

Actuarial Society of India

Examinations

May 2006

CT7 – Economics

Indicative Solutions

Q1)	D
Q2)	C
Q3)	A
Q4)	C
Q5)	D
Q6)	C
Q7)	B
Q8)	A
Q9)	A
Q10)	D
Q11)	C
Q12)	C
Q13)	C
Q14)	B
Q15)	A
Q16)	C
Q17)	B
Q18)	B
Q19)	C
Q20)	A
Q21)	B
Q22)	C
Q23)	D
Q24)	B
Q25)	A
Q26)	A

[1.5 mark each, Total 39]

Que 27)

(i) Equilibrium $Y = \frac{300}{.2} = 1500$. $S = Y - [100 + .7Y] = -100 + .3Y$. Therefore equilibrium $S = 350$.

(2)

(ii) When autonomous consumption (=100) declines by 20, autonomous savings rises by 20 to -80 from -100.

(1)

(iii) When autonomous consumption declines by 20, equilibrium Y falls by 100 and equilibrium I declines by 10. Hence equilibrium S declines by 10 too from its initial equilibrium value of 350. As people's attempt at saving more leads to a reduction in their aggregate saving, the result is paradoxical. It is called the paradox of thrift.

(3)

[6]

Que 28)

B is attributable to monetarism, but A, C and D are not.

[4]

Que 29)

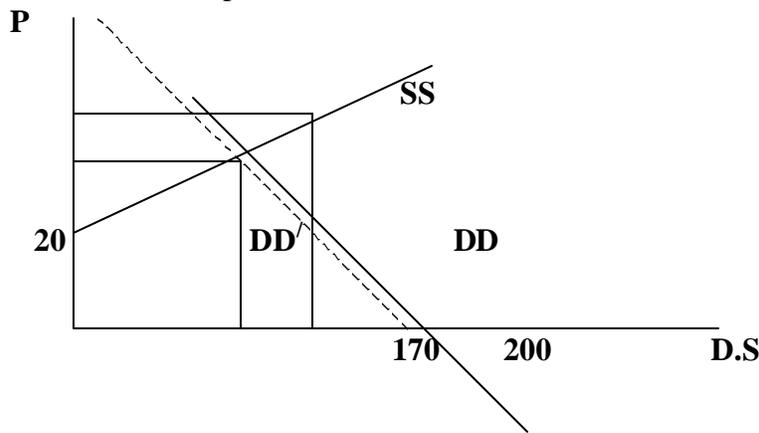
(i) Equilibrium price in the market is given by $200 - .25P = -10 + .5P \Rightarrow P = 280$.
 $D = S = 200 - .25 \cdot 280 = 130$. Therefore each firm produces 1.3 units of output in equilibrium.

(1)

(ii) Since $P = 280$ in equilibrium level of output of each firm changes by $(110/100) - 1.3 = -0.2$ units.

(1)

(iii) Following the fall in autonomous component of demand by 30 units, equilibrium P and D(=S) fall to 240 and 110 respectively. So each firm produces in the new equilibrium 0.11 units of output.



(3)

[5]

Que 30)

(i) $R = 800Q - 4Q^2 \Rightarrow \underset{Q}{Max} \Pi = 800Q - 4Q^2 - 100 - 8Q - 2Q^2$

Profit-maximizing $Q = 66$

(3)

(ii) Profit-maximizing $P = 800 - 4 \times 66 = 800 - 264 = 536$

(1)

(iii) $\Pi(66) = R(66) - C(66) = 35376 - 9340 = 26036$

(1)

[5]

Que 31)

(i) In equilibrium Marginal revenue in the market for the poor (MRP) = $P_p \left(1 - \frac{1}{3}\right) =$
 Marginal revenue in the market for the rich (MRR) = $P_r \left(1 - \frac{1}{2}\right)$, where P_p and P_r denote
 prices charged to the poor and the rich respectively. Therefore $\frac{P_p}{P_r} = \frac{1/2}{2/3} = \frac{3}{4} \Rightarrow$ the rich are
 charged a higher price

(3)

(ii) $\frac{P_r - P_p}{P_p} \cdot 100 = \frac{1}{3} \cdot 100 = 33\frac{1}{3}\%$

(3)

(iii) In equilibrium $P_r \left(1 - \frac{1}{2}\right) = P_p \left(1 - \frac{1}{3}\right) = \frac{1}{2} \Rightarrow P_r = 1$ and $P_p = \frac{3}{4} = 0.75$

Therefore $Q = (1)^{-2} + \left(\frac{3}{4}\right)^{-3} = 1 + 2.37 = 3.37$

(3)

(iv) Corresponding to every Q to maximize total revenue marginal revenues in the two
 markets are to be equalized through the appropriate allocation of Q between the two
 markets. Since own price elasticise of demand in the two markets are different,
 prices in the two markets have to be different for the marginal revenues in the two
 markets to be equal, since $MR = P \left(1 - \frac{1}{|h|}\right)$

(4)

[13]

Que 32)

(i) Involuntary change in inventory = $500 - 100 - .75 \cdot 500 - 50 = -25$

(1)

(ii) Planned Saving = $500 - 100 - .75 \cdot 500 = 25$

(1)

(iii) Actual saving = planned saving since firms by assumption carry adequate inventory
 to meet fully the market demand. So planned consumption demand is always fulfilled.
 Actual investment = planned investment + involuntary change in inventory =
 $50 + (-25) = 25$

(3)

[5]

Que 33)

Net factor income from abroad = $GNP - GDP = 200$, $C =$ personal disposable income -
 personal saving = $1000 - 200 = 800$

Personal disposable income + undistributed profit of corporations + all taxes - government
 transfers - net foreign transfers = GNP . Therefore $1000 + 0 +$ all taxes - government
 transfers - $0 = 1200$. All taxes - government transfers = $1200 - 1000 = 200$

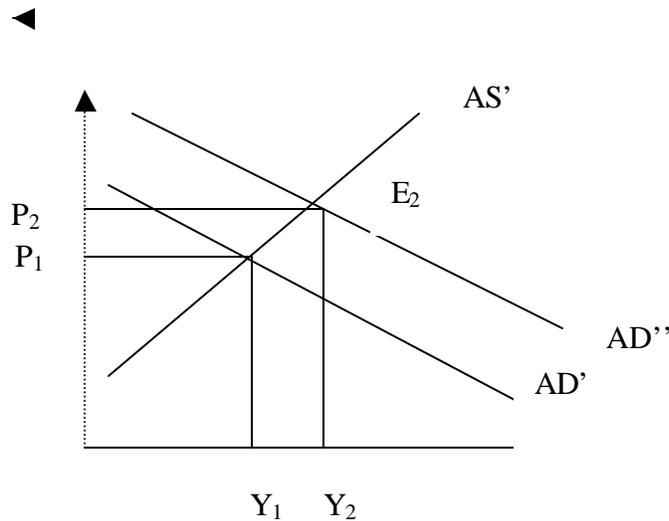
Now personal saving + undistributed profit + All taxes - government transfers - $G = I +$
 Trade Balance + Net factor income from abroad + net foreign transfers. Therefore $200 + 0$
 $+ 200 - 20 = 80 + 200 + 0 +$ Trade balance. Therefore Trade balance = 100

[4]

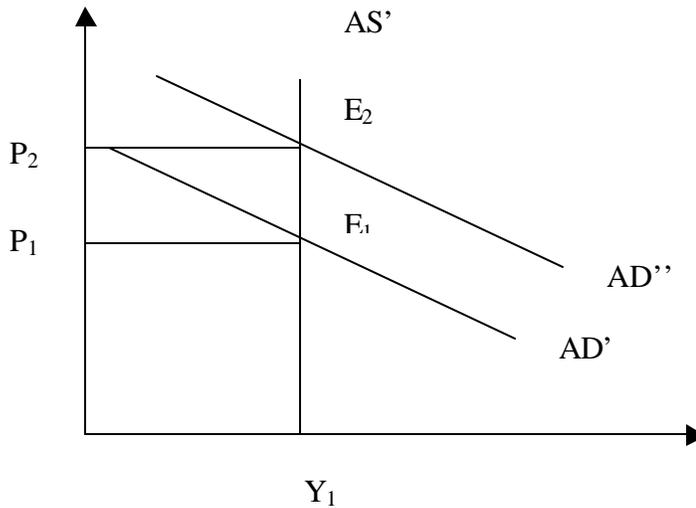
Que 34)

The effect of increase in the rate of growth in money supply on output and rate of inflation is explained through aggregate demand and aggregate supply. Aggregate demand is inversely related to the price level (i.e. aggregate demand is negatively sloped). Aggregate supply is positively related to the price level in the short run whereas it is independent of the price level in the long run. That is, in the short run aggregate supply is positively sloped whereas it is vertical in the long run.

Short Run:



Equilibrium real output is Y_1 and price level is P_1 for aggregate supply and aggregate demand curves AS' and AD' . An increase in the rate of growth of money supply shifts the aggregate demand curve outward to AD'' and the point of equilibrium changes from E_1 to E_2 : equilibrium output increase from Y_1 to Y_2 as the price level rises from P_1 to P_2 . The actual increase in output depends upon the slope of aggregate supply. When aggregate supply is steeply sloped, demand increase will have a smaller effect upon output than when aggregate supply is less steeply sloped.

Long Run:

Equilibrium output is Y_1 and price level is P_1 for aggregate supply and demand curves AS' and AD' in figure 2. Increase money supply shifts the aggregate demand curve outward to AD'' and the point of intersection changes from E_1 to E_2 . Since the aggregate supply curve is vertical, there is no change in equilibrium output and the price level rises from P_1 to P_2 .

Thus, in the short run, an increase in the rate of growth of money supply would increase both the real output and the price level. However, in the long run, an increase in the money supply has no effect on the output but increase the price level.

[8]

Que 35)

- (i) Petrol (unlike diesel) is a luxury item. Hence its burden is progressively distributed. (2)
 (ii) Taxes on individuals are direct taxes, while those on goods are indirect taxes. Taxes on gifts and bequests are imposed on individuals. Hence they are direct taxes. (2)

[4]

Que 36

(A)(i) Her expected wealth, if she buys the lottery ticket, is $.01 \times 595 + 0.99 \times 95 = 100$

(2.5)

(A)(ii) Her certain wealth, if she does not buy a lottery ticket, is Rs.100. From the individual's utility function it is clear that she is risk-averse. Hence she will prefer her certain wealth of Rs.100 to the expected wealth of Rs.100. Hence she will not buy the lottery ticket.

(2.5)

[5]

36(B)

$$E(\text{Wealth}) = 0.99 \times 34750 + 0.01 \times 29750 = \text{Rs. } 34700$$

(2)

[7]
