Key for Deduction Part #2
1. Exercise: Identify which pattern matches the following simple arguments.

1. P= "the OPEC countries will increase oil production." Q= "prices will fall."
Form: Modus tollens. (Hence forth: MT)

2. P= "you did well in college." Q= "you will never make very much money."
Form: Disjunctive syllogism, valid (Hence forth: DS valid)

3. P= "you went to the movies." Q= "you went out to dinner."
Form: DS invalid

4. P= "you spent too much on clothing." Q= "you won't have enough [money] for rent."
Form: Modus ponens (Hence forth: MP)

Exercise II:
A. 4 = "the car is a four cylinder model. 6= "the car is a six cylinder model."

Form: 4 v 6   Name of form: DS valid
                        ~6
         Therefore ~4

B. C = "Heather will go to college." W = "Heather will go to work.
SM = "Heather will save money." D = "Heather will get into drugs."

Form: C v W   Name of form: DS valid
                  ~C
          Therefore,   W

Form: If W, then SM   MP, using the W that is the conclusion of the
                   W   previous part.
           Therefore,   SM

Form: If D, then ~SM   MT, using SM from above.
                    ~(~SM)   Double negation to get a denial of ~SM.
                 ~D

Exercise III (*There won't be any questions on the exam that are as complex as 6, 8, or 10.)*
Remember to follow EACH step. Also, remember that we are assuming the arguments are valid (Principle of charitable interpretation.)

1. P = The Porsche is available." F= "The Ferrari is available."

Form: P v F   D.S.
      [~F]
      P

2. G= "I will play golf." C= "I will go to the concert."

Form: If G, then ~C   MT
               ~(~C)
       ~G

3. LC= "I listen carefully." U= "I can understand you." GA= "We get along fine.

Standard Form: If I listen carefully, then I can understand you.
                    If I understand you, then we get along fine.
       Therefore,   [If I listen carefully, then we get along fine.]
                    [I listen carefully.]
       Therefore,   We get along fine.

Symbolic: LC→U   Chain (valid)
                    U→ GA
       Therefore   [LC→GA]   MP
                    [LC]
       Therefore   GA

4. (Transformation of a categorical argument (AAA-1) into propositional logic.)

"All Quakers are honest" becomes "If they are a Quaker, then they are honest."

Q= "They are a Quaker"
H= "They are honest."

We will instantiate the general with Jeremy (J).

Form: [If Q, then H.]   MP
       [Q (J)]
Therefore,   H(J)

5. Standard Form
       [If I read it in Business Week magazine, then I'm sure.]
          I read it in Business Week magazine.
Therefore,   I'm sure.

BW= "I read it in BW mag." S= "I'm sure."

Symbollic: (next page)

[BW→S]   MP
    BW
Therefore,   S

6. Buying what I don't need will bring only short-termed satisfaction. I avoid spending frivolously. Hence, my satisfactions are always long-termed.

Either I buy what I don't need or I have long term satisfaction. I don't buy what I don't need. Therefore, I have long-term satisfaction.

B= "I buy what I don't need."
L= "My satisfactions are long-termed."

    B v L   DS Valid
   ~B
Therefore, L

7. Another transformation of categorical into propositional logic.

All who are capable of learning are those who have the means to relieve their ills.
John is capable of learning.
John is one who has the means to relieve their ills.

Transformed:
If one is capable of learning, then they have the means to relieve their ills.
[John is capable of learning.]
Therefore,   (John) is capable of relieving his ills.

L= "one is capable of learning." R= "they have the means…"

Symbolic form:
        L→R
        L(J)
Therefore,   R(J)

8.
L= "you tell lies frequently." R= "you must remember…" B= "your memory becomes burdened."

If you tell lies frequently **(L)**, then you must remember not only what you have done, but also what you said you have done **(R)**.
[If you must remember not only what you have done, but also what you said you have done **(R)**, then your memory becomes burdened.**(B)**]

Therefore, If you tell lies frequently **(L)**, then your memory becomes burdened **(B)**.]

Symbolic form:

L➔R   Chain
[R➔B]
Therefore,   L➔B

9. Another transformation from categorical to propositional.

No one who sides with the enemy is a loyal friend. (E claim)
Maurice is one who sides with the enemy. (A claim)
Maurice is not a loyal friend. (E claim)
(Notice that this is a EAE-1)

E= "one sides with the enemy"
NLF= "they are not a loyal friend"

If (one sides with the enemy) **(E)**, then (they are **not** a loyal friend.) **(NLF)**
[(Maurice sides with the enemy.)] **(E)**
Therefore, Maurice is not a loyal friend. **(NLF)**

Symbolic form:

E➔NLF   MP
E
Therefore,   NLF

10.
R= "The Western industrialized nations will resolve the energy crisis."
M= "they mobilize all the technological resources at their disposal.
FI= "financial incentives are sufficiently high"

(*Watch where the "if" is in the first sentence.)* Also, don't get thrown by the length of the independent clauses.

If (the financial incentives are sufficiently high) **(FI)** then, (the mobilization of resources will occur.) **(M)**
If (they mobilize all the technological resources at their disposal) **(M)**, then (the Western industrialized nations will resolve the energy crisis.) **(R)**
Therefore, [(If the financial incentives are sufficiently high) **(FI)** then (the Western industrialized nations will resolve the energy crisis.) **(R)**]
[(Financial incentives are sufficiently high) **(FI)**]
Therefore [(The Western industrial nations will resolve the energy crisis.) **(R)**]

Symbolic:

FI➔M   First three lines are chain argument.
M➔R

Therefore   [FI→R]   Last three lines are MP
              [FI]
Therefore   [R]

11. Note that the argument is a rhetorical question, so no part of the argument is explicitly stated.

S = "you're so smart"
R= "you're rich"

[If (you're smart) **(S)**, then (you're rich.) **(R)**]
[It is not the case that (you're rich.) **(~R)**]
[Therefore, it is not the case that you're smart. **(~S)**]

Symbolic form:
              [S→R]   MT
              [~R]
Therefore,   [~S]