**Formal Logic - Section 1.5 Excersizes**

**Section I**

1. Galaxies = G, Black holes in the center = B, Quesars = Q

All G are B, so all G are Q, since All Q are B

All G are B

All Q are B

Therefore

All G are Q

G = Dogs

Q = Cats

B = Animals

All Dogs are Animals

All Cats are Animals

Therefore

All Dogs are Cats

2. C = Creationists, B = People who Believe in the bible, E = Evolutionists

Some E are not B, for No C are E, and some B are not C

No C are E

Some B are not C

Therefore

Some E are not B

C = Cats

E = Dogs

B = Animals

No Cats are Dogs

Some Animals are not Cats

Therefore

Some Dogs are not Animals

3. P = Patents, M = Measures that discourage research and development, R = Regulations that protect intellectual property

No P are M

All P are R

Therefore

No M are R

P = Fish

M = Dogs

R = Animals

No Fish are Dogs

All Fish are Animals

Therefore

No Dogs are Animals

4. F = Farm Workers, P = People who are paid decent wages, U = Undocumented individuals

Some F are not P, because No U are P and some U are not F

No U are P

Some U are not F

Therefore

Some F are not P

U = Fairy Tales

P = Real

F = Things found in history books

No Fairy Tales are Real

Some Fairy Tales are not Things Found in history books

Therefore

Some things found in history books are not Real

5. P = Politicians, E = People who will stop at nothing to win an election, T = True Statesmen

Some P are E

No E are T

Therefore,

No P are T

P = Animals

E = Fish

T = Mammals

Some Animals are Fish

No Fish are Mammals

Therefore,

No Animals are Mammals

6. M = Meticulously constructed timepieces, T = True works of Art, S = Swiss Watches

All M are T, for all S are T, and All S are M

All S are T

All S are M

Therefore

All M are T

S = Dogs

T = Mammals

M = Animals

All Dogs are Mammals

All Dogs are Animals

Therefore

All Animals are Mammals

7. P = Patrons of fast food restaurants, H = Health food Addicts, C = Connoisseurs of fine desserts

No P are H, Therefore No P are C, since No C are H

No P are H

No C are H

Therefore

No P are C

P = Dogs

C = Mammals

P = Fish

No Dogs are Fish

No Mammals are Fish

Therefore

No Dogs are Mammals

8. T = Toxic Dumps, S = Sites that contain hazardous waste, U = Undesirable Places to live near

Some T are S

Some S are U

Therefore

Some T are U

T = Apples

S = Red Fruits

U = Cherries

Some Apples are Red Fruits

Some Red Fruits are Cherries

Therefore

Some Apples are Cherries

9. P = Persons who assist others in suicide, G = People guilty of murder, I = Individuals motivated by compassion

All P are G, Therefore some I are not G, since some P are I

All P are G

Some P are I

Therefore

Some I are not G

P = Dogs

G = Animals

I = Large Mammals

All Dogs are Animals

Some Dogs are Large Mammals

Therefore

Some Large Mammals are not Animals

10. S = School Boards, G = Groups that oppose values clarification, O = Organizations with vision

Some S are not G, because some S are not O, and some G are not O

Some S are not O

Some G are not O

Therefore

Some S are not G

S = Mammals

G = Animals

O = Cats

Some Mammals are not Cats

Some Animals are not Cats

Therefore

Some Mammals are not Animals

11. S = Super PACs, U = Unlimited Spenders, B = Big time power brokers

All S are U, Therefore Some B are not S, since Some U are B

All S are U

Some U are B

Therefore

Some B are not S

S = Mammals

U = Animals

B = Dogs

All Mammals are Animals

Some Animals are Dogs

Therefore

Some Dogs are not Mammals

12. M = Movie producers, U – Uncompetitive Business executives, H = Hollywood Moguls

No M are U, and Some H are M, therefore No H are U

No M are U

Some H are M

Therefore

No H are U

M = Dogs

U = Fish

H = Animals

No Dogs are Fish

Some Animals are Dogs

Therefore

No Animals are Fish

13. I = Improvers of Mankind, E = Exploiters of personal Information, C = Corporate Social Networks

Some I are not E, Therefore some C are not I, since All C are E

Some I are not E

All C are E

Therefore

Some C are not I

I = Animals

E = Mammals

C = Dogs

Some Animals are not Mammals

All Dogs are Mammals

Therefore

Some Dogs are not Animals

14. D = Drone Attacks, A = Assaults on Human Life, S = Stealth Operations

Some D are A, Since some S are A and all D are S

Some S are A

All D are S

Therefore

Some D are A

S = Mammals

A = Cats

D = Dogs

Some Mammals are Cats

All Dogs are Mammals

Therefore

Some Dogs are Cats

15. N = Near Death Experiences, S = Supernatural Phenomena, E = Easily forgotten happenings

Some N are S, and No N are E, Therefore Some E are not S

Some N are S

No N are E

Therefore

Some E are not S

N = Books

S = Electronic

E = Video Games

Some Books are Electronic

No Books are Video Games

Therefore

Some Video Games are not Electronic

**Section II**

1. A = Animals Species are fixed and immutable, E = Evolution is a myth

If A then E Therefore, Not E since Not A

A > E

Therefore

~A

~E

A = If it is lunchtime

E = I will eat

If it Is lunchtime

I will eat

Therefore

It is not Lunchtime,

So I will not eat. (Breakfast)

2. A = Carbon dioxide if present in the atmosphere, B = Plants will have a source of Carbon

If A then B

Therefore

Since B, Then A

If It is lunchtime Then I will eat

Therefore

Since I am eating, it is lunchtime

3. A = Human rights are recognized, B = Civilaztion Flourishes, C = Equality Prevails

If A then B

If C then B

Therefore

If A then C

If It is lunchtime then I will eat

If it is breakfast then I will eat

Therefore

If it is lunchtime it is breakfast

4. A = Energy taxes are increased, B = Deficit reduced, C = Conservation will be taken seriously, D Inflation will be checked.

If A then either B or C

If B then D

Therefore

If A then D

If I am eating, It is either a solitary snack or a family meal

If It is a solitary snack I am alone

Therefore

If I am eating, I am alone

5. A = Homeless people, B = panhandlers, C = Destitute individuals,

All A who are B are C

Therefore

All A are C

All Animals who are Water breathers are Fish

Therefore

All Animals are Fish

6. A = Wrestlers, B = Colorful, C = Hulks

Some A are both B and C since some A are B and some A are C

Some A are B

Some A are C

Therefore

Some A are both B and C

Some Animals are Dogs

Some Animals are Cats

Therefore

Some Animals are both Dogs and Cats

7. A = Community Colleges with low tuition, B = Schools with large enrolments, C = Institutions supported by taxes, D = Low tuition

All A with D are either B or C

Therefore

All A are C

All Animals with The Sea for a home are either Fish or Water breathing Mammals

Therefore

All Animals are Water breathing mammals

8. A = Merchandisers, B = Retailers, C = Businesses, D = Inventory Rotators

All A that are B are C that are D

Therefore

All A are D

All Mammals that are Dogs are Animals that are four legged

Therefore

All Mammals are Four Legged

9. A = Diabetes victims, B = Insulin Takers, C = Glucose Eliminaters

All A are either B or C, Therefore Some A are C since some A are B

All A are either B or C

Some A are B

Therefore

Some A are C

All fruits in the basket are either Apples or Oranges

Some are Apples

Therefore

Some are Oranges (All can be Apples)

10. A = FHA loans, B = living standard enhancers, C = Reverse Morgages, D = Home quality depleters

All A are B since All C that are A are either B or D, and all C are D

All C that are A are either B or D

All C are D

Therefore

All A are C

All Things in the Basket that are mine are either Toys or Books

All Things in the Basket are Books

Therefore

All things that are mine are in the basket.