GLOBAL PERSPECTIVES AND RESEARCH **9239/11**

Paper 1 Written Examination **May/June 2017**

MARK SCHEME

Maximum Mark: 30

Published

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This document consists of **9** printed pages.

Question	Answer	Marks
1(a)	**Identify two pieces of information that the author of Document 1 gives to demonstrate that driverless cars are already a reality.** **Credit 1 mark** each for correct versions of the following, up to two marks. • You can actually buy them. • They have navigated the Italian city of Parma • The Google Self-Driving Car Project has now completed over 700 000 test kilometres • They have driven from Italy to China (they had human aid) • The Google Self-Driving Car has taken a blind man to a fast-food outlet. **Credit 0 marks for:** • driverless light rail systems in Vancouver/London/Singapore, shuttles in the Netherlands, self-driving trucks in an Australian iron-ore mine as these are not driverless *cars*: • Google Self-Driving Car Project (without reference to its use)	**2×1**

Question	Answer	Marks

1(b)	**Identify and explain two benefits of driverless cars that are claimed by the author of Document 1.**
	
	For each benefit credit 1 mark for correct identification and 1 mark for **valid** explanation, up to 4 marks. Note – for the explanation mark
	the candidate has to show some understanding of the benefit rather than simply quoting.
	
	Accept correct versions of the following:
	
	Identify: **Financial benefits** for tech and telecommunication [1]
	           sectors/Google.
	Explain: They design the computer equipment that safely operates the [1]
	           self-driving cars.
	Identify: **Increased access to mobility** (regardless of age or ability). [1]
	Explain: There is no need to have the intellectual or physical ability to [1]
	           drive the cars.
	
	Identify: **Increased road safety** [1]
	Explain: Self-driving cars remove human driver error for example, [1]
	           through
	           360-degree awareness.
		2×1+1

Question	Answer	Marks
2	**The author of Document 1 draws a conclusion about the reality and benefits of driverless cars. Assess the strengths and weaknesses of the evidence the author uses to support the conclusion.** Use the levels based marking grid below and the indicative content to credit marks.	10

Level	Marks	Descriptor
L3	8–10	• **Both** strengths and weaknesses are assessed. • Assessment of evidence is **sustained**. • Assessment explicitly includes the **impact** of specific evidence upon the claims made. • Communication is **highly effective** – explanation and reasoning **accurate** and **clearly** expressed.
L2	4–7	• Answers focus more on **either** the strengths **or** weaknesses, although **both** are present/identified. • Assessment identifies strength **or** weakness of evidence with little explanation. • Assessment of evidence is relevant but **generalised,** not always linked to specific evidence or specific claims. • Communication is **accurate** – explanation and reasoning is **limited**, but **clearly** expressed.
L1	1–3	• Answers show **little** or **no** assessment of evidence. • Assessment if any is **simplistic**. • Evidence may be **identified** and weakness may be **named**. • Communication is **limited** – response may be **cursory** or **descriptive**.
	0	• no creditable material.

There is no requirement to use technical terms to access any level and candidates will NOT be rewarded for their use unless they link them directly to the assessments made.

Question	Answer	Marks

2	**Indicative content:**
	No set answer is expected and examiners should be flexible in their approach.
	Candidates may include some of the following:
	
	Strengths of evidence
	  • **Use of expert source** – The author uses the US Dept of Transportation for the definition of driverless cars, which has the authority of a government department and expertise in the area of types of vehicles.
	  • **Use of expert source** – The author uses claims from investment company Exane BNP Paribas, who should have relevant expertise about trends in financial benefits.
	  • **Relevant** – The claim of the ability to buy a driverless car supports their reality, which the author follows by giving examples of these cars in use.
	  • **Relevant examples** – The author supports her claim that driverless cars are more than feasible with relevant examples of travel in Parma and Italy to China.
	  • **Balance** – The author mentions evidence of the limitations of driverless cars when encountering potholes, sun and rain, limiting their immediate public feasibility. This gives some balance of perspectives to the evidence used.
	  • **Range of examples** – The author uses a wide range of examples of who might benefit from the driverless cars, young, old and disabled, evidencing a wide impact.
	  • **Lack of motive to be biased** – as a Research Officer, the author has no apparent vested interest to be selective in the evidence supporting her claims about the present reality and benefits of driverless cars.
	
	Weaknesses of evidence
	  • **Limited relevance** – The author seems to use examples of automated vehicles: *rail, pods, shuttles and trucks* limited to dedicated controlled settings to support the reality of driverless *cars*.
	  • **Limited relevance** – The ability to buy a driverless car doesn't necessarily mean that it is able to be driven routinely on the road. It could be bought for use on private land or use in experimental conditions.
	  • **Limited relevance** – The author seems to confuse being over 60 with being immobile
	  • **Unclear** – The author does not indicate whether the two instances of navigation - Parma and Italy to China – were unique experimental events or typical journeys, which limits the significance for a *'reality'*.
	  • **Lacks authority** - Most of the examples are claimed without the authority of any named source, which limits their credibility and the support to the claims about the *'reality'* of driverless cars. The credibility of the Boston Consulting Group is not explained.
	  • **Lacks a balanced perspective** - The choice of evidence is biased towards the impending feasibility, with very little evidence to counter this, other than inability to cope with the effects of potholes, sun and rain.	

Question	Answer	Marks
2	• **Not typical** – The survey of the readers of the Economist is not representative of the population as a whole. • **Lacks support** – Limited use of statistical evidence. • **Vague** – The Google project is quoted as covering over 700 000 km – a generalized figure. • **Lacks balance** – The claim of 360-degree perception eliminating driver error needs to be balanced against error introduced by the cars' inability to deal with potholes, sun and rain etc.to support the claim of '*increase*' in road safety.	

Question	Answer	Marks
3	**To what extent is the author's argument in Document 2 about driverless cars more convincing than that of the author in Document 1?** Use the levels based marking grid below and the indicative content to credit marks.	14

Level	Marks	Descriptor
L3	10–14	• The judgement is **sustained** and **reasoned**. • Alternative perspectives have **sustained** assessment. • Critical evaluation is of **key** issues raised in the passages and has **explicit** reference. • Explanation and reasoning is **highly effective**, accurate and clearly expressed. • Communication is **highly effective** – clear evidence of a structured cogent argument with conclusions explicitly stated and directly linked to the assessment.
L2	5–9	• Judgement is **reasoned**. • **One perspective** may be focused upon for assessment. • Evaluation is present but may **not relate to key** issues. • Explanation and reasoning is **generally accurate**. • Communication is **accurate** – some evidence of a structured discussion although conclusions may not be explicitly stated, nor link directly to the assessment.
L1	1–4	• Judgement, if present, is **unsupported** or **superficial**. • Alternative perspectives have little or no assessment. • Evaluation, if any, is **simplistic/undeveloped**. Answers may **describe** a few points comparing the two documents. • Relevant evidence or reasons may be **identified**. • Communication is **limited**. Response may be cursory.
	0	• no creditable material.

There is no requirement to use technical terms to access any level and candidates will NOT be rewarded for their use unless they link them directly to the assessments made.

Question	Answer	Marks
3	**Indicative content:** No set answer is expected and examiners should be flexible in their approach. Candidates may include some of the following: **More Convincing** **Knight's argument is more convincing:** • **More Plausible** **More realistic opposing perspective** – Knight's argument in Doc 2 which concludes that *'we shouldn't expect driverless cars to take over the roads anytime soon'* presents an opposite viewpoint from Poole's conclusion in Doc 1 that *'driverless cars are already a reality'*. **More realistic conclusion and argument** – Knight's argument (Doc 2) focuses directly upon the challenges and possibility of getting from the stage of prototype to driverless cars being on the public roads, whereas Poole (Doc 1) equates test drives with 'reality' and lacks any real discussion of the challenges. • **Stronger** **Greater balance** – Knight (Doc 2) presents a more balanced argument with evidence for the benefits of driverless cars thoroughly sourced (Insurance Institute, car insurance findings, engineering study, TTI), whereas Poole (Doc 1) mentions in passing the problems facing the development of the prototype cars (sun, rain, potholes). **Greater use of direct experience** – Knight (Doc 2) gives his direct experience of driving in two prototype driverless cars which might give more insight into the challenges, whereas Poole's evidence in Doc 1 is limited to records of events and the findings of others. • **More credible** **Direct contact with leading experts in the field** – Knight reports from personal experience the views of experts: Leonard at MIT, Herttwich at Mercedes and Nass at SUCAR who can give an informed view about technology in cars. Poole, however, simply relies on reported research. **Wider range of named sources** – Whereas Poole uses two named authoritative sources, Knight has a wider range of sources to evidence both the possible benefits and challenges (IIHS, TT, MIT, Mercedes, SUCAR).	

Question	Answer	Marks
3	**Stronger use of sources with direct knowledge of AI development** – Knight's sources are all directly involved with the development of automotive artificial intelligence, giving more focused evidence. Poole's sources only address more general issues such as where benefits will lie. **Stronger use of directly quoted evidence** – Knight quotes the exact words of his sources, whereas Poole reports on or draws conclusions from research which may include some interpretation of these, allowing for error or selectivity. **Stronger authorial expertise** – As editor of Artificial Intelligence in MIT's Technology Review magazine, Knight (Doc 2) is likely to have more direct experience of the precise impact of the development of AI in car functions to be able to give informed comment than Poole (Doc 1), whose expertise lies in Law and intellectual property rights. **Less convincing** **Limited to personal experience** – Knight's evidence in Doc 2 may be more coloured by his anecdotal personal experience than that of Poole (Doc 1), who may bring together a wider picture. His evidence also relies on the views that experts gave him in conversation, as opposed to Poole's evidence of reported research, which has the robustness of being in the public domain and so open to scrutiny. **Same (neither more or less convincing)** Both arguments: • come from the perspective of trying to determine the timescale of the feasibility of self-driving cars and discuss their possible benefits especially their impact upon road safety. • have clear conclusions and a structured argument. • offer a number of relevant examples to support their claims. • are documenting or presenting research and as such are written by authors with a possible lack of vested interest to be biased to a particular viewpoint.	