# Institute of Actuaries of India

## Subject CT7 – Business Economics

## March 2018 Examinations

# INDICATIVE SOLUTIONS

**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: 1.5 Mark to each answer**

**1.** A

**2.** B

**3.** B

**4.** D

**5.** A

**6.** D

**7.** B

**8.** D

**9.** C

**10.** C

**11.** B

**12.** B

**13.** D

**14.** B

**15.** D

**16.** C

**17.** B

**18.** C

**19.** A

**20.** A

**21.** A

**22.** B

**23.** D

**24.** B

**25.** B

**26.** D

**27.** B

**28.** A

**29.** B

**30.** A

**Solution 31**:

**i)** Monopoly [0.5]

**ii)**
- sole supplier of the product
- no potential rival
- barrier to new entry
- product is unique
- downward sloping demand curve
- super normal profit can be earned over long run
- produce output less than socially optimal level of output [3]

**iii)**
- Diversification of business
- to enter into new untapped segment of the market
- for higher profitability
- to generate higher business volume
- could be due to market need
- to gain first mover advantage before any new firm starts offering term assurance product

[4]

**iv)** Various modes could be:
- Television / media advertising
- Newspaper
- Leaflets / boards etc..
- Telecalling
- Door to door campaigning [2.5]

**v)** Reasons and Benefits of advertisement:

a) Provide information about the product to the consumers, including various feature and sales related information
b) To promote awareness about the need of term assurance production and hence the need to protect self

c) To emphasize about how term products differ from unit linked product which has been the only product offering of the company till now
d) Due to increase awareness the company will be able to generate more leads and hence sales. This will help the company in building brand value for the company and may act as a deterrent for new entrants
e) Due to increased sales the company will be able to generate more revenue for its shareholders

f) Advertisement will help in educating the customers. This will avoid a lot of questions / doubt that the potential customer may have at the point of sales

[4]

**[14 Marks]**

**Solution 32:**

**i)**

a) Economies of scale can be achieved by rationalizing of fixed cost
b) The merged entity will be in a strong position to enjoy almost monopolistic power in the industry
c) Increased valuation for the shareholders, thereby creating shareholder value
d) Geographical expansion: Company X may be lacking market share in particular geographical area, which is currently being dominated by Company Y. By merging the combined entity may benefit if the growth potential of such area is huge
e) Merger will help company A to avoid the chance of slipping to number 2 position
f) To explore inorganic growth rather than organic growth

[2]

**ii)**

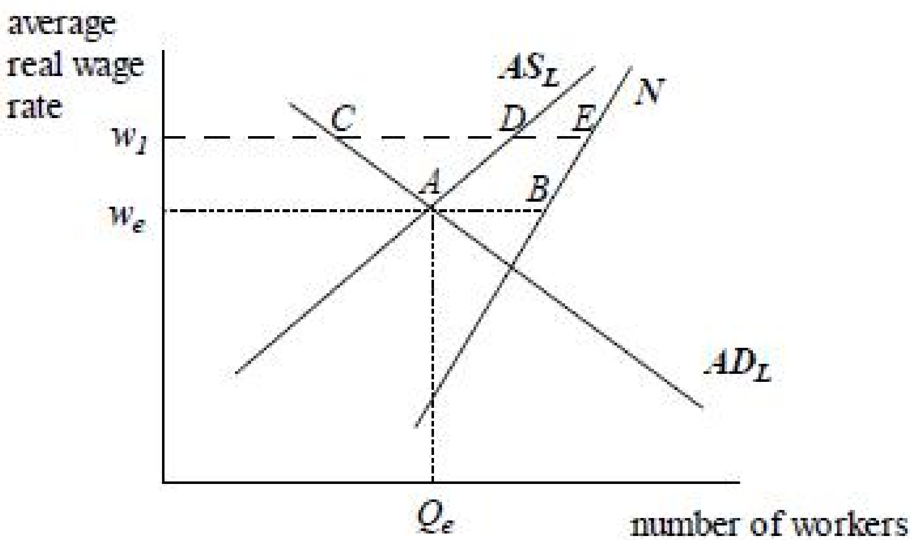
a) Failure on the part of both the parties to a merger to exchange commercially sensitive information prior to being under common ownership
b) Failure to arrive at a common and integrated vision for the merged entity
c) Poor due diligence prior to merger
d) Inefficient team / people resourcing: Improper / inadequate resource allocation from both the separate entity into the merged entity
e) Poor governance: Lack of clarity as to who decides what, and no clear issue resolution process.
f) Poor Communication:
g) Weak leadership: failure to take tough decisions can result in lost opportunities
h) Loss of key talent due to uncertainty at the initial stage of merger in both Company X and Y
i) Poor swap ratio: Paying too much by Company X to Company Y may result in poor shareholder value.

j) Conflict of interest / Failure to come to common conclusion

[5]
**[7 Marks]**

**Solution 33:**

**i)**




The **aggregate demand for labour** curve ( *ADL* ) shows the total demand for labour at different average real wage rates. It assumes that at higher wages, employers take on fewer workers.The curve labelled *N* shows the registered labour force. It assumes that more people are willing to enter the labour force at higher wage rates.

The **aggregate supply of labour** curve ( *ASL* ) shows the number of people willing and able to accept jobs at each wage rate. It assumes that at higher wage rates more people become willing to accept jobs.The difference between the *N* and *ASL* schedules represents the number of people who are in the labour force, but who are not immediately willing or able to accept a job at the current wage rate.

[4]

**ii)** The labour market is in equilibrium with a real wage of *we* and an equilibrium level of employment *Qe (i.e.* when *ADL= ASL* ). At the real wage *we ,* there is unemployment of *AB*. This is called the **equilibrium level of unemployment.**

If wages are held above the equilibrium at a wage of *w*1, then total unemployment is *CE*. Of this, *DE* consists of those workers who are not willing or able to accept a job at *w*1, but *CD* is a result of excess supply of labour and is called **disequilibrium unemployment**.

Reasons for equilibrium unemployment

1. Frictional unemployment

2. Structural unemployment

3. Technological unemployment

4. Regional unemployment

5. Seasonal unemployment

Reasons for disequilibrium unemployment

1. Demand deficient unemployment

2. Real-wage unemployment

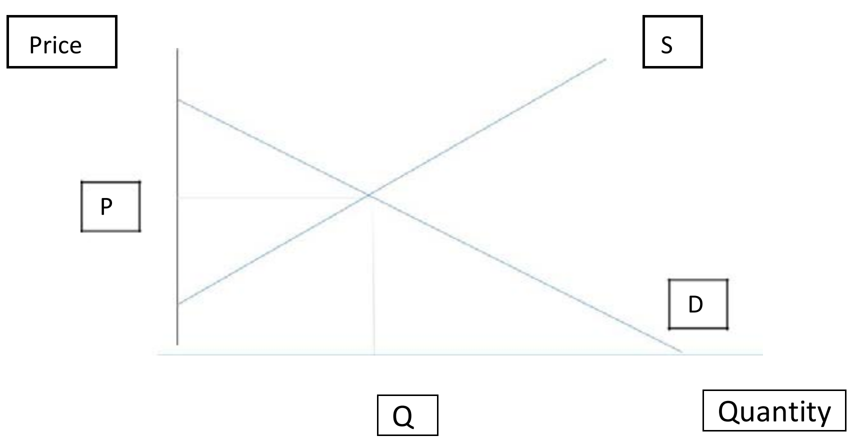
3. Growth in labour supply

[4]

**[8 Marks]**

**Solution 34:**

**i)**




Quantity demanded = Quantity supplied; at equilibrium

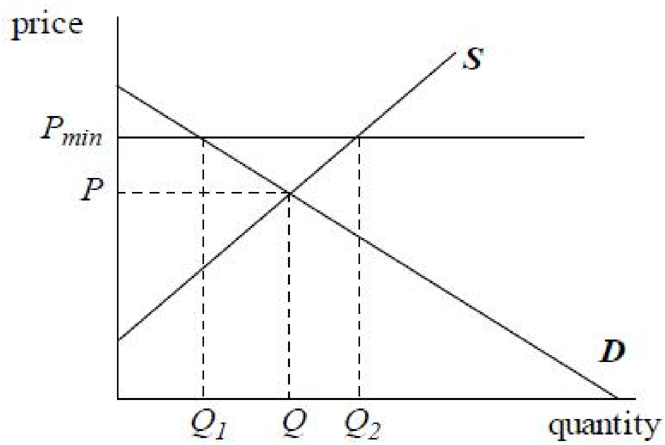
20 – P = P – 10

P = 15

Equilibrium Price = $ 15

Quantity demanded = 5 kg [2]

**ii)**




Quantity demanded will be now 2 kg and quantity supplied will be 8 kg.

Hence due to minimum price floor, a surplus in supply of (Q2 – Q1) will develop. [3]

**iii)** Reason:

1. To protect the farmer from low price
2. To set minimum wage for workers. Else the workers might be exploited. [1]

**iv)** Issues:

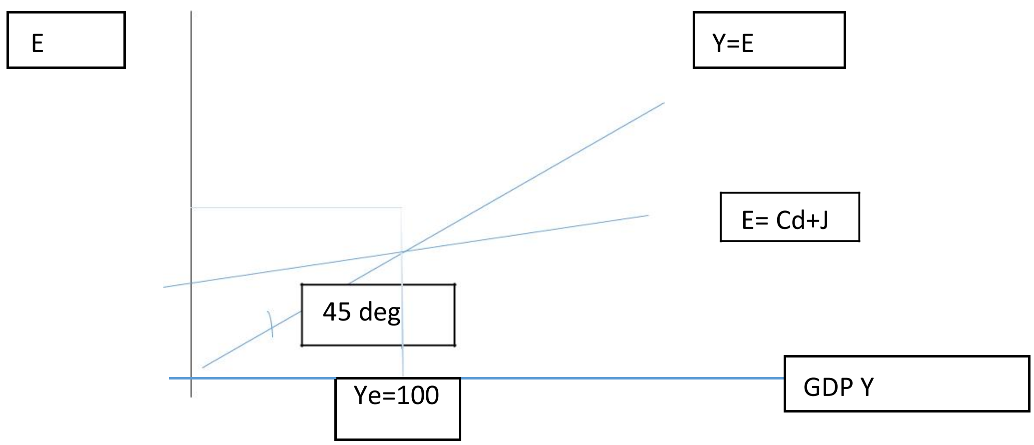
1. Setting minimum floor price may lead to excess supply. This may result in wastage of natural resources
2. If the equilibrium price is lower than minimum floor price, then it may result in 'black' marketing of goods, where the products are sold at a lower price than minimum floor price.

[1]

**[7 Marks]**

**Solution 35: Keynesian 45-degree diagram showing equilibrium national income:**

**i)**




E= Planned expenditure

J= Planned injections

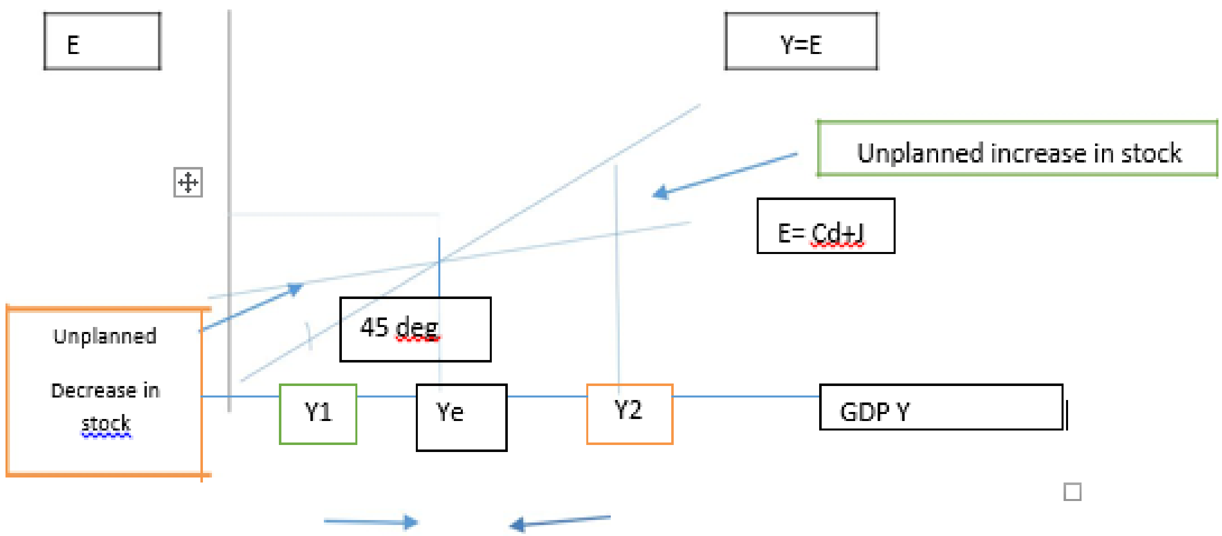
Cd= Consumption of domestically produced goods

Y= level of income

At 45 degree point Y=E

[2]

**ii) Restoring equilibrium:**




- At Y1, aggregate demand exceeds GDP ( output) so stocks would run down and firms will increase production.
- At Y2, GDP output exceeds aggregate demand so stocks would built up and firms would decease production.
- In this way equilibrium income would be restored

[2]

**iii)** The greater the marginal propensity to consume (mpc), the greater will be the multiplier k = 1/ (1-mpc d).

1. Therefore, countries which have higher levels of savings, taxation or consume proportionately more imports relative to home produced goods will have a lower marginal propensity to consume and thus a smaller multiplier.
2. Countries that have low levels of savings, lower levels of savings, lower levels of taxation and consume relatively more home produced goods, will have higher marginal propensity to consume and larger multiplier.

Hence, different countries have different multipliers**.** [3]

**iv) The multiplier:**

K = 1/ (1-mpc d)

=1/ **[**1-(1-0.4)**]**

= 2.5

Therefore, delta Y = k * delta j

= 2.5 * 50

= 125

[2]

**[9 Marks]**

**Solution 36:**

**i)**

1. Frequent changes in currency value could adversely affect trade and investment by creating uncertainty and losing business confidence. Government, therefore, wish to prevent fluctuations in currency value.

2. The measures available to the central bank in this regard would depend on whether the aim is to curtail day to day or longer term changes in exchange rate.

3. If the government aims to maintain the value of currency close to a long term equilibrium value , it could buy or sell the domestic currency in the foreign exchange market. The central bank's intervention will result in reverse shifts in demand and supply curves and the desired exchange rate would be restored.

4. To alleviate the downward pressure on the currency, the government could borrow foreign currency from other countries and international agency like IMF. It could use the loan to buy domestic currency in international market. This will result in returning the demand and supply curves to the original positions and the currency value to resume its original level.

5. The another measure is; the government could raise interest rate temporarily. This will encourage those aboard to deposit their money in the domestic country. Raising interest rate will result in an increase in demand for and decrease in supply for domestic currency.

6. Government can use fiscal and monetary policies to maintain the monetary value of the currency for longer periods such as months and years.

7. Contractionary fiscal and monetary policy can be used to reduce aggregate demand. A contractionary fiscal policy would involve raising taxes / reducing government spending. A contractionary monetary policy would involve raising interest rate to reduce borrowing and hence aggregate demand.

8. A reduction in aggregate demand would reduce expenditure on imported goods and hence reduce supply of currency in foreign exchange market. A reduction in aggregate demand would also reduce inflation. With lower prices in domestic market, exports will be cheaper and more attractive to consumers aboard and hence increase their demand for domestic currency. There will also less demand for expensive foreign goods leading to lower imports and lower supply of domestic currency. Both effects will support value of domestic currency.

9. The government may also improve supply side policies like improving the long term competitiveness of the domestic industry by improving quality of goods produced and lowering

   the production cost. This can be achieved for quality of training and research / development.

[5]

**(ii)**

**The government can take steps to improve market equilibrium and motivate people to avail health insurance. The possible steps are as follows:**

1. **Provision of information**: The Government can create the awareness on importance of health insurance. This can be done by government sponsored advertisements in public interests and various sponsored programs on TV, running educational programs in schools etc.

2. **Enhanced Tax breaks can play a role in incentivizing health insurance purchase**: The government can reduce service tax on health insurance products as these products provide basic protection and are not purchased for financial returns. The government can consider exempting health insurance from GST or service tax.

3. A universal health care scheme will cover vulnerable sections of the population. Moreover, increasing the tax exemption to 100% of premium paid for private insurance can motivate people to buy additional health cover. This will also help increasing health insurance penetration in the country.

4. Government can boost health insurance in the country by introducing state sponsored health insurance to cover poor families in mass number. This will increase the awareness and adoption of health insurance across the country.

5. Digitization can make health insurance products viable and accessible. Government is encouraging digital payments for insurance policies. Discounts are offered by the insurers in premiums for policies which are bought on line by the policyholders. The government needs start-ups that can leverage digital distribution platforms to make

insurance accessible across the country and also build big data and machine learning capabilities to improve insurance risk assessment.

[5]
**[10 Marks]**

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