Institute of Actuaries of India

Subject CB2-Business Economics

March 2021 Examination

INDICATIVE SOLUTION

Introduction

The indicative solution has been written by the Examiners with the aim of helping candidates. The solutions given are only indicative. It is realized that there could be other points as valid answers and examiner have given credit for any alternative approach or interpretation which they consider to be reasonable.

Solution 1: D **[1.5 Marks]**

Solution 2: C **[1.5 Marks]**

Solution 3: D **[1.5 Marks]**

Solution 4: A **[1.5 Marks]**

Solution 5: B **[1.5 Marks]**

Solution 6: B **[1.5 Marks]**

Solution 7: D **[1.5 Marks]**

Solution 8: D **[1.5 Marks]**

Solution 9: A **[1.5 Marks]**

Solution 10: A **[1.5 Marks]**

Solution 11: A **[1.5 Marks]**

Solution 12: C **[1.5 Marks]**

Solution 13: C **[1.5 Marks]**

Solution 14: A **[1.5 Marks]**

Solution 15: D **[1.5 Marks]**

Solution 16: B **[1.5 Marks]**

Solution 17: C **[1.5 Marks]**

Solution 18: C **[1.5 Marks]**

Solution 19: B **[1.5 Marks]**

Solution 20: B **[1.5 Marks]**

Solution 21: A **[1.5 Marks]**

Solution 22: B **[1.5 Marks]**

Solution 23: C **[1.5 Marks]**

Solution 24: A **[1.5 Marks]**

Solution 25: D **[1.5 Marks]**

Solution 26: D **[1.5 Marks]**

Solution 27: **i)** The difference between the law of diminishing returns and law of diminishing marginal utility:

- The law of diminishing returns applies to the short run production process.

- It states that as you add increasing amounts of a variable factor of production to a given amount of a fixed factor of production, after a certain point the marginal product of the variable factors will decline.
- The law of diminishing marginal utility applies to consumption.
- It states that as a consumer consumes increasing amounts of a given product then the marginal utility derived from the product will decline.

(0.5 each)

[2]

ii) Behavioural economics differs from traditional economics in following ways:

- It uses experiments to test its theories.
- Behavioral economists recognize that people act irrationally.
- It is interested in the way in which people behave in groups.
- It is concerned in the ways in which people cope with imperfect information.

(0.5 each) [2]

[4 Marks]

Solution 28: **i)** A by-product is a good or service that is produced as a result of producing another good or service. [1]

ii) How a profit maximizing oil company ought to determine the price of the by-products:

- The oil company needs to allocate cost of production as far possible between a primary product and by-products.
- It should then add the marginal costs (MC) from each product to get a combined MC curve for the combined product.
- The marginal revenue (MR) curve for each product should be identified separately.
- Then summed to obtain a combined marginal revenue curve
- The profit maximizing output is then arises where the combined marginal cost equals to combined marginal revenue
- The price for primary product and by-products corresponding to this MC level is obtained from individual demand curves.

(0.5 each, total 3 Marks)

[3]

[4 Marks]

Solution 29: **i)** The name of the market structure to which the above demand model applies- Oligopoly [1]

ii) The assumptions are:

- if an oligopolist raises its price, its rivals *will not* follow suit – this leads to a relatively elastic demand curve at prices higher than the current price
- if an oligopolist cuts its price, its rivals *will* follow suit – this leads to a less elastic demand curve at prices lower than the current price

How the price stability is achieved in this market structure?

- The demand curve is relatively elastic above the equilibrium price (P1), since if the firm raises its prices, then other firms will not react and it will lose market share.
- The demand curve is less elastic below *P1*, since if the firm lowers its prices, then other firms will do likewise and it will gain few extra sales.

Thus the price stability results from:

- the reluctance to raise / lower prices (due to the kinked demand curve)
- the unchanged profit-maximising price and output level if costs change slightly

  (*ie MC* moves within the discontinuous section of the *MR* curve)

(Each assumption carries 1 mark; price stability part- each point carries 1 mark. total 6 marks) [6]

[7 Marks]

Solution 30: **i) Cost based pricing**:

- It involves adding a fixed percentage mark up to average cost.
- Price = average fixed cost + average variable cost + mark-up
- The firm uses short run average cost curves as estimates are more reliable than long term average cost.
- Under this approach marginal cost curve and revenue curves are no longer used.
- The total AC curve is U shaped. Average variable cost curve(AVC) is saucer shaped. The mark up price is based on flat portion of average variable cost curve (AVC).

(1 mark each) [5]

ii)

Factors that affect mark – up used under cost based pricing:

- The firm's profit and sales target
- Price of competitor's
- The firm's level of market power
- Cost of raw materials
- Elasticity of demand of the product
- Economic condition of the market
- Elasticity of demand of the product
- Whether the market is expanding or contracting
- The likely action of rivals, their responses to changes in firm's price

(0.5 each half mark) [4]

[9 Marks]

Solution 31: **Steps of Government to encourage people to avail healthcare schemes**:

- Free provision of healthcare to ensure that everyone/the majority uptake the provision of healthcare (direct provision).
- Subsidised provision of healthcare schemes at a significantly reduced rate to ensure people undertake healthcare facilities
- Information to be provided to people for various healthcare facilities available to public
- Healthcare systems are made available at door-steps of people. Primary health centers at rural area.
- To make available providers of healthcare facilities. It is mandatory for doctors to work in rural area during the education process so that resources will be available to people.

(1 mark each point each) **[5 Marks]**

Solution 32: **i)**

a) Tariffs, also known as 'customs duties', are taxes on imported goods, and are the most common form of trade restriction. Tariffs may serve two purposes. One is to protect a domestic industry from foreign competition (a protective tariff), and the other is to raise revenue for the government (a revenue tariff). [1]

b) An import quota (or more simply, quota) is a legal limit to the quantity of a good that can be imported over a particular time period (typically a year). The effects of quotas are similar to the effects of tariffs, except that they usually do not create revenue for the government. [1]

c) A subsidy refers to assistance by the government to individuals or groups of individuals, such as firms, consumers, industries or sectors of an economy. Subsidies may take the form of direct cash payments or other forms of assistance such as low-interest or interest-free loans (for example, to students, to low-income consumers for the purchase of goods and services such as housing, or to fi rms needing assistance), the provision of goods and services by the government at below market prices; tax relief (i.e., paying lower or no taxes); and others. [1]

d) In addition to the above trade restrictions, governments may impose a variety of additional obstacles to imports, which can be termed administrative barriers. Whenever a good is imported from another country, it must go through a number of customs procedures involving inspections, valuation (determining the value of the good), and others. In an effort to impose obstacles to imports and reduce their quantity, countries may increase the number of red-tape checks and procedures, making them very time-consuming and difficult. In addition, importing countries can impose requirements that imported goods must be packaged in particular ways, must fulfil particular technical standards, which involve health, safety and environmental conditions, must undergo testing and inspection procedures. These are so costly and time-consuming that in effect reduces the quantity of imports. It is generally believed that the excessive use of these kinds of measures by governments is a disguised attempt to limit imports, and therefore is a kind of trade protection. (2)

ii)

Impact on:	Tariffs	Quotas	Production subsidies	Administrative barriers
Consumers	–	–	×	–
Producers	+	+	+	+
Employment (workers)	+	+	+	+
Government	+	×	–	×
Taxpayers	×	×	–	×
Income distribution	–	–	×	×
Efficiency in production	–	–	–	–
Society as a whole	–	–	–	–
Foreign producers	–	–	–	–
Global resource allocation	–	–	–	–

Key: + denotes a gain; – denotes a loss; x denotes no impact.

[10]

(The table carries 10 marks for 40 combinations and each cell will carry 0.25 mark)

[15 Marks]

Solution 33: Progressive income taxes - In the upswing of the business cycle, as real GDP and incomes rise, government tax revenues automatically increase, causing after-tax (disposable) income to be lower than it would otherwise be. The downward pressure on disposable incomes acts to dampen aggregate demand, and this tends to counteract the economic expansion, or make it smaller than it would otherwise be. In a recession, the opposite occurs. With real GDP and incomes falling, government tax revenues automatically decline, causing after-tax (disposable) income to be higher than it would otherwise be, exerting an upward pressure on aggregate demand, which reduces the severity of the recession. With progressive taxation, the average tax rate increases as income/real GDP increases. Therefore, in an upswing, with higher real GDP, government tax revenues are relatively higher and disposable income relatively lower compared to what they would have been with proportional.

(2 marks)

Unemployment benefits - In a recession, as real GDP falls and unemployment increases, unemployment benefits rise as they are offered to more unemployed workers. If there were no unemployment benefits, unemployed workers' spending would fall quite dramatically, putting a strong downward pressure on consumption spending and aggregate demand. However, the presence of unemployment benefits means that as workers become unemployed, their consumption will be maintained to some extent as their benefits partially replace their lost income, thus lessening the downward pressure on aggregate demand. In an expansion, unemployment benefits are reduced as unemployment falls; therefore, consumption increases less than it would in the absence of unemployment benefits. It is important to bear in mind that a progressive tax system and unemployment benefits cannot by themselves stabilise the economy and eliminate inflationary and recessionary gaps on their own. They can only help reduce the severity of economic fluctuations.

(2 marks)

[4 Marks]

Solution 34: **i)**

The balance of payments of a country is a record (usually for a year) of all transactions between the residents of the country and the residents of all other countries. Its role is to show all payments received from other countries, called credits, and all payments made to other countries, called debits. In the course of a year, all inflows of payments (credits) must exactly equal the outflows of payments (debits); the sum of all credits is equal to the sum of all debits.

[2]

ii) The export of corn worth $25000 will be recorded on the credit side of the current account of America's balance of payment statement as it would lead to an inflow of funds. On the other hand, it would be recorded on the debit side of Japan's balance of payment current account.

[2]

iii) The current account of the balance of payments is the sum of: (a) the balance of trade in goods and services; (b) income inflows minus outflows; and (c) current transfer inflows minus outflows. The most important part of the current account in most countries is the balance of trade in goods and services

Balance of trade in goods and services: Exports of goods are the sale of goods to other countries, for which payment is received; therefore, exports are a credit and have a plus sign. Imports of goods are the purchase of goods from other countries, for which payment is made in foreign; imports are therefore a debit and have a minus sign. The balance of trade in goods and services is calculated by subtracting imports from exports. Trade in goods and services is the largest component of the current account.

Net Income: Income, refers to all inflows of wages, rents, interest and profits from abroad, minus all outflows of wages, rents, interest and profits. The country's residents may earn income abroad, such as from wages if they work outside and send their wages home, or if they own rental property abroad that earns rental income, or have bank accounts abroad that earn interest, or if they own stocks in another country that earn dividend income, or if they own a subsidiary of a multinational corporation that earns profits. Income paid to foreigners is similar. If the income received by a country's individuals, businesses, and government from foreigners are more than the income paid out, then net income is positive. If it is less, then it contributes to a deficit.

Current Transfers: Current transfers refers to inflows into a country due to transfers from abroad like gifts, foreign aid and pensions, minus outflows of such transfers to other countries.

[4]

[8 Marks]

Solution 35: **Strengths of monetary policy** :

• Relatively quick implementation- Monetary policy can be implemented more quickly than fiscal policy because it does not have to go through the political process, which is very cumbersome and time consuming.

• Central bank independence-Independence from the government means the central bank can take decisions that are in the best longer term interests of the economy, and therefore exercises greater freedom in pursuing policies that may be politically unpopular (such as higher interest rates making borrowing more costly).

• No crowding out. Monetary policy does not lead to crowding out, which may result from higher interest rates due to an expansionary fiscal policy (based on deficit financing). The monetary policy counterpart to an expansionary fiscal policy is an easy monetary policy, which leads to lower (not higher) interest rates.

• Ability to adjust interest rates incrementally (in small steps). Interest rates can be adjusted in very small steps, making monetary policy better suited to 'fine tuning' of the economy in comparison with fiscal policy.

However, it should be stressed that it is also subject to limitations, and that there is in fact no policy tool that economists can use to fully 'fine tune' an economy.

Weaknesses of monetary policy are:

• Time lags. Unlike fiscal policy, monetary policy can be implemented and changed according to perceived needs relatively quickly, because it does not depend on the political process. However, like fiscal policy, it remains subject to time lags (delays), including a lag until the problem is recognized, and a lag until the policy takes effect. Changes in interest rates can take several months to have an impact on aggregate demand, real output and the price level. By then, economic conditions may have changed so that the policy undertaken is no longer appropriate.

• Possible ineffectiveness in recession. Whereas monetary policy can work effectively when it restricts the money supply to fight inflation, it is less certain to be as effective in a deep recession. Expansionary monetary policy is intended to increase aggregate demand by encouraging investment and consumption spending through lower interest rates. This process presupposes that banks will be willing to increase their lending to firms and consumers, and that firms and consumers will be willing to increase their borrowing and their spending. However, in a severe recession, banks may be unwilling to increase their lending, because they may fear that the borrowers might be unable to repay the loans. If firms and consumers are pessimistic about future economic conditions, they may avoid taking out new loans, and may even reduce their investment and consumer spending, in which case aggregate demand will not increase (it may even decrease), and monetary policy will be unable to pull the economy out of recession.

• Conflict between government objectives. Manipulation of interest rates affects not only variables in the domestic economy (consumption and investment spending, inflation, unemployment) but also variables in the foreign sector of the economy, such as exchange rates. The pursuit of domestic objectives may conflict with the pursuit of objectives in the foreign sector.

• Inability to deal with stagflation. Monetary policy is a demand-side policy, and is therefore unable to deal effectively with supply-side causes of instability.

(any 5 strengths and weakness)

[5 Marks]

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