Faculty of Actuaries **Institute of Actuaries**

2010 Examinations

SPECIMEN SOLUTIONS

Subject CT7 — Business Economics
Core Technical

1	D
2	B
3	D
4	C
5	B
6	A
7	A
8	D
9	A
10	D
11	D
12	B
13	D
14	B
15	C
16	B
17	D
18	B
19	B
20	D
21	A
22	D
23	C
24	B
25	D
26	C

27 (i) Three of the following:

- The price of and /or return on substitutes for shares in general, for example other forms of saving, or property.

- Incomes

- Wealth

- Expectations

(ii) For petrol, availability and price of substitutes is important in determining the price elasticity of demand, so any policy which encourages use of public transport or car sharing in the short run and the development of alternatives to petrol in the long run.

28 (i) Moral hazard refers to a situation when the individual holding an insurance policy becomes less careful and increases his risk to the insurance company.

(ii) Two of the following:

- A no-claims bonus.
- The insured having to pay a proportion of the value of the loss.
- Offering lower premiums to those less likely to claim.
- Invalidating claims if pertinent facts have not been disclosed

29 A brief explanation of the following methods of changing the money supply: open market operations, central bank lending, funding, changing the minimum reserve ratio, mentioning how these work to stimulate aggregate demand. A list of the items will not gain full marks.

30 (i) A – Conglomerate B – Horizontal C – Vertical

(ii) Mergers will generally have the effect of increasing the market power of those firms involved. This could lead to less choice and higher prices for the consumer. This is the reason for government's competition policy.

31 As marginal cost MC and marginal revenue MR are equal at 8 units of output, this is the profit maximising output for the market as a whole. The MR in each market should also be 5 as otherwise the firm could switch units of output to the market with the higher MR.

(i) Total revenue TR in each market:

$$\mathrm{TR}_x = P_x\, Q_x = -Q_x^2 + 11Q_x$$
$$\mathrm{TR}_y = P_y\, Q_y = -2Q_y^2 + 25Q_y$$

(ii)

Q	1		2		3		4		5		6
TR_x	10		18		24		28		30		30
MR_x		8		6		4		2		0	
TR_y	23		42		57		68		75		78
MR_y		19		15		11		7		3	

Note: the marginal revenue, MR, at a given level of output x, shows the change in total revenue on moving from output of x to $x + 1$.

The above schedule shows that $\mathrm{MR}_x = \mathrm{MC} = 5$ when $Q_x = 3$ and $P_x = 8$ and $\mathrm{MR}_y = \mathrm{MC} = 5$ when $Q_y = 5$ and $P_y = 15$.

32 The descriptions could cover:

External benefits and external costs of production and external benefits and external costs of consumption.

For example:

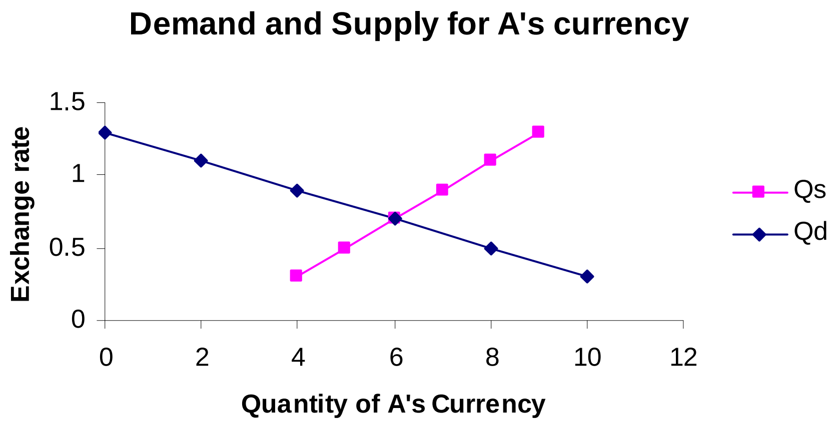
A chemical firm dumping waste in a river or polluting the air, would cause additional cost to the community over and above the cost borne by the firm. This is a negative externality relating to production.

A forestry company planting a woodland would reduce CO_2 and benefit the world over the company's benefit. This is a positive externality relating to production.

Use of cars causes others to suffer congestion, air pollution and noise, imposing costs other than that born by the user. This is a negative externality relating to consumption.

Similarly, travel by train will reduce congestion, pollution and fewer accidents on the road. This is a positive externality relating to consumption.

33 (i)



The equilibrium exchange rate for A's currency is 0.7 at the point of intersection of Q_d and Q_s.

(ii) If the exchange rate were above 0.7, the supply of A's currency offered to banks would be above its demand. Banks would not have enough of B's currency to exchange for all units of A's currency offered so the banks would lower the exchange rate in order to stimulate a greater demand for, and to reduce the supply of A's currency, until demand and supply were equal. Conversely, if the current exchange rate were below 0.7, the banks would have to raise the exchange rate.

(iii) (1) A fall in interest rates in Country A would make the country less attractive to savers and other depositors. So there will be a higher supply of the currency as Country A's residents will deposit their money abroad, and lower demand for the currency as fewer people abroad would deposit their money in A.

(2) Higher inflation in A than in B would mean A's exports would become less competitive so the demand for A's currency would fall. Also imports would become relatively cheaper for residents of A, causing the supply of A's currency to rise.

34 (i) Bank deposits multiplier is 1/Liquidity ratio = 1/0.1 =10

The increase in total deposits = £50b × 10 = £500b

(ii) If the banking system creates deposits resulting from extra cash coming into the banking system and the public decides to hold part of the deposits as cash outside the banking system, this would mean some of the extra cash would leak out of the banking system. This will result in the overall multiplier effect being smaller than the full bank deposits multiplier.

35 (i) Multiplier $K = 1/(1 - mp_{cd}) = 1/\ (1 - 0.75)$
$K = 4$
Increase in GDP = 20*4 = 80

(ii) The lower the marginal propensity to consume domestically produced goods and the higher the marginal propensity to withdraw, the lower the value of the multiplier. In some countries households may prefer to save a higher proportion of their income leading to a lower multiplier value.

36 (i) Features of a product:

- Technical standards
- Quality standards
- Design characteristics
- Service characteristics

(ii) Explanation of the following factors for the fall and rise in popularity of own-brand products:

Cost : Branded manufacturers' low costs due to economies of scale have been matched by supermarkets because of improvements in technology and close links between suppliers and retailers.

Quality: Supermarkets have introduced higher quality own brand products to compete with the branded manufacturers. Surveys show that consumers perceive own brand products to be better value than branded products.

State of the economy: An important factor in selecting to buy own-brand products is consumers' income. In the recession of the 1990s, sales of own brands grew as consumers became price sensitive seeking good value products. The rise in disposable income at the turn of the century led to increased conspicuous consumption, as many branded products were associated with better quality of lifestyle.

Advertising and creating consumer brand loyalty by branded manufacturers. Advertising by branded manufacturers targets particular markets, making the advertising effort more efficient.

So, economic prosperity and economies of scale in marketing works in favour of branded manufacturers. However, sales of own-brand products in some sectors is growing and own-brand products provide a strong stimulant for competition.

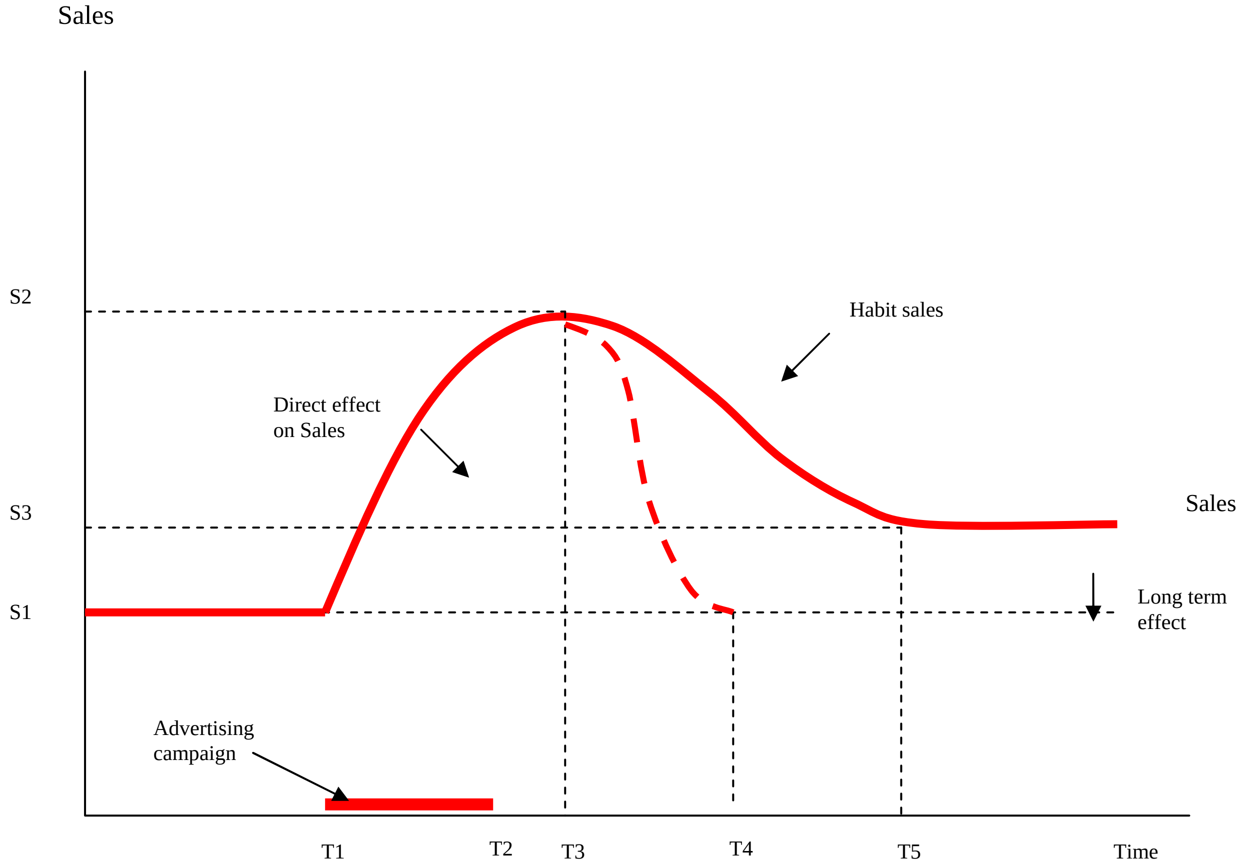
(iii) In favour of advertising:

- Provides information
- Breaks down barriers to entry
- Aids product development
- Encourages price competition
- Economies of scale by increasing sales

Against:

- May mislead consumers by persuading them to buy an inferior advertised product
- Creates wants so promotes scarcity
- Increases materialism
- Uses resources which could otherwise be used to produce more goods
- The cost of advertising will increase the price of the product
- Economies of scale due to increased sales will not be gained if other firms also advertise
- Can create barriers to entry by promoting brand loyalty
- External costs to the society as a whole, since most people find advertising annoying

(iv)



Description of the movement in sales from S1 at the start of the campaign at time T1 through to S2 and S3 on the diagram.

Comments could cover:

The key element of profitability is customer value which is shaped by advertising. Customer value is in turn determined by the product's perceived quality relative to its price. Advertising expenditure relative to competitors will enhance product image and company reputation leading to enhanced perceived relative quality of offering in relation to its price. The enhanced customer value will increase market share which leads to higher profit margin as well as growth and real market growth.

END OF SOLUTIONS