## $\Gamma \underset{\text { TUITION }}{\text { EXPERT }}$

## Economics Questions By Topic:

## Indirect Taxation (1.4.1) Mark Scheme

## A-Level Edexcel Theme 1

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## SECTION A



| Question Number | Answer | Mark |
| :---: | :---: | :---: |
| 2(a) | The only correct answer is C <br> A is not correct because $O P_{1} H Q_{1}$ is the total cost of the product plus tax revenue producers' share of the tax <br> B is not correct because $P_{2} P_{1} H J$ is the consumers' share of the tax <br> D is not correct because $P_{3} P_{2} J K$ is the producers' share of the tax | (1) |
| Question Number | Answer | Mark |
| 2(b) | Knowledge 1, Application 1, Analysis 1 <br> Knowledge/understanding <br> 1 mark for correct definition of specific tax e.g. specific tax is a set amount per unit of the product sold <br> Application <br> 1 mark for e.g. of specific tax such as: <br> - fuel duty <br> - alcohol and tobacco duty <br> - gambling duties <br> - air passenger duty <br> - sugar tax <br> Analysis <br> 1 mark for linked development e.g. to internalise the externalities accruing to the consumption of products causing external costs <br> (1). Reference to 'sin taxes' (1). Raising revenue (1). | (3) |


| Question Number | Answer | Mark |
| :---: | :---: | :---: |
| 3(a) | Application 1 <br> The only correct answer is A <br> B is not correct because the candidate has mistakenly divided 1070 by 0.5 <br> $\boldsymbol{C}$ is not correct because the candidate has mistakenly multiplied 1070 by 1.005 <br> D is not correct because the candidate has mistakenly multiplied 1070 by 1.05 | (1) |


| Question <br> Number | Answer | Mark |
| :--- | :--- | :--- | :--- |
| 3(b) | Average annual household bill (£) |  |


| Question <br> Number | Answer | Mark |
| :--- | :--- | :--- |
| 3(c) | Knowledge 1 |  |
|  | Knowledge <br> an indirect tax is imposed on producers (suppliers) by <br> the government (1) <br> tax on good or service which is added to their price (1) <br> tax on consumer expenditure (1) | (1) |


| Question <br> Number | Answer | Mark |
| :--- | :--- | :--- |
| 4(a) | C |  |


| Question <br> Number | Answer | Mark |
| :--- | :--- | :--- |
| $\mathbf{4 ( b )}$ | Application 2 <br> Application: 1 mark for calculating the unit incidence <br> of the tax on consumers and 1 mark for calculating the <br> total e.g. <br> $\mathbf{7 . 3 9 - 5 . 1 0 ~ = ~ 2 . 2 9 ~ ( 1 ) ~} \mathbf{x ~ 1 0 ~ 0 0 0 ~ = ~ \$ 2 2 ~ 9 0 0 ~ ( 1 ) ~}$ <br> NB if the answer given is \$22 900 award 2 marks. | (2) |


| Question Number | Answer | Mark |
| :---: | :---: | :---: |
| 4(c) | Application 2 <br> Application: 1 mark for tax per packet of cigarettes and 1 mark for calculating the total tax revenue. $\begin{equation*} \text { 7.39-3.58 = \$3.81 (1) x } 10000=\$ 38100 \tag{1} \end{equation*}$ <br> NB if the answer given is $\$ 38100$ award 2 marks. | (2) |


| Question Number | Answer | Mark |
| :---: | :---: | :---: |
| 5 | Correct option B (1 mark) <br> - Identification that this is an indirect tax / is an ad valorem tax ( 1 mark) <br> - The effect of the tax is to act like an increase in production costs (1 mark) <br> - Supply curve pivots inwards / a non-parallel leftward shift in supply curve ( 1 mark) <br> - Annotation of diagram to show an increase in equilibrium price and a fall in output / the tax area. (1+1 marks) OR suitable written explanation of supply decreasing and price increasing. (1 mark) <br> Rejection marks <br> - Option A incorrect since an outward shift of the supply curve would be the result of a subsidy. (1 mark) <br> - Option C incorrect since as a tax imposed on a good adds to the supply price, so shifting the supply curve rather than the demand curve / an increase in income tax would cause the demand curve to shift inwards / other factors which may shift the demand curve inwards. (1 mark) <br> - Option D incorrect since this is the effect of a specific tax which causes a parallel shift in the supply curve / a specific tax is imposed as a fixed amount per unit of good. (1 mark) | (4) |


| Question Number | Answer | Mark |
| :---: | :---: | :---: |
| 6 | - D (1 mark) <br> - Air passenger duty is an indirect tax or specific tax or expenditure tax / set as a fixed amount per unit of good (1 mark). <br> - The tax has the effect of increasing production costs (1 mark). <br> - Reason for the tax increase: an environmental tax to reduce carbon emissions from air travel / to reduce negative externalities (1 mark). <br> - Diagrammatic analysis or written explanation: parallel shift of supply curve inwards / tax area or incidence identified / original price and new price identified on the diagram (1+1 marks). <br> - Rejection marks <br> - Option A incorrect as the tax increase will reduce consumer surplus (need to show by diagram or define consumer surplus - only award the definition when used for rejection of A) ( $\mathbf{1}$ mark). <br> - Option B incorrect as tax revenue will increase if demand is price inelastic (need to show by diagram or explain meaning of inelastic in terms of causing a proportionate smaller fall in demand) (1 mark). <br> - Option C incorrect as producer surplus will decrease as the government takes some of the producer surplus as tax revenue / need to show by diagram or define producer surplus - only award the definition when used for rejection of C (1 mark). | (4) |


| Question Number | Answer | Mark |
| :---: | :---: | :---: |
| 7 | Answer A |  |
|  | - Definition of an ad valorem tax (tax set as a |  |
|  | - It is an ad valorem tax since there is a pivotal shift in the supply curve. (1 mark) |  |
|  | - Producers pay most of the tax since demand is price elastic. (1 mark) |  |
|  | - Producers pay $£ 70$ per unit or $10 \times £ 70=£ 700$ (1 mark) |  |
|  | - Consumers pay $£ 30$ per unit or $10 \times £ 30=£ 300$ (1 mark) |  |
|  | > (These may be shown by annotation of diagram of producer and consumer tax but do not double award). (1+1 marks) |  |
|  | Rejection marks <br> > Option B / D incorrect since a specific tax would cause a parallel shift in the supply curve (1 mark) |  |
|  | > Option C incorrect as tax incidence falls mainly on producers as shown by diagram (need annotation here) / or use of figures (1 mark) | (4) |


| Question Number | Answer | Mark |
| :---: | :---: | :---: |
| 8 | - Answer D <br> - Definition of consumer surplus (the difference between the price a consumer is prepared to pay for a good and the market price; also accept the area above the equilibrium price and below the demand curve) (1 mark). <br> - Definition of specific tax (a fixed charge imposed per a unit of good / a tax placed on the expenditure on a good / a compulsory levy on suppliers) (1 mark) <br> - Original consumer surplus is ZXPe / annotation of diagram (1 mark). <br> - New consumer surplus is ZYP1 / annotation of diagram (1 mark). <br> - Consumer surplus falls by PeP1YX / annotation of diagram (1 mark) <br> Rejection marks include <br> > Option A is incorrect since P1Y times YN is total tax revenue (1 mark). <br> > Option B is incorrect since producer surplus decreases from PeXT to P1YR (1 mark). <br> > Option C is incorrect since the price of air tickets rise from Pe to P1 (1 mark) | (4) |

## SECTION B

| Question Number | Answer | Mark |
| :---: | :---: | :---: |
| 9 | KAA = 8 marks <br> - Definition of indirect tax (a compulsory charge or levy on the expenditure of a good). <br> (1 mark) <br> - The tax acts as if there is an increase in costs of production. (1 mark) <br> - Indirect tax diagram (up to 4 marks) <br> $>$ Original demand and supply curve with equilibrium price and quantity (1) <br> > Inward shift of supply curve to S1 with new equilibrium price and quantity (1) <br> > Tax area identified (1) <br> $>$ Tax areas for consumers ( $\mathrm{P}_{1} \mathrm{XZPe}$ ) and producers (PeZYW) identified (1) <br> NB: accept ad valorem tax which shows a pivotal movement of the supply curve. <br> NB: accept diagram showing the tax being placed on marginal private costs to internalise the externalities. |  |



|  | - Discussion of consumers switching to substitutes such as fizzy flavoured drinks / could be more harmful to consumers. <br> - The tax could internalise the external costs of production / eliminate the triangle of welfare loss and so lead to social optimum equilibrium position. <br> - Discussion on impact on affordability of an essential resource / implications for consumers on low incomes. <br> The quality of written communication will be assessed in this question based on the candidate's ability: <br> To present an argument and conclude on the basis of that argument. <br> > To organise information clearly and coherently. <br> > To use economics vocabulary appropriately. <br> $>$ To use grammar, spelling and punctuation appropriately. | (14) |
| :---: | :---: | :---: |


| Question Number | Answer | Mark |
| :---: | :---: | :---: |
| 10 | KAA = 8 marks <br> - Definition of indirect tax (a compulsory charge or levy on the expenditure of a good). (1 mark) <br> - The tax acts as if there is an increase in costs of production. (1 mark) <br> - Indirect tax diagram (up to 4 marks) <br> > Original demand and supply curve with equilibrium price and quantity (1) <br> Inward shift of supply curve to $S_{1}$ with new equilibrium price and quantity (1) <br> Tax area identified (this must be explicit) (1) <br> Tax areas for consumers and producers identified (1) <br> NB: accept ad valorem tax which shows a pivotal movement of the supply curve. <br> NB: If no relevant diagram award a maximum of 6 out of 8 KAA marks <br> - Explanation that the tax causes price to rise and output to fall. (1 mark) <br> - Explanation of impact on profits or revenue of iron ore producers / share price and dividends implications. (1+1 marks) <br> - Investment implications / possible exit from industry ( $\mathbf{1 + 1}$ marks) |  |

- Job losses / with development e.g. welfare costs to the government. (1+1 marks)
- The tax will reduce producer surplus / application to diagram. ( $\mathbf{1 + 1}$ marks)
- Mining firms may be less competitive on international markets / with development e.g. they may relocate. (1+1 marks)
- Accept any relevant economic effect on consumers and government. (1+1 marks).


## 6 Evaluation marks (2+2+2 or 3+3 or 1+2+3 or any combination up to four points)

- Discussion of price elasticity of demand for iron ore or price elasticity of supply of iron ore / the more price inelastic demand, the less tax burden on iron ore producers.
- Discussion of how mining companies may try and make efficiency savings to remain competitive / cut wages or increase productivity.
- Discussion of magnitude of tax / with development.
- Discussion of short run and long run effects e.g. firms might hold prices and accept lower profits in short run but be forced to raise prices in the long run. Also tax may change in the long run.

The quality of written communication will be assessed in this question based on the candidate's ability:

- To present an argument and conclude on the basis of that argument.
- To organise information clearly and coherently.
- To use economics vocabulary appropriately.
- To use grammar, spelling and punctuation appropriately.

| Question Number | Answer | Mark |
| :---: | :---: | :---: |
| 11 | 8 KAA marks <br> - Explanation of APD as a specific tax or indirect tax levied on air travel from the UK (or tax on expenditure). (1 mark) <br> - The tax acts like an increase in production costs (1 mark) <br> - Effects of the tax - increase price per flight and or reduce quantity of passengers (ceterus paribus) (1 mark) <br> - Diagram (up to 4 marks) <br> Price <br> > Original demand \& supply curves \& equilibrium, position (1) <br> > New supply curve shifted inwards (1) <br> > Unit tax identified as vertical difference e.g. XY (1) <br> > Tax area XYZP1 (1) <br> > Distinguish between consumer tax area XVPeP1 and Producer tax area VYZPe (1+1) <br> NB: Accept pivotal shift in the supply curve inwards. <br> NB: accept a negative externality diagram where a tax has been imposed. <br> NB: award a maximum of 4 out of 8 KAA marks if no relevant diagram offered. | (14) |

- The APD could reduce the number of air flights and so help cut external costs or internalise external costs / such as air and noise pollution. (1+1 marks)
- The APD could reduce profits or revenue of airlines / employment implications / investment implications. (1+1 marks)
- Reduce consumer or producer surplus / shown on diagram. ( $\mathbf{1 + 1}$ marks)
- Raise extra tax revenue that can be used to develop air travel infrastructure / with example. ( $\mathbf{1 + 1}$ marks)
- Increase in demand for substitute modes of travel such as rail and sea ferries but this must be linked back to air travel. (1 mark)
- Reduce international competitiveness of air travel industry in UK / loss of hub business to other airports( $\mathbf{1 + 1}$ marks)


## 6 Evaluation marks ( $\mathbf{2 + 2 + 2}$ or $\mathbf{3 + 3}$ )

- Discussion of magnitude of the increase in APD: $8 \%$ over 2 years is just in line with inflation / no increase in real terms, or, increase in real terms over one year / use of data from Figure 2 - a relatively small tax of $£ 13$ per passenger for flights up to 2000 miles / more significant for long haul flights exceeding 4000 miles.
- Discussion on income level of passengers: not much impact for First class or Business class passengers compared to economy passengers.
- Discussion of price elasticity of demand for flights:
If inelastic then little impact on number of passengers / if elastic then might lead to big reduction in number of passenger flights / diagrammatic analysis.
- Discussion of APD as a proportion of total cost of flight or the price for passengers / airlines might absorb extra tax in production costs and so not pass on to consumers.
- Discussion of possible changes to other air travel costs / for example, fuel and labour costs may decrease.

|  | - Short-run versus long run implications: it <br> depends on whether or not the increase in APD <br> is part of a long term process of tax increases <br> on flights. |  |
| :--- | :--- | :--- |
| - Air travel still treated leniently compared to <br> other goods and services / since no VAT or fuel <br> duties applied. |  |  |


| $\begin{array}{\|l} \text { Questio } \\ \mathrm{n} \\ \text { Number } \\ \hline \end{array}$ | Answer | Mark |
| :---: | :---: | :---: |
| 12 | Explanation KAA up to 6 marks <br> - Definition of fuel duty / indirect tax (tax on expenditure of fuel) (1) <br> - Explanation of diagram, e.g. decrease in motoring costs /encourage more consumption and production (1) <br> - Diagram (Up to 4 marks) <br> > Original demand $\&$ supply curve with equilibrium price and quantity (1) <br> > Outward shift of supply curve (1) <br> > New equilibrium price and quantity (1) <br> > Demand is price inelastic (1) <br> > Total expenditure on fuel is reduced (1) <br> > Identify the tax per unit (1) <br> Note: If no diagram, or one which does not implicitly refer to fuel market then award up to 4 marks in this section. <br> Note: If MPC, MSC and MB diagram used with tax being shown, award up to 4 marks. |  |

- Reference to public transport, where there may be an increase or decrease in demand (1)
- Fuel and cars are complementary goods / a fall in price of fuel will increase demand for cars (1+1)
- Benefit to the motor vehicle industry, e.g. more revenue and profits (1)
- Lower fuel prices may increase mobility of labour (1)
- Benefit to low income motorists (1)
- Accept macroeconomic argument, e.g. increased employment and incomes via the multiplier, impact on inflation (up to 2 marks)

Evaluation (2+2+2 or $3+3$ )
Candidates may refer to positive and negative effects of the fuel tax decrease for evaluation.

- Magnitude of tax decrease. Tax still comprises the majority of fuel price at the pump.
- Discussion of price elasticity of demand for fuel; it may be price inelastic and so have little impact for motorists.
- Discussion of a reduction in possibility of fuel tax protests. Less disruption to economy.
- Impact on economic recovery. It could increase investment in motoring industry / road transport industry.
- Other factors may affect the impact of falling fuel prices, e.g. availability of loans to purchase cars.
- Increase road traffic congestion. This could lead to higher transport costs in long run / increased negative externalities such as air and noise pollution.
- Impact on government finances, e.g. it may worsen since demand for fuel is price inelastic.

| Question Number | Indicative content |
| :---: | :---: |
| 13 | KAA 6 marks <br> - Definition of (indirect) tax (compulsory charge on expenditure) (1 mark) <br> - Tax increase will increase cost of production (1 mark) <br> Diagrammatic or written explanation (up to $\mathbf{3}$ marks) <br> Diagrammatic explanation (decrease in the supply curve / new equilibrium price and quantity shown / tax incidence or tax area shown) (Accept parallel or pivotal shift in supply curve) <br> NB: Accept MPC / MSC diagram with the addition of a tax <br> Written explanation (higher price / lower output / reduce profits for producers) <br> - High petrol tax may reduce consumer and business confidence, increasing chance of a recession (1 mark) <br> - The high tax has added to inflation across economy since so many sectors rely on transport (1 mark) <br> - The tax may reduce external costs / protect environment / reduce C02 emissions \& global warming / move towards social optimum position / internalise external costs (1+1 marks) <br> - More fuel protests which disrupt the economy (1 marks) <br> - Lower consumer surplus or producer surplus (1 mark) <br> - Increase in tax revenue (1 mark) <br> - Impact of high petrol tax on low income groups regressive tax (1 mark) |


|  |  | Evaluation (up to $\mathbf{3 + 3}$ or $\mathbf{2 + 2 + 2}$ marks) <br> Discussion of UK petrol tax rate being very high in comparison to other countries shown in Figure 3 / explicit data reference / implications for UK competitiveness. <br> Discussion of the magnitude of the petrol tax increase / oil prices also falling over latter part of the period. <br> Discussion of long run impact / whether the tax increase is part of an upward trend in taxation. <br> Discussion of difficulties in setting tax rate to internalise external costs, reaching social optimum position (could be too high or too low). <br> > Motorists may reduce non-essential car journeys / use cleaner substitutes, for example, bus and trains or switch to eco-friendly vehicles / development of green transport. <br> Tax revenue raised can be used to clean up environment / fund other areas of government spending such as renewable energy. <br> > Motorists still have the choice to drive - the tax operates with the price mechanism. It is not a regulation. <br> > Demand for petrol is price inelastic, which suggests many motorists are still prepared to pay the higher price for fuel. |
| :---: | :---: | :---: |
| Level | Mark | Descriptor |
| Level 1 | 1-2 | Definition of indirect tax / impact on price and output |
| Level 2 | 3-4 | Explanation of one or two other economic effects |
| Level 3 | 5-6 | Explanation of three or more economic effects |
| Level 4 | 7-9 | One evaluation point well developed |
| Level 5 | 10-12 | Two or more evaluation points well developed |


| Question Number | Answer | Mark |
| :---: | :---: | :---: |
| 14 | Knowledge, Application \& Analysis: (up to 7 marks) <br> - Definition of indirect tax (a government levy or charge on tobacco) (1 mark). <br> - Identification or reference to different types of tax (1 mark). <br> - Tax has effect of increasing costs to producers who try and pass on to consumers in the form of higher prices ( $\mathbf{1 + 1}$ mark). <br> - Also reference to falling profits which lead to less output and hence less consumption (1 mark). <br> - Explanation of diagram / effect in terms of increasing price and reducing quantity demand (1 mark). <br> - Data application e.g. UK has $£ 4.03$ tax per packet of cigarettes (1 mark). <br> Diagram (4 marks) <br> * Inward shift in supply curve (accept parallel or pivotal shift) (1) <br> * Tax incidence for consumers and producers (1) <br> * Overall tax area (1) <br> * Original and new equilibrium price / quantity shown (1) <br> * Demand curve drawn relatively price inelastic (1) <br> Price per unit $£$ | S1 <br> riod |
|  |  |  |


| Note: Accept MPB / MPC / MSC approach for a diagram, but they need to show the imposition of a tax on MPC curve <br> Note: If no diagram award a maximum of five marks for this section <br> Evaluation (3+2 marks for two well developed points or 2+2+1 marks) <br> $>$ Cigarettes are addictive and so demand is likely to be price inelastic. This implies taxation may be ineffective in reducing smoking and a very high tax is required to have an impact. <br> Magnitude of the taxes on cigarettes: this is very large and so must have a significant effect on reducing smoking. <br> Taxation may be ineffective for 'socially disadvantaged' groups as many still smoke. Poorer smokers may lack access to treatments for quitting. <br> Difficult to determine impact of high taxes on cigarettes from other factors causing a decrease in demand (demand estimation problem). <br> The high taxes have encouraged tobacco smuggling. This may represent a government failure since considerable loss of tax revenue according to HMRC. <br> The Tobacco Manufacturers Association estimate that $27 \%$ of all cigarettes consumed in 2006 were non-UK duty paid. This implies that many were breaking the law. | (12) |
| :---: | :---: |


| Level | Mark | Descriptor |
| :--- | :--- | :--- |
| Level 1 | $1-2$ | Definition of indirect tax and/ or recognition of increasing price of <br> tobacco. |
| Level 2 | $3-4$ | Diagrammatic analysis which accurately depicts a decrease in <br> supply and tax incidence or area. (Mark cap to 7 if no evaluation <br> offered). |
| Level 3 | $5-8$ | Diagrammatic analysis which accurately depicts a decrease in <br> supply and tax incidence or area. Limited evaluation offered. |
| Level 4 | 9-12 | Convincing diagrammatic analysis with two or more evaluation <br> points. |

## SECTION C



| Knowledge, application and analysis |  |  |
| :--- | :--- | :--- |
| Level | Mark | Descriptor |
|  | 0 | A completely inaccurate response. |
| Level 1 | $1-4$ | Displays isolated or imprecise knowledge and understanding <br> of terms, concepts, theories and models. <br> Use of generic or irrelevant information or examples. <br> Descriptive approach which has no chains of reasoning or <br> links between causes and consequences. |
| Level 2 | $5-8$ | Displays elements of knowledge and understanding of <br> economic principles, concepts and theories. <br> Applies economic ideas and relates them to economic <br> problems in context, although does not focus on the broad <br> elements of the question. <br> A narrow response or superficial, two stage chains of <br> reasoning only. |
| Level 3 | $9-12$ | Demonstrates accurate knowledge and understanding of the <br> concepts, principles and models. <br> Ability to apply economic concepts and relate them directly to <br> the broad elements of the question with evidence integrated <br> into the answer. <br> Analysis is clear and coherent, although it may lack balance. <br> Chains of reasoning are developed but the answer may lack <br> balance. |
| Level 4 | $13-16$ | Demonstrates precise knowledge and understanding of the <br> concepts, principles and models. <br> Ability to link knowledge and understanding in context using <br> appropriate examples. Analysis is relevant and focused with <br> evidence fully and reliably integrated. <br> Economic ideas are carefully selected and applied <br> appropriately to economic issues and problems. The answer <br> demonstrates logical and coherent chains of reasoning. |


| Evaluation |  | Mark |
| :--- | :--- | :--- |
| Level | 0 | Descriptor |
| Level 1 | $1-3$ | No evaluative comments. <br> Level 2 |
| Ldentification of generic evaluative comments without |  |  |
| supporting evidence/reference to context. No evidence of a |  |  |
| logical chain of reasoning. |  |  |$|$| Level 3 |
| :--- |
| Evidence of evaluation of alternative approaches which is |
| unbalanced leading to unsubstantiated judgements. |
| Evaluative comments with supporting evidence/reference to |
| context and a partially-developed chain of reasoning. |

