

GCE

Economics

Unit **F584:** Transport Economics

Advanced GCE

Mark Scheme for June 2016

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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.

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Annotations

Annotation	Meaning
?	Unclear
BOD	Benefit of Doubt
×	Cross
EE	Effective evaluation
IR	Irrelevant
LI	Level 1
L2	Level 2
L3	Level 3
L4	Level 4
NAQ	Not answered question
SEEN	Noted but no credit given
TV	Too vague
✓	Tick
V +	Development of point

Q	uesti	on	Answer	Marks	Guidance
1	(a)		Explain the difference between fixed and variable costs using one example of each from Fig. 1. 1 mark for each definition A fixed cost is one that does not change (in the short run) with output. A variable cost is a cost that changes with output. 1 mark for an example of each from Fig.1. A maximum of 1 mark is available for an example of one fixed cost and a maximum of 1 mark is available for an example of one variable cost.	4	Accept Network Rail as either Fixed or Variable Accept Staff as either Fixed or Variable as they could be core or peripheral staff Fixed Network Rail Staff Leasing Variable Network Rail Staff Fuel Green tick for each mark awarded
	(b)		Explain how changes in train fares might affect the revenue of a train operating company. 1 mark for the effect of changes in train fares is uncertain / can either increase or decrease revenue. 1 for recognising the influence of PED in determining changes in revenue e.g. it depends on PED / demand remains unchanged. 2 marks for a correct explanation of how PED determines changes in revenue following changes in train fares if demand is elastic. 2 marks for a correct explanation of how PED determines changes in revenue following changes in train fares if demand is inelastic.	4	Do not award simple statements that an increase / decrease in train fares results in an increase / decrease in revenue. Green tick for each mark awarded

Question	Answer	Marks	Guidance
(c)	Explain why two of the governments proposed actions (lines 17 to 25) may encourage people to use trains rather than cars.	4	This is a 2+2 question. 1 mark for basic explanation of why the action selected may encourage people to use trains rather than cars.
	For example: The change in relative prices through regulation (1) leads to increased affordability of train use (1) Increased supply / seat availability due to increases in capacity (1) leads to lower average costs / lower opportunity cost / reduced train fares (1) The increased number of routes available / new routes available in London / improved routes (1) leads to improved quality e.g. greater speed / convenience / flexibility / improved customer service of trains (1). Reduced negative externalities /reduced pollution due to lower CO2 emissions of trains (1) leads to changes in tastes / increased awareness of environmental issues in favour of train use (1).		2 marks for good explanation of why the action selected it may encourage people to use trains rather than cars. Reward candidates who use relevant economic concepts to explain the changes such as increased XED, YED, closer substitutes. Be aware of candidates lifting comments from lines 17-25; there must be some development to gain credit. Green tick for each mark awarded

Question	Answer	Marks	Guidance
(d)	Comment on the extent to which 'rail is vital to the UK's economic prosperity'. Two marks for analysing the extent to which 'rail is vital to the UK's economic prosperity': • Moving people efficiently reduces costs of production and can lead to increased profits, employment and growth • Moving freight efficiently reduces costs of production and can lead to increased profits, employment and growth • Investment in infrastructure projects like HS1, HS2 and HS3 lead to an investment multiplier and growth • Reduced congestion on the road networks reduces costs of production and can lead to increased profits, employment and growth • Increased international competitiveness can lead to improvements in the Balance of Payments and increased profits, employment and growth • Increases in government revenue through increased profits, employment and growth. • Increased FDI • Reduced negative externalities / increased positive externalities if linked to improved resource allocation • Sustainable economic growth	5	NOTE; this is a 2+2+1 question. 2 marks for analysing the extent to which 'rail is vital to the UK's economic prosperity'. 2 marks for analysing the extent to which 'rail is not vital to the UK's economic prosperity'. 1 mark for a clear conclusion / judgement being offered if both sides are analysed. 2 marks can be awarded for a developed point on either side. Green tick for each analysis mark awarded. L4 for each counter-analysis mark awarded. EE for judgement mark.
	 Two marks for analysing the extent to which 'rail is not vital to the UK's economic prosperity': The supposed benefits could be restricted to certain parts of the country (HS2 route) There is an opportunity cost to investment in the infrastructure and this must be considered Other transport modes could be considered to be more efficient; this could be linked to externalities and under capacity 		

Question	Answer	Marks	Guidance
	 Local and unprofitable services will not necessarily add to the UK's economic prosperity Lack of flexibility/integration One mark is available for a judgement as to whether or not 'rail is vital to the UK's economic prosperity', e.g. it will not be the case unless it is integrated with other modes and the extent will be greater in times of economic prosperity. A supported judgement can gain this mark. 		
(e)	Discuss whether or not there should be monopoly provision of rail infrastructure in the UK.	8	NOTE: this is a 3+3+2 question.
	 Up to 3 marks are available for relevant analysis of whether or not there should be monopoly provision of infrastructure: Infrastructure provision involves very high levels of fixed costs (1) and therefore the scope for economies of scale are significant (1) Due to the nature of infrastructure provision, competition will be wasteful and therefore monopoly provision is preferred (1) Natural monopoly argument (1) to maximise possible benefits from economies of scale (1), there should be just one provider producing at a very large level of output /duplication of resources is avoided (1) A monopoly may take a longer term perspective/ have a greater sense of security (1) and so may be more likely to invest than a more competitive market (1) Any one point which is clearly developed can gain up to three marks maximum. Alternatively, the identification of three separate but relevant points of analysis can also gain all three analysis marks. 		The final 2 marks are only available if two sided analysis is already present. If the question is not answered in the context of 'rail infrastructure' e.g. tracks, signals, stations, Network Rail then a maximum of 2+2+2 should be awarded. Accept benefits of increased competition as counter-analysis. Award analysis that uses efficiency concepts on either or

Question	Answer	Marks	Guidance
	A further 3 marks are available for analysis of possible drawbacks/ limits to monopoly provision of infrastructure:		Green tick for each analysis mark awarded.
	Monopoly provision eliminates competitive pressure which could lead to complacency (1)		L4 for each counter-analysis mark awarded.
	 Monopoly can lead to higher average costs due to diseconomies of scale (1) with production taking place at a level of output above the Minimum Efficient Scale (1). 		EE for each judgement mark.both sides.
	 Monopoly may reduce the quality of the service (1) and not be very responsive to changes in consumer demand due to lack of substitutes (1). 		
	Accept theory of the firm diagrams showing production at a level of output where P>MC and not at minimum AC.		
	A further 2 marks are available for a judgement. These marks are awarded as follows:		
	1 mark for a simple statement supported by two-sided analysis,		
	"In conclusion, infrastructure should be provided by a monopolist".		
	"Overall, monopoly provision of infrastructure would not be beneficial"		
	2 marks for a developed statement – for example:		
	"Monopoly provision of infrastructure will be beneficial as long as the monopolist is regulated by the government in order to ensure that there is an element of control over pricing"		
	"If entirely depends upon the level of output of the monopolist. If output is too high then monopoly provision may not be beneficial as there will be significant diseconomies of scale"		

Q	uestion	Answer	Marks		Guidance
				Content	Levels of response
2	(a)	Explain, using a diagram, how the profit earned by a firm is influenced by the relationship between its marginal cost and its marginal revenue An accurate diagram using just a MC curve (upward sloping) and an MR curve (downward sloping) gains 9 marks (see e.g. on next page). Candidates are expected to identify the profit maximising level of output at the level of output where MC =MR. Accept a perfect competition approach with perfectly elastic demand (AR and MR) curves.	15	Content Correct diagram without correct and relevant explanation beyond identification of MC = MR. Max 9 marks Written analysis can gain L3 without accurate diagram (max 13) Maximum mark without diagram 9.	1
		For written L3 analysis; Candidates should analyse that when the level of output is below the profit maximising level the MR will be greater than MC. This means that there will be an addition to the amount of profit. This process will continue until MC = MR. Similarly at any output beyond the profit maximising level MC is greater than MR and total profit will fall. Thus this decision to increase output will move the firm away from the profit maximising level and reduce profit.			In this case an answer which applies the concept of marginal cost and marginal revenue to a firm. 7-8 marks = inaccurate diagram (not correctly labelled) identifying profit maximising level of output and understanding of MC and MR. 5-6 marks= inaccurate diagram (not correctly labelled) identifying profit maximising level of output and/or understanding of MC and/or MR. Level 1 (1-4 marks) Knowledge and understanding of what is meant by marginal cost, marginal revenue and abnormal profit.

Question	Answer	Marks	S Guidance		
			Content	Levels of response	
	Diagram Cost/ Levelue (1) Timax level of output:		Candidates who produce the full set of curves MC, MR, AC and AR can be awarded full marks as long as the analysis is based on the relationship between MC and MR at different levels of output. Horizontal axis; Accept quantity		

Q	uestion	Answer	Marks		Guidance
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2	(b)	Discuss, using examples, the extent to which the market dominance of a monopoly provider of transport infrastructure will result in economic inefficiency The focus on the question is on economic inefficiency/ efficiency. Candidates are expected to analyse why the market dominance of at least two monopoly providers of transport infrastructure will result in economic inefficiency AND any potential efficiency gains from a monopoly provider. To reach L4, analysis of BOTH sides is needed and a discussion which includes a judgement as to the extent of the inefficiency. Analysis of why a monopoly provider of transport infrastructure will result in decreased economic efficiency:	20	Level 4 (a) – for this level there must be a reasoned judgement as to the question of 'extent', based on previous sound analysis of a two sided discussion Level 4 (b) – for this level, there must be a two sided discussion of whether monopoly raises economic efficiency. Award 13-15 marks where there is clear, balanced discussion of both sides	For a discussion as to whether or not the market dominance of a monopoly provider of transport infrastructure will result in economic inefficiency. Includes a clear judgement which attempts to weight the evidence. NOTE: To reach L4(a) balanced discussion must already be present. 18-20 marks: Balanced discussion with good judgement. 16-17 marks: Balanced discussion with weak judgement.
		Profit maximising monopolies are allocatively and productively inefficient with under production and no competitive incentive to produce at minimum AC. This can lead to monopolies not producing at the lowest possible average cost, AC remains high with low output leading to inefficiency. The complacency of a monopolist can lead to 'X' inefficiency, low staff motivation, management and communication problems. The complacency of a monopolist leads to dynamic inefficiency due to a lack of competitive pressure.		Award 11-12 marks where there is only basic discussion. For example, following clear analysis of one side there is only a simple evaluative statement made giving the opposite viewpoint.	Level 4 (b) [11-15] Discussion of whether or not the market dominance of a monopoly provider of transport infrastructure will result in economic inefficiency. An answer which develops both sides in some depth but fails to introduce a judgement gains 13-15 marks An answer which analyses one side very clearly (e.g. it is efficient) and then hints in a very basic manner at the other side (e.g. not efficient) gains 11-12

Question	Answer	Marks		Guidance		
			Content	Levels of response		
	Analysis of why a monopoly provider of transport infrastructure could potentially result in increased economic efficiency The theory of natural monopoly can be used to explain the exploitation of the efficiency gains that come from very large scale production and the associated economies of scale. Supernormal profits could be used to invest in Research and Development (R&D) that could lead		Level 3: An answer which only considers why a monopolist will increase economic efficiency can gain up to 10 marks maximum for analysis Answers lacking ANY transport application will gain marks at the bottom of the Level reached.	Level 3 [5-10] Analysis of why the market dominance of a monopoly provider of transport infrastructure will result in economic efficiency/inefficiency – a purely one sided answer. Answers which fail to analyse specific types of economic efficiency will gain 7 marks maximum.		
	to efficiency gains and higher productivity. These dynamic efficiencies can lead to lower prices and an increase in consumer surplus. The judgement as to the extent of the inefficiency could include a discussion of:		Answers with one example only are capped at (13) if balanced discussion and 16 if balanced with a judgement.	Level 2 [3-4] For the application of knowledge and understanding of why the market dominance of a monopoly provider of transport infrastructure will result in economic inefficiency.		
	The level of potential contestability and the threat of contestability leading to greater efficiency. The monopolist's objective as a nationalised industry could be to set P=MC rather than MR=MC thus leading to allocative efficiency. Depends on the transport mode e.g. airports may be more efficient with competition. The extent to which monopolies are regulated in their ability to restrict fares and dictate their level of provision.		Level 2 answers may simply identify the costs or benefits of monopoly without making any reference to efficiency Level 1 will simply state what monopoly and/or economic efficiency is	Answers in this level may simply identify types of efficiency or identify some of the characteristics of a monopoly. Level 1 [1-2] For knowledge and understanding of monopoly and/or economic efficiency only e.g. general definitions of monopoly or efficiency		

Q	uestion	Answer	Marks		Guidance
				Content	Levels of response
3	(a)	Analyse the differences between monopolistic competition and oligopoly market structures in transport. Candidates will be expected to analyse the main differences between the two market structures.	15	Identification of differences = Level 1 Identification AND explanation of differences = Level 2	Level 3: (9 – 15 marks) For clear analysis of possible differences between the two market structures. 13 – 15: Very good analysis: good analysis of two differences.
		 Differences include: Barriers to entry: low in monopolistic competition, high in oligopoly Number of firms: high in monopolistic competition, low in oligopoly Demand curve: monopolistic competition has a 		Analysis of WHY each difference exists = Level 3	 11 – 12: Good analysis: Good analysis of one difference OR basic analysis of two. 9 – 10: Basic analysis: basic analysis of one difference. Level 2: (5 – 8 marks) For an application of knowledge and understanding of the characteristics of
		normal, downwards sloping demand curve, whilst oligopoly has a kinked demand curve • Monopolistic competition always produces where MC=MR (ie always aims for profit max) whilst oligopoly may well have non-profit max. objectives • Interdependence in oligopoly not in monopolistic competition.			the two market structures. 7-8 marks: Good application: Two characteristics identified and explained. 5-6 marks: Basic application: One characteristic identified and explained. Answers in Level 2 may also identify and explain differences but will not analyse these. In other words, such answers will describe the difference rather than analysing it.

Ques	stion	Answer	Marks		Guidance
				Content	Levels of response
		Analysis of these could include: Oligopoly markets have high barriers to entry (L1), in sharp contrast to the low barriers to entry in monopolistic competition (L2). This means that new firms will be able to enter monopolistic competitive markets whilst this is not the case in oligopoly		Content	Level 1: (1 – 4 marks) For knowledge of the characteristics of these market structures. Simple knowledge of one market structure = 1-2 marks
		markets (basic L3). The consequence of this is that in monopolistic competition in the LR, firms only make normal profits. This results in there being more firms in the market in LR monopolistic competition whilst in oligopoly markets there will still be only a small number of firms (good L3). Monopolistic competition has a normal downwards sloping demand curve (L1) whilst oligopoly may have a kinked demand curve (L2). This means that there is likely to be considerable price rigidity in oligopoly markets whilst in monopolistic competition there is likely to be price competition between firms			Knowledge of both market structures = 3-4 marks.
		(L3).			

Question	Answer	Marks	Guidance	
			Content	Levels of response
(b)	Discuss the extent to which air travel could be deemed to be a sustainable mode of transport. Candidates will be expected to analyse why air travel is AND is not sustainable. Analysis of why it is sustainable includes: Air travel can carry large numbers of passengers and therefore minimise possible negative externalities arising from other forms of transport. With fewer negative externalities there will be a more sustainable allocation of scarce resources Air travel will not suffer from congestion in the way that other modes might. Therefore there will be a more allocatively efficient (and sustainable) allocation of scarce resources. Use of APD (or similar tax) makes it more sustainable – possible hypothecation of funds. Competition may encourage improved allocation of resources i.e. less waste.	20	Level 4(a): possible judgement includes: The level of sustainability depends upon: The development and use of alternative (renewable) aviation fuel sources. The government's role and commitment to regulation and promotion of sustainable activities in the industry. Developments in sustainability enhancing technology in the airline industry. Investment in relevant R & D in the airline industry. Short haul less sustainable than long haul.	Level 4(a): (16 – 20 marks) For a discussion which includes a judgement as to how sustainable air travel is as a mode of transport. NOTE: To reach L4(a) balanced discussion must already be present. 18-20 marks: Balanced discussion with good judgement. 16-17 marks: Balanced discussion with weak judgement. Level 4(b): (11 – 15 marks) For discussion of how sustainable air travel is. Two sided economic analysis. 13-15 marks: Balanced discussion with some air transport application. 11-12 marks: Basic discussion (two sided analysis but one side is only basic)

Question	Answer	Marks	Guidance	
			Content	Levels of response
	Analysis of why it is not sustainable includes:			Level 3: (5 – 10 marks)
	 Some air travel may well be underused with aircraft flying with very low levels of usage / small numbers of passengers. Such services will not be providing an efficient allocation of scarce resources – hence non sustainable. Aircraft using traditional aviation fuels use up scarce resources which is non-sustainable. Accept market failure / overconsumption analysis. 			One sided analysis. In other words, analyses EITHER that air travel is OR is not sustainable. 8-10 marks: <i>Good analysis</i> : one sided analysis which is good. 5-7 marks: <i>Basic analysis</i> : one sided analysis which is only basic in nature. (Answers which lack application to air travel will be at the bottom of the band ie either 5 or 8 marks)
				Level 2: (3 – 4 marks) For an application of knowledge and understanding of how sustainable air travel is. Answers in this level will offer statements applying sustainability without analysing these.
				Level 1: (1 – 2 marks) For knowledge and understanding of sustainability.

Q	uestion	Answer	Marks	Guidance	
				Content	Levels of response
4	(a)	Analyse the economic effects of an increase in the demand for road transport on the environment. Possible economic effects of increased demand for road transport on the environment include: Increased congestion leading to a possible increase of harmful emissions Increased negative externalities (accept as a separate / different point to congestion) Analysis of these could include: Increased congestion (L1) arises as roads reach full capacity and then queuing results as a result of excess demand (L2). This imposes costs upon innocent third parties or examples such as government, local residences, NHS and workers without specific reference to third parties (basic L3). Increased negative externalities occur (L1). With more demand for road transport there will be increased environmental costs/benefits such as pollution/noise/loss of habitat/reduced biodiversity(L2) imposed upon third parties / or examples such as government, local residences, workers without specific reference to third parties (basic L3). Analysis in terms of allocative inefficiency arising due to the overconsumption leading to market failure (good L3).	15	Identification of possible effects = Level 1 Identification AND explanation of possible effects = Level 2 Analysis of the economic impact = Level 3 Reward analysis of reducing sustainability due to increases in demand for road transport.	For clear analysis of the economic effects of increased demand for road transport on the environment. 13 – 15: Very good analysis: good analysis of two or more economic effects of increased demand on the environment. 11 – 12: Good analysis: Good analysis of one economic effect OR basic analysis of two. 9 – 10: Basic analysis: basic analysis of one economic effect of increased demand for road transport on the environment. Level 2: (5 – 8 marks) For an application of knowledge and understanding of the effects of an increase in demand for road transport. 7-8 marks: Good application: 2 or more relevant reasons are identified and explained. 5-6 marks: Basic application: 1 relevant economic effect identified and explained.

Question	Answer	Marks	Guidance	
			Content	Levels of response
	Under-pricing/ social costs not considered / only consider private costs / ignore external costs leads to overconsumption and misallocation of resources/ allocative inefficiency (good L3)			Answers in this level will identify and explain possible effects but will fail to analyse the impact upon the environment.
	Increased road construction (L1) has impact on environment in terms of land use, use of non-renewable resources, accessibility (L2) Analysis in terms of third party effects and overconsumption.			As soon as 2 or more effects are identified and explained then 7-8 marks will be rewarded.
				Level 1: (1 – 4 marks)
				For knowledge and understanding of possible economic effects.
				One economic effect correctly identified and with some additional knowledge will receive 1 – 2 marks whilst answers which identify several relevant effects will gain 3 – 4 marks.

Question	Answer	Marks	Guidance	
			Content	Levels of response
(b)	Discuss the effectiveness of different policies implemented to deal with the problems caused by increased road transport use in urban areas.	20	Level 4(a): possible judgement includes:	Level 4(a): (16 – 20 marks) For a discussion which includes a judgement as to how effective solutions
	This is a deliberately broad question. Candidates are expected to draw upon their knowledge of how different countries have responded to congestion and to analyse how different policies work before analysing possible limitations of these policies.		Often such policies if used in isolation will be much less effective than an integrated solution using appropriate	have been in different countries/locations. NOTE: To reach L4(a) balanced discussion must already be present.
	Possible policies include (NOTE: this is by no means an exhaustive list!): Road pricing / charging in Singapore, Norway, UK (London/Durham)		Just because a policy is successful in one country/location it does not necessarily mean that	18-20 marks: Balanced discussion with good judgement. 16-17 marks: Balanced discussion with
	 Subsidies to public transport Integration of different modes of public transport such as in Utrecht Nationalisation of key modes of transport OR 		it can be successfully replicated elsewhere. There needs to be political will.	weak judgement. Level 4(b): (11 – 15 marks)
	policies to encourage increased competition amongst private sector service providers Analysis of policies include:		Answers with one policy only are capped at (13) if balanced discussion.	For discussion of the extent to which policies have been effective in reducing road transport use. Two sided economic analysis.
	 Relevant diagrams (L2) showing the impact of road-user charging / ERP on levels of consumption with explanation (L3) 			13-15 marks: <i>Balanced discussion</i> with some transport application
	 Written analysis of how these policies aim to internalise any externalities (L3) Written analysis of how subsidies to public transport aim to deal with the problems of increased road transport use in urban areas (L3) 			11-12 marks: <i>Basic discussion</i> (two sided analysis but one side is only basic)

Question	Answer	Marks	Guidance	
			Content	Levels of response
	 Written analysis of how an integrated transport policy may be successful in reducing demand for car use (L3). Written analysis of promotion of alternative provision such as car-pooling or encouraging video conferencing / working from home (L3). A description of how these policies work should only be awarded L2 Analysis of limitations include: With inelastic PED (L2), road-user charging and ERP will be less effective in reducing levels of consumption (L4) Policies such as subsidies will be less effective where YED is negative (L2) (such as is arguably the case with buses) as during times of rising demand, subsidies will not be effective at increasing demand) (L4) With a lack of quality public transport alternatives to the car, policies such as ERP will be less effective (L2) As goods are weak substitutes/use of XED (L4) With a lack of information on alternative provision such as car-pooling or encouraging video conferencing / working from home these will be ineffective (L2) as PED remains inelastic (L4). 			Level 3: (5 – 10 marks) One sided analysis. In other words, analyses why the policy is OR is not successful. 8-10 marks: Good analysis: one sided analysis of why policy is OR is not successful. 5-7 marks: Basic analysis: one sided analysis which is only basic in nature. (Answers which lack transport application will be at the bottom of the band ie either 5 or 8 marks) Level 2: (3 – 4 marks) For an application of knowledge and understanding of possible policies. Level 1: (1 – 2 marks) For knowledge and understanding of one possible policy solution.

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