Question 1

a. GDP stands for Gross Domestic Product. The four major expenditure components are:
   - Consumption – anything that gives us utility today, but does not provide utility in the future
   - Investment – anything that we store away for the purposes of providing future consumption (i.e. contributes to the capital stock)
   - Government spending
   - Net exports (Exports less imports)

b. Consumer price inflation: the rate of change of a basket of consumption goods. Over long periods of time, the printing of money causes consumer price inflation. This is because the printing of money does not create goods; so more money chasing the same amount of goods causes the price of goods to rise.

Question 2

						exp. Share	growth,	inflation
Year	a	pa	b	pb	Nom GDP	apples	real GDP	rate
2000	25	$ 1.00	30	$ 2.50	$ 100.00	0.25	NA	NA
2001	26	$ 1.02	31	$ 2.566	$ 106.07	0.25	3.50%	2.48%

Real GDP growth (from 2000-2001) = 0.25*(26/25) + 0.75*(31/30) – 1.0 = 3.50%
Inflation (from 2000-2001) = 0.25*(1.02/1.00) + 0.75*(2.566/2.50) – 1.0 = 2.48%
Likely that phi is equal to 0.25.

Question 3

							Nom.	exp. Share	exp. Share	exp. Share
Year	pa	a	pb	b	pc	c	GDP	apples	bananas	cherries
2000	$ 10.00	100	$ 20.00	100	$ 35.00	200	$10,000.00	0.100	0.200	0.700
2001	$ 11.00	103	$ 19.00	102	$ 35.00	200	$10,071.00	0.113	0.192	0.695
2001	$ 12.00	104	$ 20.00	103	$ 36.00	206	$10,724.00	0.116	0.192	0.692
	all goods						**no cherries**			
	growth,	inflation	real GDP	real GDP			exp share	exp share	growth	inflation
Year	real GDP	rate	$2000	$2002		Year	apples	bananas	real GDP	rate
2000	NA	NA	$10,000.00	$10,401.58		2000	0.333	0.667	NA	NA
2001	0.70%	0.00%	$10,070.00	$10,474.39		2001	0.369	0.631	2.33%	0.00%
2001	2.38%	4.02%	$10,309.98	$10,724.00		2001	0.377	0.623	0.98%	6.68%

Question 4

	Apples		Bananas		Nominal	Real GDP	Ann. Growth Rates in %		exp share	exp share
Year	Quan.	Price	Quan.	Price	GDP	(in $2005)	Real GDP	Infl.	apples	bananas
2005	10	$ 2.00	5	$ 1.00	$ 25.00	$ 25.00	NA	NA	0.80	0.20
2006	11	$ 2.02	6	$ 1.05	$ 28.52	$ 28.00	12.00%	1.80%	0.78	0.22
2007	12	$ 2.05	7	$ 1.12	$ 32.44	$ 31.01	10.76%	2.63%	0.76	0.24

Question 5

Year	Nominal GDP	exp share apples	exp share bananas	Nom. Apple ependitures	Nom. Banana expenditures	pa	pb	a	b	inflation rate	growth real GDP
2005	$ 100.00	0.20	0.80	$ 20.00	$ 80.00	$1.0000	$5.0000	20.00	16.00	NA	NA
2006	$ 105.00	0.20	0.80	$ 21.00	$ 84.00	$1.0300	$5.1000	20.39	16.47	2.20%	2.74%
2007	$ 110.00	0.20	0.80	$ 22.00	$ 88.00	$1.0815	$5.2530	20.34	16.75	3.40%	1.32%

Question 6

Overall = apples contribution + bananas contribution
1.05 = 0.2*1.5 + 0.8*x

0.8*x = 0.75 → x = 0.9375
The price of bananas decreased by 6.25 percent (0.9375 – 1.0).

Question 7

This question requires that you download data from the NIPA. I used NIPA Table 1.1.5 and computed the ratio of line 11 (Gross Private Domestic Fixed Investment: Residential) to line 1 (Gross Domestic Product). The average of this ratio from 47:Q1 to 96:Q4 is 4.77%; the average of the ratio from 97:Q1 to 07:Q4 is 4.97%.

Question 8

32 percent.

Question 9

This is a direct application of the formula:
Alpha = Capital Income / (Total Income – Ambiguous Income)
= $27 / ($100 - $10)
= 0.30
Capital's share of income in 2003 in Germany is 30%.

Question 10

Alpha = Capital Income / (Total Income – Ambiguous Income)
= $32 / ($100 - $5)
= 0.337
Capital's share of income in 2007 in Germany is 33.7%.

Question 11

Note: You'll need some way to run a regression. Excel has this capability as an add-in.

The data on real GDP are in NIPA table 1.1.6. I downloaded the annual real GDP data from 1973-2007, regressed ln(real GDP) on a time trend and included a constant in the regression.

I then computed the residuals for each year. The residuals are equal to ln(real GDP) – *predicted,* where *predicted* is the predicted value based on the regression). The residual for 1982 is -0.058 and the residual for 2001 is 0.012 (your results may be slightly different depending on whether the BEA data have revised).

-5.8% and 1.2% are the "output gaps" for those two years.