OCR
Oxford Cambridge and RSA

GCE

Economics

Unit **F584:** Transport Economics

Advanced GCE

Mark Scheme for June 2017

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All examiners are instructed that alternative correct answers and unexpected approaches in candidates' scripts must be given marks that fairly reflect the relevant knowledge and skills demonstrated.

Mark schemes should be read in conjunction with the published question papers and the report on the examination.

OCR will not enter into any discussion or correspondence in connection with this mark scheme.

Annotations

Please annotate **every** response, even if no credit is given.

Annotation	Meaning
	Unclear
	Benefit of Doubt
	Cross
	Effective evaluation
	Irrelevant
	Level 1
	Level 2
	Level 3
	Level 4
	Not answered question
	Noted but no credit given
	Too vague
	Tick
	Development of point

Subject-specific Marking Instructions

Some questions may have a 'Level of Response' mark scheme.

The following guidelines on the **quality of written communication** are embedded into the Levels of Response mark scheme used for question 3:

Level 4: Complex ideas have been expressed clearly and fluently using a style of writing which is appropriate to the complex subject matter. Sentences and paragraphs, consistently relevant, have been well structured, using appropriate technical terminology. There may be few, if any, errors of spelling, punctuation and grammar.

Level 3: Relatively straightforward ideas have been expressed with some clarity and fluency. Arguments are generally relevant, though may stray from the point of the question. There will be some errors of spelling, punctuation and grammar, but these are unlikely to be intrusive or obscure meaning.

Level 2: Some simple ideas have been expressed in an appropriate context. There are likely to be some errors of spelling, punctuation and grammar of which some may be noticeable and intrusive.

Level 1: Some simple ideas have been expressed. There will be some errors of spelling, punctuation and grammar

Question			Answer	Marks	Guidance
1	(a)	(i)	**Identify the relationship between the demand for air transport and HST transport**. Air transport and HST transport are substitutes for each other. Accept positive XED	1	One mark for a correct identification.
	(a)	(ii)	**Using information from the extract, explain what effect a switch from air transport to train transport may have on road transport.** • The extract mentions most airports on the outskirts of cities (1) so passengers have to travel to them and therefore with less air travel road transport will fall (1). • Road transport is a complement to air transport (1) people drive to the airports or take taxis to get to the airports (1) following a switch less people will travel by road (1)	2	One mark for a correct identification that road transport will fall. One mark for evidence from the extract Alternatively a further mark can be gained from a developed explanation
	(b)		**Identify, using Fig.1 and Fig.2, which country is expected to experience the greatest percentage increase and which the smallest percentage increase in HST lines**. Greatest: Turkey. Smallest: France.	2	Note: Spain 86%; Turkey 217%; Germany 29%; France 11%: Switzerland 206%.
	(c)		**Using the information from the extract, analyse the extent to which the imposition of a tax on aviation fuel would be likely to increase air fares.** Analysis • Would increase costs of production (1) decreasing	5	One mark for each point of analysis Up to 3 marks for analysis Up to 3 marks for further application e.g. use of evidence, PED, consideration of extent.

			supply (1) and so cause fares to rise (1). Application • Extent will be influenced by PED. • The more inelastic demand is, the higher the fares are likely to rise. • The extract suggests demand on some routes is elastic and so fares may not rise by much. • Extent will be influenced by how significant fuel is in total costs. • The extract mentions fuel accounts for 30% of costs which is quite significant. • Falls in other costs may offset the effect of the tax.		Maximum 5
1	**(d)**		**Comment on whether a switch from air transport to HST will reduce environmental damage.** Analysis of why a switch from air transport to HST will reduce environmental damage • May be a reduction in GHG emissions which will improve air quality. • More use of HST may reduce car transport and so further reduce air and noise pollution. Counter analysis • Growth of HST will increase use of electricity. More electricity production may increase GHG emissions if overall use of transport increases.	5	This is a 2+2+1 question Up to 2 marks for analysing whether a switch from air transport to HST will reduce environmental damage. Reward points of development Up to 2 marks for counter analysis. Reward points of development I mark for judgement which may be a simple statement

			• Airlines may increase energy efficiency which will cut GHG emissions created by air transport. • Wildlife habitats may be destroyed to lay HST lines.		
	(e)	(i)	**Using information in the extract, explain why Eurostar may be considered to be a monopolist.** • A monopoly has a market share of more than 25%(1). • It is a monopoly because it has a market share of 60 percent (1).	2	• Market share of more than 25 percent is a legal monopoly • Market share of more than 40 percent is a dominant monopoly and not an absolute monopoly.
1	**(e)**	**(ii)**	**Discuss whether passengers would benefit from an increase in Eurostar's market share of the London to Paris route.** Analysis: • enable greater advantage to be taken of economies of scale and so lower average costs (1) • lower average costs may lead to lower prices (2) • a more profitable and secure firm may innovate which may raise the quality of the service passengers enjoy (2) Counter analysis: • a lack of competition may hamper efficiency	**8**	This is a 3+3+2 question. Up to 3 marks for analysing why an increase in the market share of Eurostar will be beneficial for passengers. Up to 3 marks for a counter analysis of why an increase in the market share of Eurostar will not be beneficial for passengers. Up to 2 marks for a clear conclusion/ judgement. No mark for judgement if only one side analysed. Up to 3 marks can be awarded for one well analysed point on either side.

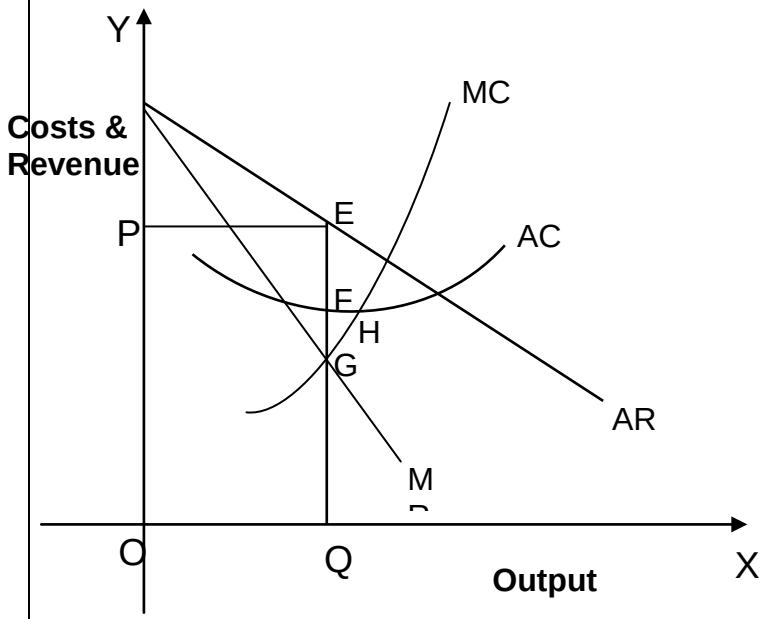
			(organizational slackness) so consumers may not get a better quality service. • a decrease in cost per unit of service may not be passed on to consumers' in the form of lower prices. • Safety and other aspects of the provision of service may be compromised in the absence of competition. • Diseconomies of scale Judgement: • may depend on whether there is efficient government regulation • will be influenced by the firm's objectives • Eurostar will still face competition from other routes.		

Question			Answer	Marks	Guidance	
2	(a)		• Analyse the main factors determining a passenger's choice between different modes of transport. Candidates need to analyse the different factors. **Relevant factors include:** • Relative price/cost • income • Tastes and preferences to include availability, convenience, safety, speed, distance etc. **Relevant analysis of these may include:** Relative price (L1) because this compares the cost of substitutes (L2) in selecting the mode. Analysis using PED etc. in determining choice (L3) Income (L1) as Y rises modes become more affordable/consumers more willing and able (L2) Analysis of YED etc. in determining choice(L3) Tastes (L1) if one is travelling a long distance there is no alternative modes available except air transport/ when one needs to use the transport from one point of the city to the other one has to take into consideration the modes which are suitable for the purpose / bus transport may not be convenient (L2) which determines choice (L3).	15	**Content** Analysis of why the factors are relevant in determining a choice among different modes of transport.= Level 3 Identification AND explanation of factors = Level 2 Identification of factors = Level 1	**Levels of response** **Level 3: (9-15 marks)** For a clear analysis of the factors determining such a choice. 13-15: Very good analysis: Good analysis of two or more factors. 11-12: Good Analysis: Good analysis of one factor OR a basic analysis of two factors. 9-10: Basic Analysis: Basic analysis of one factor. **Level 2: (5-8 marks)** For an application of knowledge and understanding of factors and no analysis. 7-8 marks: Good application: Two or more factors identified and explained. 5-6 marks: Basic application: One factor identified and explained. **Level 1: (1-4 marks)** 3-4 Marks: Identification of factors with very little explanation. 1-2 marks: Just identification of factors without explanation.

Question			Answer	Marks	Guidance	
2	(b)		**Discuss the usefulness of a cost-benefit analysis in deciding whether to undertake a major airport infrastructure development project.** In this section of the question candidates are expected to analyse whether cost benefit analysis is useful in deciding whether or not to undertake a major airport infrastructure development project. To reach Level 4 analysis of BOTH sides is needed along with a judgement. Relevant analysis of why cost benefit analysis is useful, such as: • It is useful because cost benefit analysis is a project evaluation technique which takes into account all costs (both private and external costs) and all benefits (both private and external benefits). (L2) Therefore it is a comprehensive project evaluation technique in sharp contrast to a financial analysis undertaken by private businesses which only take into consideration private costs and benefits (L3). • Application of relevant private/external costs/benefits (L2) analysis re usefulness e.g. It is useful because it puts value to externalities by using non-market valuation techniques. The non-market valuation techniques are used because there is no market price for externalities because these are spill over effects borne by the third parties (L3). • After finding out full costs and benefits the values are discounted to their present value by selecting a suitable discount rate (L2). If the net social benefit	20	**Content** Level 4 (a): Possible judgement includes: The student to achieve this level a balanced discussion of the usefulness of cost benefit analysis must be present along with a judgement. To segregate the level into two subsections a good judgement and a weak judgement must be considered. Level 4 (b): This level must be awarded to answers containing balanced discussion with some application OR a basic discussion containing mainly one sided analysis Level 3 This level must be awarded to answers with one –sided analysis Level 2 answer contains just an application of knowledge and understanding. Level 1 answer contains	**Level of response** **Level 4(a): (16-20)** It must include a judgement as to the usefulness of the cost benefit analysis for making a decision whether to undertake it or not. 18-20 marks: Balanced discussion with good judgement. 16-17 marks: Balanced discussion with weak judgement. **Level 4 (b): (11-15 marks)** It contains balanced discussion. 13-15 marks: Balanced discussion with some application. 11-12 marks: Basic discussion; mainly one sided only. Level 3: (5-10 marks) One sided analysis. 8-10 marks: Good analysis: one sided analysis. 5-7 marks: Basic analysis of one sided in nature. Level 2: (3-4 marks) For application of knowledge and

			is positive, then the airport development project will be beneficial. Therefore, the method is highly suitable because it aims to maximize overall welfare in the society from the airport development (L3). Relevant analysis of why cost benefit analysis is unsuitable, such as: • It is highly time consuming because it takes into account all costs and all benefits which is a lengthy process (L2).Opportunity cost argument or invalidates data (L3). • It is highly difficult if not impossible to put monetary value on the negative and positive externalities of airport development project (L2) because there is no market price for them/is subjective (L3). Conclusion (L4a): Though results of cost benefit analysis are based on estimated monetary values relating to costs and benefits of any planned development project such as an airport it nevertheless is useful analysis. In order to make it more reliable non-market valuation methods must be refined so that the externalities may be assessed properly. And the discount rate should reflect the social preferences of present over the future.		only knowledge and understanding.	understanding. Level 1: (1-2 marks) For only knowledge and understanding.

Question			Answer	Marks	Guidance	
3	(a)		**Analyse, using a diagram, why a firm in monopolistic competition is unlikely to achieve efficiency.** Analysis of productive and allocative efficiencies with reference to monopolistic competition required. There may also be reference to dynamic efficiency Answer may include: • Definition of productive and allocative efficiencies (L1) • Features or characteristics of monopolistic competition (L1) • A diagram showing price and output determination in monopolistic competition by a representative firm (L2) • With reference to the diagram an analysis of why the firm is both productively and allocatively inefficient (L3). • Firms in monopolistic competition provide many close substitutes and thus they increase consumers' welfare/increase allocative efficiency. (L3) Relevant analysis may include: Productive efficiency occurs when AC=MC and allocative efficiency occurs when P=MC (L1) because at AC=MC a full utilization of the existing plant takes place. It means there does not exist idle capacity (L3). When P=MC it means that right amount of economic resources is allocated in the production of the good as	15	**Content** An analysis of why the firm may be considered inefficient on efficiency grounds but overall welfare gains due to the availability of substitutes may compensate the welfare loss reaches Level 3 Definition and explanation with no analysis = L2 Definition with no application= Level 1.	**Level of Response** **Level 3 : (9-15 marks)** For a clear analysis of why a firm in a monopolistically competitive market is inefficient on efficiency grounds but on choice it promoted consumers' welfare and thus may be socially desirable. Diagram is fully applied and correctly drawn. 13-15: Very good analysis: good analysis of why it is inefficient and why not using all criterion. Full application of diagram with correct labelling. 11-12: Good analysis: good analysis of why it is inefficient using some of the criterion. Good application of diagram. 9-10: Basic analysis: basic analysis using some of the criterion. Some errors in diagram. **Level 2: (5-8 marks)** For an application of knowledge and understanding of why the firm is inefficient. 7-8 marks: Good application: some criterion have been applied but not analyzed. Diagram not properly drawn and applied.

			desired by consumers (L3).  The firm in a monopolistically competitive market determines equilibrium output of Q and sets a price of P (L1 & L2) The firm is not productively efficient because AC (FQ) is higher than MC (GQ) and it operates on the downward sloping AC curve which means that there exists idle capacity because the plant is not fully utilized (L3) It is also not allocatively efficient because price (P) is higher than MC (GQ) and therefore too few resources are being utilized. There is underproduction and under consumption and thus welfare loss occurs which is represented by the triangle EGI (L3).			5-6 marks: Basic application: one reason has been explained. Inaccurate diagram and no application. **Level 1: (1-4 marks)** For knowledge an understanding of why the firm is inefficient including definitions and no diagram.

			However, it may be regarded as socially desirable because the firms produce differentiated products and benefit received through a wider range of choice may more than compensate the welfare loss (L3).			
Question			**Answer**	**Marks**	**Guidance**	
3	**(b)**		**Discuss whether increased subsidies would make the UK transport more sustainable.** Increased subsidies to the UK transport sector may lead OR may not to UK transport sector becoming more sustainable. To reach L4 analysis of BOTH sides and with a judgement. Relevant analysis of why the provision of subsidies may make the transport more sustainable: • Provision of increased subsidy to public transport such as buses would reduce bus fares (L2). As a result of this more people may travel by bus rather than travelling by car. This should reduce traffic congestion and pollution in the cities due to a modal shift brought about by increased subsidies. The more price elastic demand is, the larger the increase in demand for public transportation. Similarly demand for car travel should also be elastic so that a shift takes place from car travel to public transport (L3). • The provision of subsidies for the development of alternative modes of transportation such as High Speed Trains (HST) and the development of hybrid cars and other vehicles (L2) which are gentle on	**20**	**Content** Level 4 (a) answer must contain a very good analysis of both the sides of argument. But for an upper band it must contain a good judgment and a weak judgment will get a lower band under this level. Level 4 (b) contains a balanced discussion of both sides without a judgment or a basic discussion containing mainly one side only. Level 3 answers just contain one sided good and basic analysis. Levels1 and 2 answers just contain application of knowledge and understanding or contain just knowledge and understanding.	**Level of response** **Level 4 (a): (16-20 marks)** For an analysis containing very good balanced discussions of both sides and good judgment. 18-20 marks: Balanced analysis with good judgment. 16-17 marks: balanced analysis with weak judgment. **Level 4 (b): (11-15 marks)** 13-15 marks: Balanced discussion without a judgment. 11-12 marks: Basic discussion mainly one sided. **Level 3: (5-10 marks)** 8-10 marks: Good analysis: one sided analysis. 5-7 marks: Basic analysis: a basic analysis of one side.

			the environment may lead to the UK transport sector becoming more sustainable (L3). Relevant analysis of why the provision of subsidies may not make the UK transport more sustainable: • Provision of subsidies is not going to make it sustainable if public transport is not reliable, service is of poor quality, does not reach to every corner of the city and is considered inferior(L2). In these cases, a lower price will not have a significant impact on demand (L3). • There is a risk that subsidies may encourage inefficiency (L2) with less pressure on firms to keep their costs low and to respond to consumer demand (L3). • People may be reluctant to switch from car use (weak substitutes) (L2) and so provision of subsidies to the UK public transport such as to bus transport may not lead to a significant modal shift (L3). • Subsidies involve an opportunity cost (L2). Instead of subsidising transport, the government could seek to reduce the need for transport by e.g. discouraging the building of out of town stores (L3). • Therefore, alternative measures should be implemented such as alternative modes of transport such as metros, HST (High Speed Trains) and development of hybrid cars and other			**Level 2: (3-4 marks)** For application of knowledge and understanding but lacks relevant analysis. **Level 1: (1-2 marks)** For knowledge and understanding only.

			vehicles (L3). Conclusion: (L4a) The extent to which subsidies will make transport more sustainable will depend on the degree of market failure, what the subsidies are used for and how economic agents response to the subsidies. The aim of subsidies may be designed more to promote equity rather than to promote sustainability e.g. subsidising bus fares for retired passengers.			

Question			Answer	Marks	Guidance	
4	(a)		**Analyse why there is market failure in road travel.** Analysis of why there is market failure in road travel. Relevant concepts and diagram which may be included (L2): • Roads are public goods in many cases. • They are non-excludable and non-rival in most cases. • When economic agents make decisions in relation to road travel they take into account only private costs and private benefits. • Road travel gives rise to externalities. • Almost all externalities generated in road travel are negative externalities. • Negative externalities in road travel include pollution, noise, traffic congestion, accidents. • There is a divergence between social costs and private costs. The diagram showing an impact of negative externalities of road travel on third parties. Relevant analysis may be: • Private individuals while making decisions on road travel they only take into account their MPC (L2) resulting in overconsumption (L3). Since roads are mostly considered as public goods they display the non-excludability and non-rivalry features (L2) and	15	**Content** A Level 3 answer must contain a very good analysis why does road travel leads to market failure with the full use of a correctly drawn diagram. The answer may be segregated into three levels on the basis of how effectively concepts were defined possibly with a diagram A Level 2 answer contains application of knowledge and understanding possibly with a diagram A Level 1 answer contains just knowledge and understanding without an application or just elementary definitions of terms associated with market failure.	**Level of Response** Level 3: (9-15 marks) For a clear analysis of why market failure occurs in road travel. 13-15 marks: Very good analysis of why market failure occurs in road travel. 11-12 marks: Good analysis of why market failure occurs in road travel. 9-10 marks: Basic analysis of why market failure occurs. Level 2: (5-8 marks) 7-8 marks: Good application of knowledge and understanding of why market failure occurs in road travel. 5-6 marks: Basic application of knowledge and understanding. Level 1: (1-4 marks): For knowledge and understanding of market failure or for some basic understanding.

			the free-rider problem results (L3). • Analysis of diagram. Externality not considered (L2) MSC exceeds MPC because of the negative externality of EF. This is known as market failure because MSC is greater than the MPC by the amount of the negative externality in road travel. The MSC is greater than MPC and therefore welfare loss occurs (L3)			

Question			Answer	Marks	Guidance	
4	(b)		**Discuss whether building more roads is likely to be effective in reducing traffic congestion.** Analysis of whether building more roads will lead to a reduction in traffic congestion or it would not lead to a reduction in traffic congestion and in the end provide their reasoned judgment. Relevant analysis of why traffic congestion will decrease: • Traffic congestion has become a major problem in many over the years (L2). • Up to a certain extent roads display the features of public goods (L2). • However, an increase in number of cars over the years has made it rivalrous because road use by some leads to congestion due to a lack of space and infrastructure (basic L3). • Increased supply of roads perhaps with a diagram (L3 basic) • Building more roads would certainly lead to a decrease in traffic congestion in the short run because opening up new routes connecting cities may give options to vehicle users to choose a route suitable for them as per the need and time of use (good L3). Relevant analysis of why traffic congestion will not decrease: • Building new roads is not the solution because	20	**Content** Level 4 (a) answer must contain a very good analysis of both the sides of argument. But for an upper band it must contain a good judgment and a weak judgment will get a lower band under this level. Level 4 (b) contains a balanced discussion of both sides without a judgment or a basic discussion of mainly one side only. Level 3 answers just contain one sided good and basic analysis. Levels1 and 2 answers just contain application of knowledge and understanding or contain just knowledge and understanding.	**Levels of response** **Level 4 (a): (16-20)** For a discussion of whether building more roads would lead to a reduction of traffic congestion with a judgment. 18-20 marks: Balanced discussion with good judgment. 16-17 marks: balanced discussion with weak judgment. Level 4 (b): (11-15 marks) For a two sided discussion with application. 13-15 marks: Balanced discussion with application. 11-12 marks: basic discussion mainly one sided only. Level 3: (5-10 marks) 8-10 marks: Good analysis on one side. 5-7 marks: Basic analysis which lacks application. Level 2: (3-4 marks) For an application of knowledge

			people certainly prefer to own and drive their own cars as affordability increases over the period of time (L2) and cars on roads will increase whether new roads are built or not (L3). • Supply of more roads may increase demand for road travel (L2) as travel times/costs are reduced (L3). • Construction of new roads, through densely populated cities entails huge displacement costs and people object to such plans. Even if such development works materialises it would be a short term solution because in the long run again such problems will arise (L3). • Even if massive investments are made construction of roads takes many years to materialise and by the time roads are completed traffic congestion will emerge again (L3). Conclusion (L4a) So instead of relying on new road development an efficient road pricing system may be introduced during busy hours so that traffic pressure on roads can be reduced and the government should look for long term solution of such problems by making public transport such as HST, metros and public buses more reliable, attractive and cost efficient so that people have confidence in the safety of such modes of transport so that a long term solution can be found for traffic congestion. Selective roadbuilding to reduce bottlenecks may be more appropriate as part of an integrated transport policy			and understanding Level 1: (1-2 marks) For only knowledge and understanding.

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