EXAMINATION

April 2005

Subject CT7 — Economics
Core Technical

EXAMINERS' REPORT

Introduction

The attached subject report has been written by the Principal Examiner with the aim of helping candidates. The questions and comments are based around Core Reading as the interpretation of the syllabus to which the examiners are working. They have however given credit for any alternative approach or interpretation which they consider to be reasonable.

M Flaherty
Chairman of the Board of Examiners

15 June 2005

1 D
2 C
3 A
4 B
5 C
6 B
7 D
8 A
9 C
10 D
11 C
12 D
13 B
14 C
15 C
16 B
17 A
18 A
19 C
20 D
21 B
22 C
23 B
24 D
25 A
26 B

27 (1) Comparability.

An investor can state a preference between all available certain outcomes.

(2) Transitivity.

If A is preferred to B and B is preferred to C, then A is preferred to C.

(3) Independence.

If an investor is indifferent between two certain outcomes, A and B, then he is also indifferent between the following two gambles:

(i) A with probability p and C with probability $(1 - p)$.
(ii) B with probability p and C with probability $(1 - p)$.

(4) Certainty Equivalence.

Suppose that A is preferred to B and B is preferred to C. Then there is a unique probability, p, such that the investor is indifferent between B and a gamble giving A with probability p and C with probability $(1 - p)$. B is known as the certainty equivalent of the above gamble.

Note the above axioms are not the only possible set, but are the most commonly used.

Correct alternatives will be accepted.

28 (i) Absolute dominance exists when one investment portfolio provides a higher return than another in all possible circumstances.

(ii) The first order stochastic dominance theorem states that, assuming an investor prefers more to less, A will dominate B (i.e. the investor will prefer portfolio A to portfolio B) if:

$$Fa(x) \leq Fb(x) \text{ for all } x, \text{ and}$$
$$Fa(x) < Fb(x) \text{ for some value of } x.$$

i.e. the probability of portfolio B producing a return below a certain value is never less than the probability of portfolio A producing a return below the same value and exceeds it for at least some value of x. For example, if two normal distributions have the same variance but different means, the one with the higher mean displays first order stochastic dominance over the other.

29 (i) The terms of trade for country X is the quantity of domestically produced goods that have to be sacrificed in order to obtain a unit of imported goods. In other words, the terms of trade is the opportunity cost of imported goods in terms of the goods that have to be exported to pay for imports.

(ii) The government could try to increase net exports by:

(a) reducing aggregate demand (lower imports, increase exports)

(b) helping exporters (e.g. export credit insurance, subsidies to exporters, help with marketing, improving infrastructure, encouragement)

(c) discouraging imports (e.g. tariffs, quotas, persuasion)

30 (a) Country A.
(b) Country A.
(c) Country B.
(d) Country A should specialise in the production of steel and Country B specialise in the production of wheat.

31 (i) $MR = MC$

(ii) For output:

$1100 - 6Q = 200 - 6Q + 9Q^2$
$900 = 9Q^2$
$100 = Q^2$
$Q = 10$.

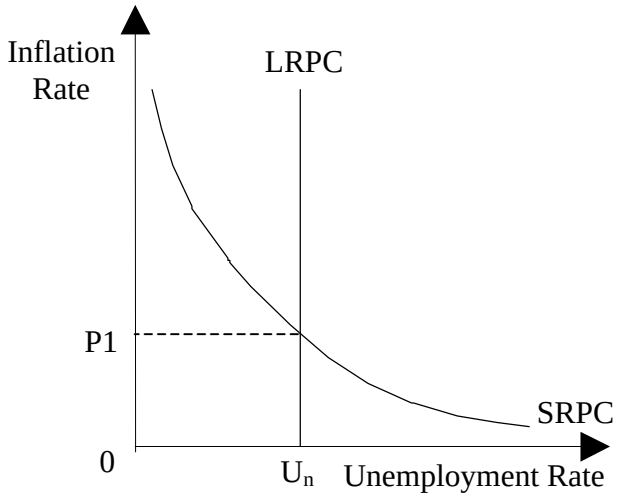
For price:

$AR = P = 1100 - 30 = 1070$.

32 (a) $Y = a + mpc(Y - NT) + I + G + EX - mpi(Y)$
$Y = 40 + 0.6(Y - 25) + 73 + 48 + 25 - 0.2Y$
$Y = 171 + 0.4Y$
$Y = 171/0.6 = £285$ million

(b) $C = a + mpc(Y - NT)$
$C = 40 + 0.6(285 - 25)$
$C = £196$ million

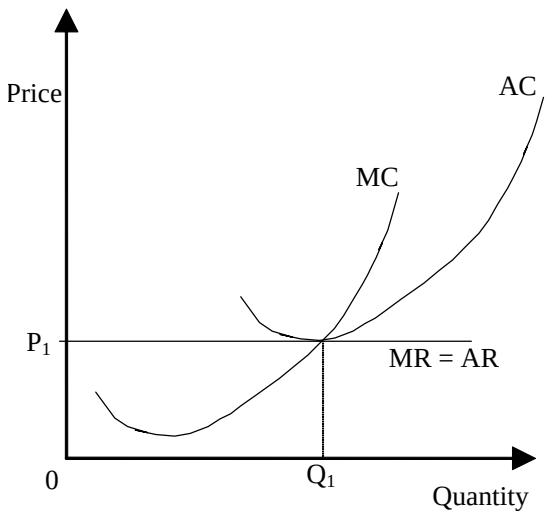
33 (i)



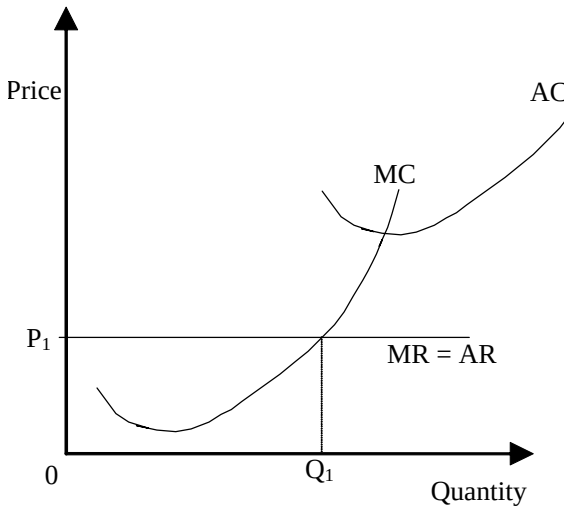
(ii) The SRPC is drawn for a given level of expected inflation. It slopes downwards because in the short-run money illusion and wage contracts may prevent wages from responding to changes in the rate of growth of the money supply.

The LRPC shows no trade off between unemployment and inflation because wage contracts can be re-negotiated and money illusion is overcome.

34 (i)



(ii)



35 These questions can be answered using "Arc" or "Point" measures of elasticity.

(i) PED = {[(12−14)/13] × 100}÷{[(3.8−3.6)/3.7]×100} = −15.38/5.40 = −2.85

OR

PED = {[(12−14)/14] × 100}÷{[(3.8−3.6)/3.6]×100} = −14.29/5.56 = −2.57

(ii) IEC = {[(9−14)/11.5] × 100}÷{[(750−800)/775]×100} = −43.48/−6.45 = 6.74

OR

IEC = {[(9−14)/14] × 100}÷{[(750−800)/800]×100} = −35.71/−6.25 = 5.71

36 (i) Broad money = money multiplier × monetary base

$$500 = \frac{1+0.5}{0.1+0.5} \times \text{monetary base}$$

$$\text{Monetary base} = 500 \Big/ \frac{1+0.5}{0.1+0.5}$$

Monetary base = £200 million

(ii) Broad money = $\frac{1+0.6}{0.15+0.6} \times 300$

Broad money = £640 million

(iii) Initially:

$$200 = \frac{1+0.5}{r+0.5} \times 80$$

$r = 0.1$

Objective:

$$200 = \frac{1+0.5}{r+0.5} \times 72$$

$r = 0.04$

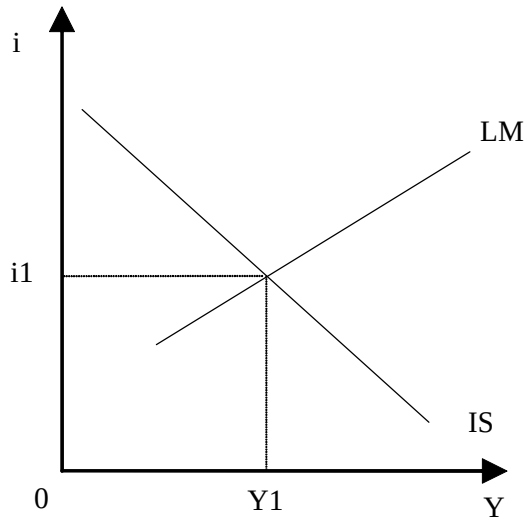
Therefore, r has been reduced by 0.06 or 60%.

37 (i) The IS and LM curves are drawn on a graph with interest rates (i) on the vertical axis and national income (Y) on the horizontal axis.

Points on the IS curve show combinations of the rate of interest and the level of national income at which the market for goods and services is in equilibrium. At each point investment demand (I) will equal savings (S) (or injections equal withdrawals in a governed open economy). Higher rates of interest will reduce investment demand and may also reduce consumption demand. This will tend to reduce the equilibrium level of national income. Consequently the IS curve will slope downwards from left to right. The slope of the IS curve depends on the responsiveness of investment and savings to changes in national income, interest rates and the size of the multiplier.

Points on the LM curve show combinations of the interest rate and national income at which the money market is in equilibrium. At each point the demand for liquidity (L) equals the supply of money (M). Higher national income raises the transactions and precautionary demand for money. This will tend to increase the equilibrium rate of interest. Consequently the LM curve slopes upward from left to right. The slope of the LM curve depends on the responsiveness of the demand for liquidity to changes in national income and interest rates.

The intersection of the IS and LM curves gives the level of national income and the associated level of interest rate at which both the money markets and the markets for goods and services are in equilibrium (i1, Y1 in the diagram below).



(ii) (a) An increase in government expenditure will tend to increase the equilibrium national income and increase the rate of interest. This is shown in the diagram below starting with IS1 and LM1.The equilibrium level of national income is initially at Y1 and equilibrium rate of interest is at i2. The increase in government expenditure (an injection to the circular flow of income) will have a multiplier effect on national income. This is shown by a shift of the IS curve to IS2 indicating an increase in the equilibrium level of national income at each rate of interest. The increase in national income will cause an increase in transactions and precautionary demand for money. Given a fixed money supply, interest rates must rise. The new equilibrium national income will be Y4 and the new equilibrium rate of interest will be i3.

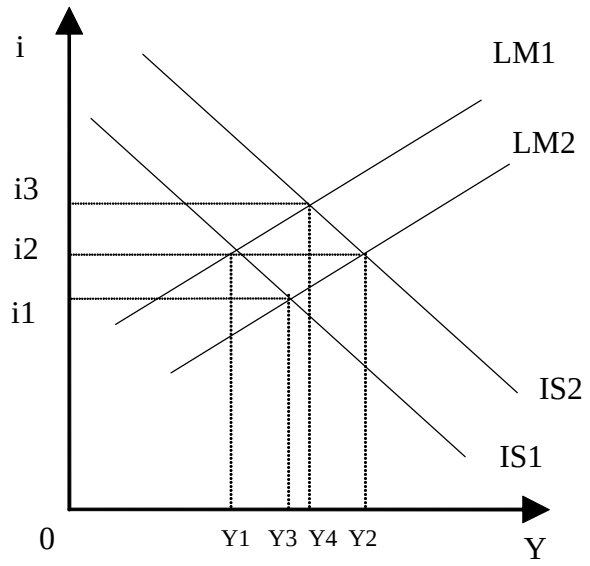
(b) An increase in the money supply will tend to increase the equilibrium level of national income and reduce the equilibrium rate of interest. This is shown in the diagram below starting with IS1 and LM1 The equilibrium level of national income is initially at Y1 and equilibrium rate of interest is at i2. The increase in the money supply will give an excess supply of money causing interest rates to fall. The effect of the increase in money supply is shown by a shift in the LM curve from LM1 to LM2 indicating a reduction in the equilibrium rate of interest at each level of national income. Falling interest rates will tend to increase investment demand and may also increase consumption demand. This will in turn increase the equilibrium level of national income. The new equilibrium national income will be Y3 and the new equilibrium rate of interest will be i1.

(c) Crowding Out

The "Keynesian crowding out" effect is the reduction in private sector investment and consumption which results from an increase in

government expenditure. Starting at IS1, LM1 an increase in government expenditure shifts the IS curve right (e.g. to IS2). Given the rate of interest (i2), national income should increase by an amount equal to the injection multiplied by the multiplier (from Y1 to Y2). However, the increase in national income will increase the transactions and precautionary demand for money. Given the fixed money supply, interest rates will rise to choke off the excess demand for money. The rise in interest rates in turn will reduce private sector investment and consumption so that national income increases by less than the amount suggested by the multiplier (from Y1 to Y4).

This form of crowding out can be avoided by increasing the money supply to accommodate the increase in government expenditure. This would shift the LM curve from LM1 to LM2 at the same time as the IS curve shifted from IS1 to IS2.



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