ECONOMICS NOVEMBER 2009

Solution 1

a) Bertha's statement is FALSE. If a company's adverts are successful it will not increase quantity demanded but rather the demand for the product. A successful advert shifts the demand curve outwards.

b) Nsiah's statement is FALSE. If the price elasticity of demand for the product at 0.6, it is inelastic. A price cut will lead to a fall in total revenue because the percentage fall in price will be greater than the percentage increase in quantity demanded. This will rather take them away from their sales target.

c) Armah-Attoh's statement is TRUE: The long queue in the canteen will be greatly reduced if the price of a plate of food is increased. This is so because the quantity demanded depends on price and varies inversely with price all other things being equal. If the price per plate is increased, its relative price increases and quantity demanded falls. Consumers will reduce their rate of purchases and the queue will reduce.

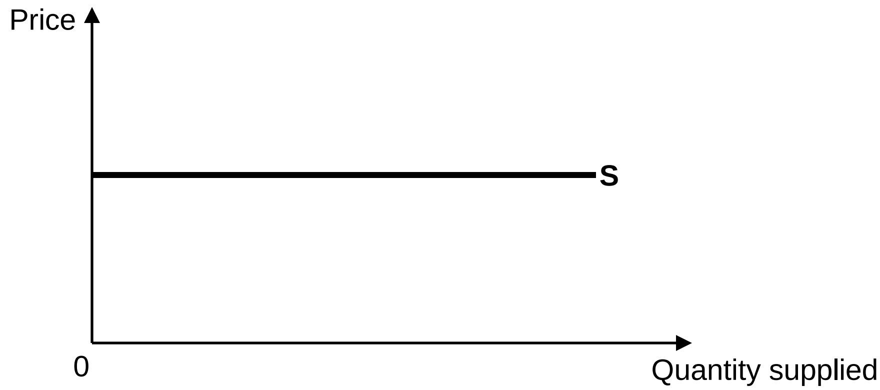
d) Brobbey's statement is FALSE: According to the law of diminishing marginal utility, the total utility Nsiah will obtain from the plate of rice will not decrease but will increase at a diminishing rate. It is Nsaih marginal utility that decreases but it is positive.

e) Kwame's statement is FALSE: – According to the law of diminishing marginal utility, Kwame's marginal utility falls throughout as he consumes more plates of rice given that his taste remains unchanged as well as his consumption of other goods.

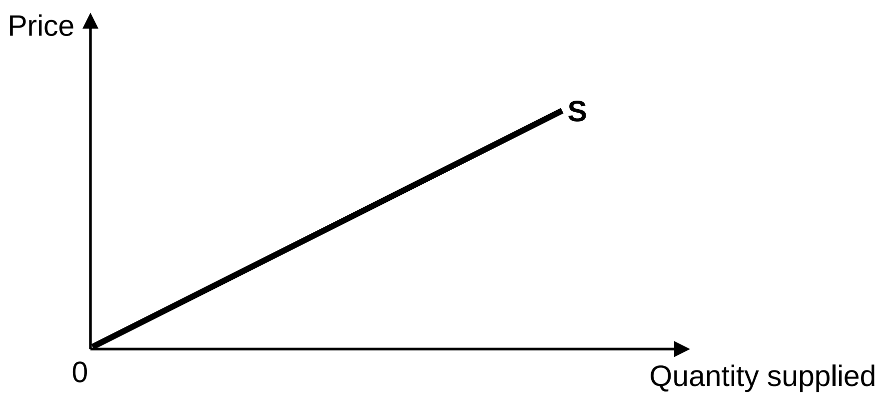
SOLUTION 2

a) Price elasticity of supply measures the degree of responsiveness of quantity supplied of a commodity to a change in its price. (2 marks).

b) Supply is perfectly elastic when the coefficient of elasticity of supply (E_s) = ∞ (infinity). Sellers are prepared to sell all they can at some price and none at all at even slightly lower price. The supply curve in this case is horizontal to the quantity - axis or the x – axis as shown in this diagram.



On the other hand, supply is unitary elastic when $E_s = 1$, that is quantity supplied changes by exactly the same percentage as does price. The supply curve in this case is a straight line passing through the origin as shown in this diagram.



c) Some factors that influence elasticity of supply are:

i) The ease with which factors of production can be moved from one line of production to another. If inputs can be readily shifted from one industry to another or from one activity to another then output can be greatly increased with little increase in price. This would indicate that supply elasticity is relatively large. On the other hand, if resources cannot be shifted from one use to another then supply would be relatively less elastic.

ii) Time period under consideration is another factor determining supply elasticity. The longer the time period considered, the more elastic is the supply. In the long run there are more options for change so it is easier to change into the production of another good. This means that a given change in price will have a larger effect on quantity supplied as the time for suppliers to respond increases. This means supply is more elastic in the long run than in the short run.

iii) Behaviour of cost of production: Elasticity of supply depends greatly on how costs behave as output is varied. If costs of production rise rapidly as output rises, then incentive to expand output in response to a rise in price will be quickly eroded by increases in costs. In this case supply will tend to be relatively less elastic.

If on the other hand, costs rise relatively slowly as production increases, a rise in price that raises profits will encourage a large increase in quantity supplied. Here supply will tend to be relatively more elastic.

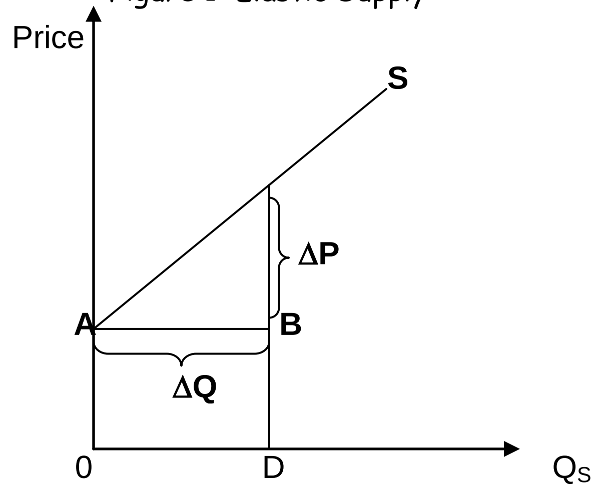
iv) Capacity utilization: If firms have excess capacity, supply is relatively more elastic and vice versa.

NOTE: SPECIAL PROPERTIES OF LINEAR SUPPLY CURVES

Many students had difficulties drawing the supply curve for unitary elastic. Under this section we demonstrate that the price elasticity of linear supply curves depend on whether it cuts the price axis or the quantity axis or passes through the origin. We believe this will help candidates.

1. Linear supply curve that cuts the price axis is elastic throughout its length.

Figure 1: Elastic Supply



The formula for price elasticity of supply is given as

$$E_S = \frac{\Delta Q_S}{\Delta P} \times \frac{P}{Q_S}$$

Where

ΔQ_S = absolute change in quantity supplied
ΔP = absolute change in price
P = base price
Q_S = base quantity supplied

From Figure 1

ΔQ_S = AB = 0D
ΔP = CB
P = CD
Q_S = 0D

Hence

$$E_S = \frac{0D}{CB} \times \frac{CD}{0D}$$

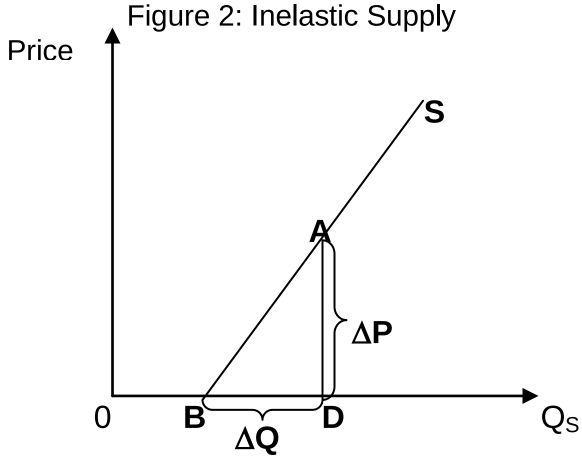
From this the ODs cancel and

$$E_S = \frac{CD}{CB} > 1$$

E_S is greater than 1 because CD > CB. We conclude that any linear supply that cuts the price axis is price elastic long its length.

2. Linear supply curve that cuts the quantity axis is inelastic throughout its length.

Figure 2: Inelastic Supply



Again we employ the formula for price elasticity of supply to show that the supply curve in Figure 2 is inelastic along its length. In Figure 1:

$\Delta Q_S = BD$
$\Delta P = AD$
$P = AD$
$Q_S = 0D$

Hence

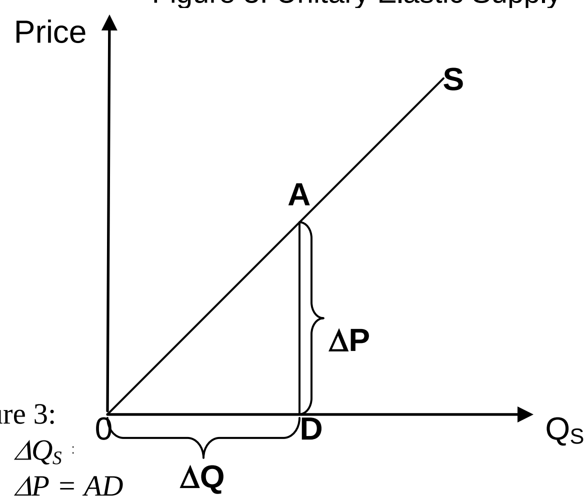
$$E_S = \frac{BD}{AD} \times \frac{AD}{0D}$$

$$E_S = \frac{BD}{0D} < 1$$

The AD_S cancel and ES < 1 because BD < 0D showing that $E_S < 1$.

3. Linear supply curve that passes through the origin has unit elastic supply throughout its length regardless of whether it forms an angle of 45^o or not.

Figure 3: Unitary Elastic Supply



In Figure 3:

ΔQ_S
$\Delta P = AD$
$P = AD$
$Q_S = 0D$

Hence

$$E_S = \frac{0D}{AD} \times \frac{AD}{0D}$$

$$E_S = 1$$

The AD_S and the 0Ds cancel and $E_S = 1$.

Reference:

Pomeyie, Paragon: *MACROECONOMICS: An Introductory Textbook* 3rd Edition, Charis Press and Publication, Accra, Ghana (2006).

Solution 3

a) The market mechanism is a situation where the forces of demand supply are allowed to determine the price of goods and services in an economy.

OR

It is a system where the price determines what goods and services to produce and allocate resources to the productive activities and distribute the final output among competitive uses.

b) Governments intervene with the market mechanism for the following reasons.

i) The failure of the market system in allocating resources efficiently.

ii) The case of public goods that have no price and are not being produced by individual producers.

iii) To prevent the exploitation of consumers by monopoly producers.

iv) To alter the distribution of income in accordance with social /equity objectives

v) To promote economic growth and stability

vi) To provide essential economic services which cannot be provided efficiently or adequately by private individuals and firms through the price system

Solution 4

a) Kwame is operating in the short run. This is so because he is operating with fixed input (2 hectares of farm land) and a variable input (farm hands).

b)

Land (Hectares)	Farm Hands	Total Output of Farm hands	Average Output of Farm hands	Marginal Output of Farm hands
2	1	10	10	10
2	2	24	12	14
2	3	39	13	15
2	4	52	13	13
2	5	61	12.2	9
2	6	66	11	5
2	7	66	9.4	0

c) The Law of Diminishing Returns to Variable Proportion. It states that other things being equal - e.g. given technology and a fixed quantity of some inputs - as the employment of a variable input increases given the fixed inputs, Marginal Product (output) of the variable input initially increases but eventually diminishes.

This principle shows that there is a certain optimum ratio between fixed and variable inputs **which when exceeded** will bring about diminishing returns. When such a ratio is exceeded diminishing returns set in, because the variable input will be proportionately more than the capacity of the existing fixed factor.

d) In Kwame's Output Table above the law of diminishing returns sets in when 4 farm hands are hired. The marginal product starts to decline from 15 bags of maize to 13 bags of maize .

Solution 5

a) Direct taxes are taxes imposed on the incomes or the earnings of a person or a corporate body and are paid directly to the government through public authorities such as the Internal Revenue Service or the local authority.

Indirect taxes are taxes imposed on goods and services and are paid only when these goods and services are bought.

Under direct taxes each individual's tax liability is assessed separately. People who pay direct taxes cannot shift the incidence or burden of payment to some other individuals. For indirect taxes the incidence or the burden of payment can be passed to others to pay.

b) Ad valorem tax is levied in percentages, that is, a fixed percentage of the total value of the good is taken as tax. For instance, a 15% tax levied on the total values of a good is ad valorem.

Specific tax is a fixed amount charged or levied on each physical unit of a good irrespective of its value. For example, a tax of GH¢1 may be levied on each unit of a good irrespective of the value of that good. Suppose that the government levies a tax of GH¢200 on every vehicle. This tax is specific.

c) A tax is proportional when every taxpayer pays the same proportion of his income or wealth as tax. The wealthier taxpayer pays more in absolute terms but in relative terms he pays the same percentage of his income as any other person. For example, if 20% of all incomes is taken as tax then the tax structure is proportional.

A progressive tax provides that a taxpayer with a higher income should not only pay a larger absolute amount in tax, but also his tax liability should represent a larger proportion of his income. The tax is graduated, that is, the tax rate increases as the level of income rises.

d) i. Revenue: The most obvious aims of taxation is to raise revenue so as to pay for government expenditure in the form of education, construction of roads, pipe-borne water, etc.

ii. Redistribution of Income: The government may then impose taxes to redistribute income and bridge the gap between the higher income earners and the lower income earners.

iii. Discouraging the consumption of certain commodities: Taxes may be used to prevent and reduce the production and consumption of some commodities in an economy.

iv. Protection of infant industries: Infant industries are newly established industries to produce goods that were formally imported. To protect them the government imposes taxes on these imported substitutes that the infant industries produce so as to discourage their consumption and importation.

v. To stabilize the economy: Taxes can be imposed or cut to stabilize the economy and achieve internal or external balances.

vi. To control resource movement: The government tax policy can be used to control and direct resource movement

Solution 6

a) i) The "100" in the consumption function is the autonomous consumption expenditure. This is consumption expenditure when disposable income equals zero.

ii) The "0.8" is the marginal propensity to consume. It indicates the slope of the consumption function and it measures the extent of a change in consumption expenditure with respect to a change in disposable income.

iii) **"$0.8Y_d$"** is the proportion of consumption expenditure that depends on disposable income (income induced consumption expenditure).

b) i. In equilibrium

$$Y = C + I + G$$

$$Y = 100 + 0.8Y_d + 50 + 80 \quad \text{(1 mark)}$$

$$Y_d = Y - T$$

$$Y_d = Y - 20$$

$$\therefore Y = 230 + 0.8(Y - 20) \quad \text{(1 mark)}$$

$$Y = 230 + 0.8Y - 16$$

$$Y - 0.8Y = 214$$

$$0.2Y = 214 \quad \text{(1 mark)}$$

$$Y = \frac{1}{0.2} \times 214$$

$$Y = 1070 \quad \text{(1 mark)}$$

ii. The multiplier in this economy $(K) = \frac{1}{MPS} = \frac{1}{0.2} = 5$

c) i. The level of disposable income: The level of income is the basic determinant of how much households will consume. If disposable income increases, households' consumption and/or saving increases.

ii. Wealth: This is a stock of accumulated purchasing power stored up from the past. For example, if you have a savings account accumulated from your past earnings, your current spending may be greater than your current income. This implies that what actually determines consumption is not nominal wealth but real wealth, which takes the price level into account.

iii. Expectations: Households' expectations concerning future prices, money income and the availability of goods may have a significant impact on their current spending. Expectations of rising prices and product shortages tend to trigger more spending and less saving, that is, it shifts the consumption function upward and the saving function downward.

iv. Aggregate household indebtedness: This is the purchasing power of the sum of money outstanding that households have borrowed and are currently obligated to repay. If households are in debt to the degree that part of their current incomes are committed to installment payments on previous purchases, they may well be obliged to reduce current consumption as well as savings.

v. Level of prices: Generally, the higher the price level in an economy the lower the volume of real consumption expenditure.

Solution 7

a) Unemployment exists when some members of the labour force are actively looking for jobs for which they are qualified for at the existing wage rate but cannot find jobs.

i) Disguised unemployment: This is unemployment which is not readily visible. It is a situation in which employed resources (usually labour) are not being used in their most efficient ways. A worker may not add anything to the productivity of a firm. His or her withdrawal will have no effect on the firm's output.

ii) Voluntary unemployment occurs when a worker or labour deliberately refuses to look for work at the going wage rate.

iii) Frictional unemployment refers to the maladjustment in the economic system resulting from imperfect labour mobility, imperfect knowledge of job opportunities and the general inability of the economy to match people with jobs instantly and smoothly. A common form of frictional unemployment consists of people who are temporarily out of work because they are changing job and new graduates entering the labour market.

b) Some causes of unemployment in Ghana are

i) Seasonal nature of some jobs e.g. Farming, fishing and construction

ii) Lack of skills especially among school leavers.

iii) Capacity under utilization due to inadequate raw materials.

iv) Reduction in government expenditure- retrenchment of workers.

v) Preference for white collar jobs

vi) Rural-urban drift

vii) Immobility of labour