c, d\}$	pre-closed sets $X, \phi, \{b\}, \{c\}, \{d\}, \{b, c\}, \{b, d\},$ $\{c, d\}, \{b, c, d\}$
regular open sets X, ϕ	regular closed sets X, ϕ
semi-open sets $X, \phi, \{a\}, \{a, b\}, \{a, c\}, \{a, d\}, \{a, b, c\},$ $\{a, b, d\}, \{a, c, d\}$	semi-closed sets $X, \phi, \{b\}, \{c\}, \{d\}, \{b, c\}, \{b, d\},$ $\{c, d\}, \{b, c, d\}$
α-open sets $X, \phi, \{a\}, \{a, b\}, \{a, c\}, \{a, d\}, \{a, b, c\},$ $\{a, b, d\}, \{a, c, d\}$	α-closed sets $X, \phi, \{b\}, \{c\}, \{d\}, \{b, c\}, \{b, d\},$ $\{c, d\}, \{b, c, d\}$
δ-open sets X, ϕ	δ-closed sets X, ϕ
δ semi-open sets X, ϕ	δ semi-closed sets X, ϕ
δg-open sets $X, \phi, \{a\}, \{b\}, \{a, b\}$	δg-closed sets $X, \phi, \{c, d\}, \{a, c, d\}, \{b, c, d\}$
δg^*-open sets $P(X)$	δg^*-closed sets $P(X)$
δgs-open sets $P(X)$	δgs-closed sets $P(X)$

$X = \{a, b, c, d\}$

10. $\tau = \{X, \phi, \{a\}, \{b\}, \{a, b\}\}$

closed sets are $X, \phi, \{c, d\}, \{a, c, d\}, \{b, c, d\}$

λ_g^δ-open sets $X, \phi, \{a\}, \{b\}, \{c\}, \{d\}, \{a, b\}, \{a, c\},$ $\{a, d\}, \{b, c\}, \{b, d\}, \{a, b, c\}, \{a, b, d\}$	λ_g^δ-closed sets $X, \phi, \{c\}, \{d\}, \{a, c\}, \{a, d\}, \{b, c\},$ $\{b, d\}, \{c, d\}, \{a, b, c\}, \{a, b, d\}, \{a, c, d\},$ $\{b, c, d\}$
(Λ, δ)-open sets $X, \phi, \{a\}, \{b\}, \{a, b\}, \{c, d\}, \{a, c, d\},$ $\{b, c, d\}$	(Λ, δ)-closed sets $X, \phi, \{a\}, \{b\}, \{a, b\}, \{c, d\}, \{a, c, d\},$ $\{b, c, d\}$
g-open sets $X, \phi, \{a\}, \{b\}, \{c\}, \{d\}, \{a, b\}, \{a, c\},$ $\{a, d\}, \{b, c\}, \{b, d\}, \{a, b, c\}, \{a, b, d\}$	g-closed sets $X, \phi, \{c\}, \{d\}, \{a, c\}, \{a, d\}, \{b, c\},$ $\{b, d\}, \{c, d\}, \{a, b, c\}, \{a, b, d\}, \{a, c, d\},$ $\{b, c, d\}$
$g\delta$-open sets $X, \phi, \{a\}, \{b\}, \{c\}, \{d\}, \{a, b\}, \{a, c\},$ $\{a, d\}, \{b, c\}, \{b, d\}, \{a, b, c\}, \{a, b, d\}$	$g\delta$-closed sets $X, \phi, \{c\}, \{d\}, \{a, c\}, \{a, d\},$ $\{b, c\}, \{b, d\}, \{c, d\}, \{a, b, c\}, \{a, b, d\},$ $\{a, c, d\}, \{b, c, d\}$
$g\delta s$-open sets $X, \phi, \{a\}, \{b\}, \{c\}, \{d\}, \{a, b\}, \{a, c\},$ $\{a, d\}, \{b, c\}, \{b, d\}, \{a, b, c\}, \{a, b, d\},$ $\{a, c, d\}, \{b, c, d\}$	$g\delta s$-closed sets $X, \phi, \{a\}, \{b\}, \{c\}, \{d\}, \{a, c\},$ $\{a, d\}, \{b, c\}, \{b, d\}, \{c, d\}, \{a, b, c\},$ $\{a, b, d\}, \{a, c, d\}, \{b, c, d\}$
pre-open sets $X, \phi, \{a\}, \{b\}, \{a, b\}, \{a, b, c\}, \{a, b, d\}$	pre-closed sets $X, \phi, \{c\}, \{d\}, \{c, d\}, \{a, c, d\}, \{b, c, d\}$
regular open sets $X, \phi, \{a\}, \{b\}$	regular closed sets $X, \phi, \{a, c, d\}, \{b, c, d\}$
semi-open sets $X, \phi, \{a\}, \{b\}, \{a, b\}, \{a, c\}, \{a, d\}$ $\{b, c\}, \{b, d\}, \{a, b, c\}, \{a, b, d\},$ $\{a, c, d\}, \{b, c, d\}$	semi-closed sets $X, \phi, \{a\}, \{b\}, \{c\}, \{d\}, \{a, c\},$ $\{a, d\}, \{b, c\}, \{b, d\}, \{c, d\}, \{a, c, d\},$ $\{b, c, d\}$

α-open sets $X, \phi, \{a\}, \{b\}, \{a, b\}, \{a, b, c\}, \{a, b, d\}$	α-closed sets $X, \phi, \{c\}, \{d\}, \{c, d\}, \{a, c, d\}, \{b, c, d\}$
δ-open sets $X, \phi, \{a\}, \{b\}, \{a, b\}$	δ-closed sets $X, \phi, \{c, d\}, \{a, c, d\}, \{b, c, d\}$
δ semi-open sets $X, \phi, \{a\}, \{b\}, \{a, b\}, \{a, c\}, \{a, d\},$ $\{b, c\}, \{b, d\}, \{a, b, c\}, \{a, b, d\}, \{a, c, d\},$ $\{b, c, d\}$	δ semi-closed sets $X, \phi, \{a\}, \{b\}, \{c\}, \{d\}, \{a, c\},$ $\{a, d\}, \{b, c\}, \{b, d\}, \{c, d\}, \{a, c, d\},$ $\{b, c, d\}$
δg-open sets $X, \phi, \{a\}, \{b\}, \{c\}, \{d\}, \{a, b\},$ $\{a, c\}, \{a, d\}, \{b, c\}, \{b, d\}, \{a, b, c\},$ $\{a, b, d\}$	δg-closed sets $X, \phi, \{c\}, \{d\}, \{a, c\}, \{a, d\}, \{b, c\},$ $\{b, d\}, \{c, d\}, \{a, b, c\}, \{a, b, d\}, \{a, c, d\},$ $\{b, c, d\}$
δg^*-open sets $X, \phi, \{a\}, \{b\}, \{c\}, \{d\}, \{a, b\},$ $\{a, c\}, \{a, d\}, \{b, c\}, \{b, d\}, \{a, b, c\},$ $\{a, b, d\}$	δg^*-closed sets $X, \phi, \{c\}, \{d\}, \{a, c\}, \{a, d\},$ $\{b, c\}, \{b, d\}, \{c, d\}, \{a, b, c\}, \{a, b, d\},$ $\{a, c, d\}, \{b, c, d\}$
δgs-open sets $X, \phi, \{a\}, \{b\}, \{c\}, \{d\}, \{a, b\},$ $\{a, c\}, \{a, d\}, \{b, c\}, \{b, d\}, \{a, b, c\},$ $\{a, b, d\}, \{a, c, d\}, \{b, c, d\}$	δgs-closed sets $X, \phi, \{a\}, \{b\}, \{c\}, \{d\}, \{a, c\},$ $\{a, d\}, \{b, c\}, \{b, d\}, \{c, d\}, \{a, b, c\},$ $\{a, b, d\}, \{a, c, d\}, \{b, c, d\}$

$X = \{a, b, c, d\}$

11. $\tau == \{X, \phi, \{a\}, \{b, c\}, \{a, b, c\}\}$

closed sets are $X, \phi, \{d\}, \{a, d\}, \{b, c, d\}$

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

(Λ, δ)-open sets $X, \phi, \{a\}, \{d\}, \{a, d\}, \{b, c\},$ $\{a, b, c\}, \{b, c, d\}$	(Λ, δ)-closed sets $X, \phi, \{a\}, \{d\}, \{a, d\}, \{b, c\},$ $\{a, b, c\}, \{b, c, d\}$
g-open sets $X, \phi, \{a\}, \{b\}, \{c\}, \{a, b\}, \{a, c\},$ $\{b, c\}, \{a, b, c\}$	g-closed sets $X, \phi, \{d\}, \{a, d\}, \{b, d\},$ $\{c, d\}, \{a, b, d\}, \{a, c, d\}, \{b, c, d\}$
$g\delta$-open sets $X, \phi, \{a\}, \{b\}, \{c\}, \{a, b\}, \{a, c\},$ $\{b, c\}, \{a, b, c\}$	$g\delta$-closed sets $X, \phi, \{d\}, \{a, d\}, \{b, d\},$ $\{c, d\}, \{a, b, d\}, \{a, c, d\}, \{b, c, d\}$
$g\delta s$-open sets $X, \phi, \{a\}, \{b\}, \{c\}, \{a, b\}, \{a, c\},$ $\{a, d\}, \{b, c\}, \{a, b, c\}, \{a, b, d\},$ $\{a, c, d\}, \{b, c, d\}$	$g\delta s$-closed sets $X, \phi, \{a\}, \{b\}, \{c\}, \{d\}, \{a, d\},$ $\{b, c\}, \{b, d\}, \{c, d\}, \{a, b, d\}, \{a, c, d\},$ $\{b, c, d\}$
pre-open sets $X, \phi, \{a\}, \{b\}, \{c\}, \{a, b\}, \{a, c\},$ $\{b, c\}, \{a, b, c\}, \{a, b, d\}, \{a, c, d\}$	pre-closed sets $X, \phi, \{b\}, \{c\}, \{d\}, \{a, d\},$ $\{b, d\}, \{c, d\}, \{a, b, d\}, \{a, c, d\}, \{b, c, d\}$
regular open sets $X, \phi, \{a\}, \{b, c\}$	regular closed sets $X, \phi, \{a, d\}, \{b, c, d\}$
semi-open sets $X, \phi, \{a\}, \{a, d\}, \{b, c\}, \{a, b, c\},$ $\{a, b, d\}, \{b, c, d\}$	semi-closed sets $X, \phi, \{a\}, \{d\}, \{a, d\}, \{b, c\}, \{b, c, d\}$
α-open sets $X, \phi, \{a\}, \{b, c\}, \{a, b, c\}$	α-closed sets $X, \phi, \{d\}, \{a, d\}, \{b, c, d\}$
δ-open sets $X, \phi, \{a\}, \{b, c\}, \{a, b, c\}$	δ-closed sets $X, \phi, \{d\}, \{a, d\}, \{b, c, d\}$
δ semi-open sets $X, \phi, \{a\}, \{a, d\}, \{b, c\}, \{a, b, c\},$ $\{a, b, d\}, \{b, c, d\}$	δ semi-closed sets $X, \phi, \{a\}, \{d\}, \{a, d\}, \{b, c\}, \{b, c, d\}$

δg-open sets $X, \phi, \{a\}, \{b\}, \{c\}, \{a, b\}, \{a, c\},$ $\{b, c\}, \{a, b, c\}$	δg-closed sets $X, \phi, \{d\}, \{a, d\}, \{b, d\}, \{c, d\},$ $\{a, b, d\}, \{a, c, d\}, \{b, c, d\}$
δg^*-open sets $X, \phi, \{a\}, \{b\}, \{c\}, \{a, b\},$ $\{a, c\}, \{b, c\}, \{a, b, c\}$	δg^*-closed sets $X, \phi, \{d\}, \{a, d\}, \{b, d\}, \{c, d\},$ $\{a, b, d\}, \{a, c, d\}, \{b, c, d\}$
δgs-open sets $X, \phi, \{a\}, \{b\}, \{c\}, \{a, b\}, \{a, c\},$ $\{a, d\}, \{b, c\}, \{a, b, c\}, \{a, b, d\},$ $\{a, c, d\}, \{b, c, d\}$	δgs-closed sets $X, \phi, \{a\}, \{b\}, \{c\}, \{d\}, \{a, d\},$ $\{b, c\}, \{b, d\}, \{c, d\}, \{a, b, d\},$ $\{a, c, d\}, \{b, c, d\}$

$X = \{a, b, c, d\}$

12. $\tau = \{X, \phi, \{a\}, \{d\}, \{a, d\}, \{b, c\}, \{a, b, c\}, \{b, c, d\}\}$

closed sets are $X, \phi, \{a\}, \{d\}, \{a, d\}, \{b, c\}, \{a, b, c\}, \{b, c, d\}$

λ_g^δ-open sets $P(X)$	λ_g^δ-closed sets $P(X)$
(Λ, δ)-open sets $X, \phi, \{a\}, \{d\}, \{a, d\}, \{b, c\}, \{a, b, c\},$ $\{b, c, d\}$	(Λ, δ)-closed sets $X, \phi, \{a\}, \{d\}, \{a, d\}, \{b, c\}, \{a, b, c\},$ $\{b, c, d\}$
g-open sets $P(X)$	g-closed sets $P(X)$
$g\delta$-open sets $P(X)$	$g\delta$-closed sets $P(X)$
$g\delta s$-open sets $P(X)$	$g\delta s$-closed sets $P(X)$
pre-open sets $P(X)$	pre-closed sets $P(X)$

regular open sets $X, \phi, \{a\}, \{d\}, \{a, d\}, \{b, c\}, \{a, b, c\}, \{b, c, d\}$	regular closed sets $X, \phi, \{a\}, \{d\}, \{a, d\}, \{b, c\}, \{a, b, c\}, \{b, c, d\}$
semi-open sets $X, \phi, \{a\}, \{d\}, \{a, d\}, \{b, c\}, \{a, b, c\}, \{b, c, d\}$	semi-closed sets $X, \phi, \{a\}, \{d\}, \{a, d\}, \{b, c\}, \{a, b, c\}, \{b, c, d\}$
α-open sets $X, \phi, \{a\}, \{d\}, \{a, d\}, \{b, c\}, \{a, b, c\}, \{b, c, d\}$	α-closed sets $X, \phi, \{a\}, \{d\}, \{a, d\}, \{b, c\}, \{a, b, c\}, \{b, c, d\}$
δ-open sets $X, \phi, \{a\}, \{d\}, \{a, d\}, \{b, c\}, \{a, b, c\}, \{b, c, d\}$	δ-closed sets $X, \phi, \{a\}, \{d\}, \{a, d\}, \{b, c\}, \{a, b, c\}, \{b, c, d\}$
δ semi-open sets $X, \phi, \{a\}, \{d\}, \{a, d\}, \{b, c\}, \{a, b, c\}, \{b, c, d\}$	δ semi-closed sets $X, \phi, \{a\}, \{d\}, \{a, d\}, \{b, c\}, \{a, b, c\}, \{b, c, d\}$
δg-open sets $X, \phi, \{a\}, \{b\}, \{c\}, \{a, b\}, \{a, c\}, \{b, c\}, \{a, b, c\}$	δg-closed sets $X, \phi, \{d\}, \{a, d\}, \{b, d\}, \{c, d\}, \{a, b, d\}, \{a, c, d\}, \{b, c, d\}$
δg^*-open sets $P(X)$	δg^*-closed sets $P(X)$
δgs-open sets $P(X)$	δgs-closed sets $P(X)$

$X = \{a, b, c, d\}$

13. $\tau = \{X, \phi, \{a, b\}, \{c, d\}\}$

closed sets are $X, \phi, \{a, b\}, \{c, d\}$

λ_g^δ-open sets $P(X)$	λ_g^δ-closed sets $P(X)$
(Λ, δ)-open sets $X, \phi, \{a, b\}, \{c, d\}$	(Λ, δ)-closed sets $X, \phi, \{a, b\}, \{c, d\}$
g-open sets $P(X)$	g-closed sets $P(X)$
$g\delta$-open sets $P(X)$	$g\delta$-closed sets $P(X)$
$g\delta s$-open sets $P(X)$	$g\delta s$-closed sets $P(X)$
pre-open sets $P(X)$	pre-closed sets $P(X)$
regular open sets $X, \phi, \{a, b\}, \{c, d\}$	regular closed sets $X, \phi, \{a, b\}, \{c, d\}$
semi-open sets $X, \phi, \{a, b\}, \{c, d\}$	semi-closed sets $X, \phi, \{a, b\}, \{c, d\}$
α-open sets $X, \phi, \{a, b\}, \{c, d\}$	α-closed sets $X, \phi, \{a, b\}, \{c, d\}$
δ-open sets $X, \phi, \{a, b\}, \{c, d\}$	δ-closed sets $X, \phi, \{a, b\}, \{c, d\}$
δ semi-open sets $X, \phi, \{a, b\}, \{c, d\}$	δ semi-closed sets $X, \phi, \{a, b\}, \{c, d\}$
δg-open sets $P(X)$	δg-closed sets $P(X)$
δg^*-open sets $P(X)$	δg^*-closed sets $P(X)$
δgs-open sets $P(X)$	δgs-closed sets $P(X)$