Ottawa Flying Club
PPL Flight Instruments

Reference Material: - From The Ground Up (FGU)
- Supplemental references can be used at your discretion

Questions:

1) Draw a schematic of the typical pitot static system. Include all components.

2) Draw a schematic of an altimeter. Describe in detail it's operation.

3) Draw a schematic of an air speed indicator. Describe in detail it's operation.

4) Draw a schematic of a vertical speed indicator. Describe in detail it's operation.

5) Describe the errors that may arise with the
   a) altimeter
   b) air speed indicator
   c) vertical speed indicator

6) Describe the principal of operation of the radar altimeter. What height does it measure?

7) Describe in detail, the errors related to the magnetic compass. What are these errors attributed to?.

8) Define the principles of the gyroscope.
   a) Which gyroscopic principal does the heading indicator obey?
   b) Why do we use this in conjunction with the magnetic compass?

9) Describe the errors and limitations of the typical heading indicator. This gyro spins about which axis?

10) What is the purpose of the attitude indicator?
   a) Which gyroscopic principal does the attitude indicator obey?
   b) What are the limitations of the "traditional" type attitude indicator?
   c) This gyro spins about which axis?

11) Describe in detail, how the "turn co-ordinator" functions. Include it's gyroscopic principal.

12) Describe the differences between the "turn and slip indicator" and the "turn co-ordinator".

Assignment:

Create a ‘study sheet’ containing information on all of these systems:

a. primary flight controls and trim
b. carburetor heat
c. mixture
d. propeller
e. fuel, oil, and hydraulic
f. electrical
g. flaps
h. landing gear
i. brakes
j. avionics
k. pitot-static, vacuum/pressure system and associated flight instruments
l. heater and environmental
m. de-icing and anti-icing