

INSTITUTE OF ACTUARIES OF INDIA

CT7 - Business Economics

November 2010 EXAMINATION

INDICATIVE SOLUTION

1. B [1.5]
2. D [1.5]
3. B [1.5]
4. C [1.5]
5. D [1.5]
6. B [1.5]
7. C [1.5]
8. D [1.5]
9. D [1.5]
10. D [1.5]
11. C [1.5]
12. C [1.5]
13. D [1.5]
14. B [1.5]
15. C [1.5]
16. D [1.5]
17. B [1.5]
18. A [1.5]
19. C [1.5]
20. C [1.5]
21. C [1.5]
22. C [1.5]
23. B [1.5]
24. C [1.5]
25. B [1.5]
26. C [1.5]
27. A [1.5]
28. D [1.5]
29. C [1.5]
30. C [1.5]

31.

- (A) Equilibrium level of unemployment = No. of people willing to work – No. of people employed = $(100,000 - 40,000) - 45,000 = 15,000$
- (B) If wage rate is increased to Rs. 10,000, there will be disequilibrium in labor market because demand for labor will be 35,000 whereas supply of labor will be 55,000 creating total unemployment of 25,000 persons, out of which 5,000 persons are those who are not willing or able to accept a job at the wage rate of Rs. 10,000 per month, but unemployment of 20,000 persons is the result of excess supply of labor and is called disequilibrium unemployment.

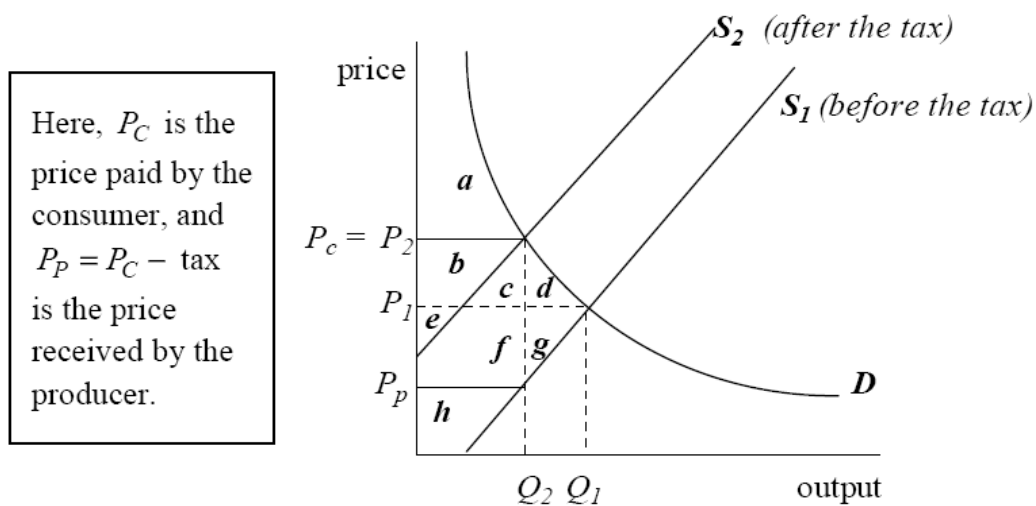
Main reasons for disequilibrium unemployment are:

- Demand-deficient (or cyclical) unemployment
- Real-wage unemployment
- Growth in labor supply

[4]

32.

Diagram is reproduced below:



(A)

Pre-tax consumer surplus is $a+b+c+d$ and post-tax consumer surplus is a . Hence, loss in consumer surplus: $b + c + d$

Pre-tax producer surplus is $e+f+g+h$ and post-tax producer surplus is h . Hence, loss in producer surplus: $e + f + g$

Lost consumer and producer surplus = $b+c+d+e+f+g$

However, tax receipts amount to $b+c+e+f$

Thus deadweight loss in social welfare = $d + g$

(B) Loss in consumer surplus will be only 'd' [$(b+c+d) - (b+c)$] because consumers are getting 'b+c' satisfaction from the law and order maintained by government from the proceeds of indirect taxes.

(C) Loss in producer surplus will be only 'g' [$(e+f+g) - (e+g)$] because producers are getting 'e+f' satisfaction from the law and order maintained by government from the proceeds of indirect taxes

[6]

33.

The advantages of a free-floating exchange rate are:

- balance of payments disequilibria are automatically corrected by movements in the exchange rate
- there is no need for central bank reserves and international liquidity
- countries are not tied to the (unacceptably high) inflation rates of others
- external shocks can be rapidly dealt with by a depreciation or appreciation of the exchange rate
- Government policy is not constrained by the need to maintain a fixed exchange rate, *e.g.*, government is free to target whatever level of demand is best for the economy
- Central banks are free to set interest rates for the benefit of the economy, *e.g.*, to control inflation.

The disadvantages of a free-floating exchange rate are:

- unstable exchange rates can be a problem for firms with contracts with overseas suppliers or distributors
- speculation can lead to high levels of exchange rate volatility
- exchange rate uncertainty can discourage international trade and investment
- without the need to maintain a stable exchange rate, governments may allow the economy to fall into a cycle of expansion and contraction.

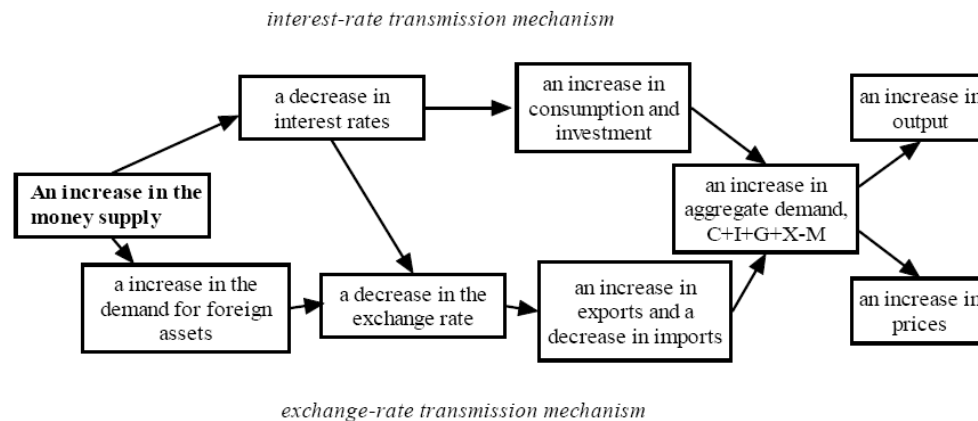
Exchange rate volatility is the main problem with free-floating exchange rate system. Three methods can be used to control the disadvantages:

- Adjustable peg system: exchange rates are fixed for a period of time, but may be devalued (or revalued) if a balance of payments deficit (or surplus) becomes too great.
- Managed flexibility: exchange rates are allowed to float. However, governments may intervene to prevent excessive fluctuations or to maintain an unofficial exchange rate target.
- Exchange rate mechanism: A group of countries may agree to keep their exchange rates with each other within certain bands. These currencies continue to float freely against all other currencies.

[5]

34.

(A) Monetary transmission mechanism is depicted in the following figure:



Note: Candidates may explain either through above type of flow diagram or in lingual form. Marks are to be awarded on the basis of coverage of points and linkages mentioned in above figure

(B)

Impact of increase in money supply on depends on various links in the above transmission mechanism. There are certain issues in these links as discussed below:

(i) Money-interest link

The increase in the money supply causes interest rates to fall to encourage people to hold more savings in money form. If money and other financial assets are close substitutes, then it won't take much of a decrease in interest rates to persuade people to sell their bonds and hold cash instead. If this is the case, i.e., if the demand for money is interest-elastic, the money-interest link is weak. Also, the demand for money depends on a range of factors besides interest rates; e.g., expectations. It can therefore be unstable. This makes the link between a change in the money supply and interest rates unpredictable.

(ii) Interest-investment link

The decrease in interest rates is expected to decrease savings (because of the poorer return), increase consumer spending and increase investment by firms (because it is now cheaper to borrow). However, whether or not aggregate demand responds depends largely on people's expectations. So, the sensitivity of aggregate demand to changes in interest rates could be quite low. If this is the case, i.e., if aggregate demand is interest-inelastic, the interest-investment link is weak.

(iii) Money-interest-exchange rate link

The increase in the money supply and decrease in interest rates is expected to decrease the exchange rate. However, exchange rate movements depend on expectations about trade prospects and future world interest-rate movements, so the strength of this link is unpredictable.

(iv) Exchange rate-net exports link

A decrease in the exchange rate will make exports cheaper and imports dearer, so the demand for exports will increase and the demand for imports will decrease. However, whether or not the balance of payments improves (and the extent of the improvement) depends on the elasticity of demand for exports and imports – the more elastic the better. In addition, any improvement might take time as customers take time to respond to the changes in prices brought about by the depreciation of the exchange rate.

[6]

35.

Expansionary fiscal policy involves increase in government expenditure and/or reduction in taxation. An increase in government expenditure constitutes additional injection in the economy which will have multiplier effect on national income. Initial injection might be sufficient to pump prime the economy. Once income increases, investment increases via the accelerator effect, and if the government is successful in restoring confidence in the economy, further increases in consumer spending and investment will result.

A reduction in taxation increases disposable income and profits, and will increase consumer spending and investment. The effect of a reduction in taxation will be smaller than that of an increase in government spending because the additional income will not all be spent in the domestic economy.

The size of the effect of a change in government spending or taxation on national income is difficult to predict for the following reasons:

- a rise in government spending may simply *replace* private sector expenditure, *e.g.*, on healthcare
- a pure fiscal expansion, *ie* one that does not increase the money supply, may cause **crowding out** as increased borrowing by the government causes higher interest rates and therefore decreased borrowing (and spending) by individuals and firms - in the extreme, this crowding out could be total, *i.e.* national income would not increase at all
- a cut in taxation may not increase spending by much – it depends on the level of confidence in the economy (the less confident, the greater the tendency to save) and who gets the tax cuts (the rich are likely to save more than the poor)

- the multiplier effect depends on the size of the mpc_d , which depends on attitudes to saving (which depend on expectations of the future) and spending on imports (which depends on the exchange rate)
- the accelerator and the pump priming effects depend on business and consumer confidence
- the economy is subject to unpredictable random shocks, e.g., 9/11

[6]

36. Comparison with Perfect Competition

Firms operating in monopolistic competition will typically:

- a. produce lower quantities than firms operating in perfect competition (and therefore less than the social optimum)
- b. produce at a higher price than firms in perfect competition
- c. have excess capacity, ie in the long run, firms under monopolistic competition will produce at an output below their minimum-cost point. **[0.5 mark per point]**

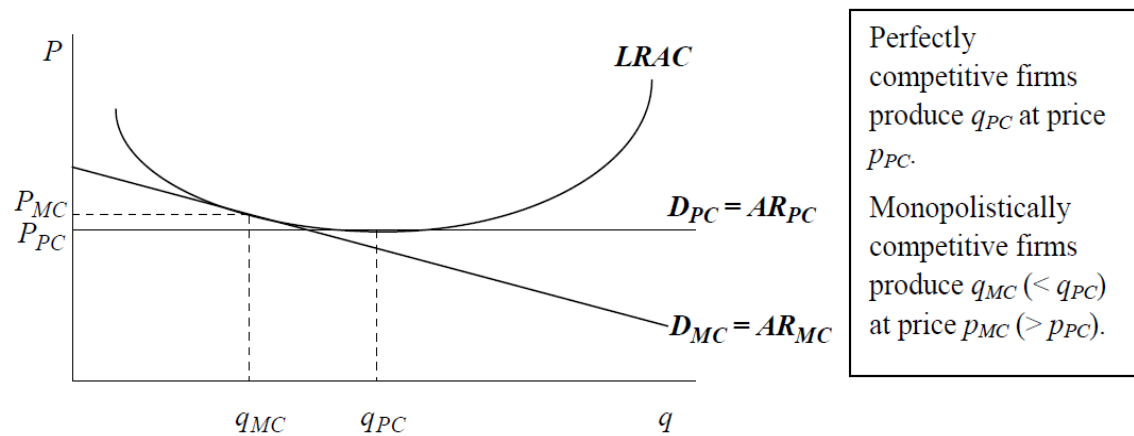


Figure 8.3 – Long-run equilibrium of firms in perfect and monopolistic competition

Hence it can be argued that monopolistic competition leads to a less efficient allocation of resources than under perfect competition.

However:

- the price difference is likely to be small (as demand is elastic)
- consumers benefit from having a variety of products.

Comparison with monopoly

Firms operating under monopolistic competition may:

- charge lower prices than monopolists
- be more efficient (due to competition).

However, monopolists may:

- benefit from economies of scale
- invest in research and development to improve efficiency.

[7]

37.

- A. The **law of demand** states that the quantity of a good demanded per period of time will fall as the price rises and rise as the price falls, other things being equal (or *ceteris paribus*).
- B. **Income effect** – the effect of a change in price on quantity demanded arising from the consumer becoming better or worse off as a result of a price change. **Substitution effect** – the effect of a change in price on quantity demanded arising from the consumer switching to or from alternative (substitute) products.
- C. When the price of a good rises, people will feel poorer, as the purchasing power of their income (*ie* their *real income*) has fallen. This *income effect* will typically lead them to purchase less of the good. In addition, the good will become dearer relative to other goods and so people will switch to alternative (or substitute) goods. This *substitution effect* will lead them to purchase less of the good.

[5]

38.

A. Horizontal strategic alliances are agreements to co-operate on a particular activity at the *same stage* of the production process. This may:

- take the form of a **joint venture**, which involves the setting up and joint ownership of a new independent firm
- involve a **franchise**, a formal agreement that one firm, for a fee, will produce and/or sell the products of another
- **licensing**, whereby the owner of a patented product allows another firm to produce it in return for a fee.

B. Vertical strategic alliances are agreements between firms at *different stages* of the same production process to jointly produce a good or service.

. They may involve:

- a **consortium**, where several firms work together on a specific project and usually create a separate company to undertake the project
- **outsourcing** or **subcontracting**, whereby one firm employs another to perform part of the production process
- *licensing agreements*. Such agreements between a dealer and a manufacturer, which limit how the dealer can sell the product are known as **vertical restraints**.

C. Networks

- A **network** involves a formal or informal alliance between multiple firms in different sectors.
- It may enable access to better technology, cheaper resources and/or new markets. A network can involve the different types of alliance described above

[7]

39. A.

i. $P = 0.3 \cdot (CL)^2$

Let us increase all the factors by 20%, then the new production function will be:

$$P' = 0.3 \cdot [(C \cdot 1.2)(L \cdot 1.2)]^2$$

$$P' = 0.3 \cdot (CL)^2 \cdot 1.2^2$$

- $P' = 1.2^2 * P$
 Since $P' > 1.2P$, increasing returns to scale
- ii. $P = aC + b^2L$
 $P' = aC * 1.2 + b^2L * 1.2$
 $P' = 1.2 * P$
 So constant returns to scale
- iii. $P = C^{0.5} L^{0.25}$
 $P' = (C * 1.2)^{0.5} (L * 1.2)^{0.25}$
 $P' = 1.2^{0.75} P$
 Since $P' < 1.2P$, decreasing returns to scale.
 [0.5 marks per step]

(B)

- 1) $P = C^x L^y$
- 2) Double all our factors, and call this new production function P'
- 3) $P' = (2C)^x (2L)^y$
- 4) $P' = 2^{x+y} C^x L^y$
- 5) $P' = 2^{x+y} P$
- 6) For increasing returns to scale $P' > 2P$, we need $2^{(x+y)} > 2$.
- 7) This occurs when $x+y > 1$.
- 8) Double C , and call this new production function P'
- 9) $P' = (2C)^x L^y$
- 10) $P' = 2^x C^x L^y$
- 11) $P' = 2^x P$
- 12) For decreasing returns to each factor : $2P > P'$
- 13) $2 > 2^x$. This occurs when $1 > x$.
- 14) Similarly double L , and call this new production function P'
- 15) $P' = C^x (2L)^y$
- 16) $P' = 2^y C^x L^y$
- 17) $P' = 2^y P$
- 18) To get $2P > P'$ (since we want decreasing returns for this factor), we need $2 > 2^y$.
- 19) This occurs when $1 > y$.
- 20) Required Conditions : $x+y > 1$ and $x < 1$ and $y < 1$

[11]**[Total Marks 100]**
