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**THINKING SKILLS**

**9694/23**

Paper 2 Critical Thinking

**May/June 2018**

MARK SCHEME

Maximum Mark: 45

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**Published**

This mark scheme is published as an aid to teachers and candidates, to indicate the requirements of the examination. It shows the basis on which Examiners were instructed to award marks. It does not indicate the details of the discussions that took place at an Examiners' meeting before marking began, which would have considered the acceptability of alternative answers.

Mark schemes should be read in conjunction with the question paper and the Principal Examiner Report for Teachers.

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**Generic Marking Principles**

These general marking principles must be applied by all examiners when marking candidate answers. They should be applied alongside the specific content of the mark scheme or generic level descriptors for a question. Each question paper and mark scheme will also comply with these marking principles.

**GENERIC MARKING PRINCIPLE 1:**

Marks must be awarded in line with:

the specific content of the mark scheme or the generic level descriptors for the question  
the specific skills defined in the mark scheme or in the generic level descriptors for the question  
the standard of response required by a candidate as exemplified by the standardisation scripts.

**GENERIC MARKING PRINCIPLE 2:**

Marks awarded are always **whole marks** (not half marks, or other fractions).

**GENERIC MARKING PRINCIPLE 3:**

Marks must be awarded **positively**:

marks are awarded for correct/valid answers, as defined in the mark scheme. However, credit is given for valid answers which go beyond the scope of the syllabus and mark scheme, referring to your Team Leader as appropriate  
marks are awarded when candidates clearly demonstrate what they know and can do  
marks are not deducted for errors  
marks are not deducted for omissions  
answers should only be judged on the quality of spelling, punctuation and grammar when these features are specifically assessed by the question as indicated by the mark scheme. The meaning, however, should be unambiguous.

**GENERIC MARKING PRINCIPLE 4:**

Rules must be applied consistently e.g. in situations where candidates have not followed instructions or in the application of generic level descriptors.

**GENERIC MARKING PRINCIPLE 5:**

Marks should be awarded using the full range of marks defined in the mark scheme for the question (however; the use of the full mark range may be limited according to the quality of the candidate responses seen).

**GENERIC MARKING PRINCIPLE 6:**

Marks awarded are based solely on the requirements as defined in the mark scheme. Marks should not be awarded with grade thresholds or grade descriptors in mind.

Question	Answer	Marks								
1(a)	Significant [1]. It makes it more likely that the shooting was by poachers or big game hunters [1]. The subsistence farmers would be unlikely to possess sophisticated firearms [1]. However, it is possible that the farmers hired poachers/big game hunters to kill the lion on their behalf [1].	3								
1(b)	It lacks significance [1] because the wounds are only consistent with a lion attack [1]. This means it could have been a number of other predators [1]. It lacks reliability [1] as it is issued by the Nambutian government [1] who might have a motive for focussing blame on the villagers [1] if some of their members are organising illegal hunting trips [1].	3								
1(c)	Useful <i>if one assumes</i> that it reveals collusion between the government and a big game hunter in the killing of Albert [1]. The photos could offer concrete evidence that the beast was Albert [1]. However, on this information alone we do not know that the ‘beast’ referred to is Albert (or even a lion) [1]. The difficulties referred to could be any number of things [1].  <i>An answer which assumes the first point does not score the mark.</i>	3								
1(d)	<table border="1" data-bbox="292 913 1318 1442"> <tbody> <tr> <td data-bbox="292 913 459 1077"><b>Level 3</b> 5–6 marks</td> <td data-bbox="459 913 1318 1077">A strong answer, which provides a reasoned argument including thorough evaluation of all or most of the evidence to support an acceptable conclusion in terms of probability and evaluates the plausibility of at least one alternative conclusion.</td> </tr> <tr> <td data-bbox="292 1077 459 1211"><b>Level 2</b> 3–4 marks</td> <td data-bbox="459 1077 1318 1211">An answer which evaluates some of the evidence, draws an acceptable conclusion in terms of probability and may mention the plausibility of at least one alternative conclusion.</td> </tr> <tr> <td data-bbox="292 1211 459 1346"><b>Level 1</b> 1–2 marks</td> <td data-bbox="459 1211 1318 1346">A weak answer, which refers to some of the evidence, possibly including a simple evaluative comment. The conclusion may be unstated or over-stated.</td> </tr> <tr> <td data-bbox="292 1346 459 1442"><b>Level 0</b> 0 marks</td> <td data-bbox="459 1346 1318 1442">No credit-worthy material.</td> </tr> </tbody> </table> <p data-bbox="292 1473 547 1507"><b>Indicative content</b></p> <p data-bbox="292 1543 683 1576">The possible conclusions are:</p> <ul style="list-style-type: none"> <li data-bbox="347 1615 847 1648">Albert was killed by a big game hunter</li> <li data-bbox="347 1650 730 1684">Albert was killed by poachers</li> <li data-bbox="347 1686 767 1720">Albert was killed by the villagers</li> </ul> <p data-bbox="292 1756 1302 1989">There is a good deal of evidence that this was the work of a big game hunter, probably the one in Source D, with government collusion (Sources B and E). Poachers would not be interested in a ‘trophy lion’ as such and may not be able or need to use bribery. Also, they would have taken the body away. The big game hunter had to leave the body so that the villagers could be blamed. However, the villagers would lack access to a sophisticated firearm and we have no conclusive evidence that they thought the predator was a lion.</p>	<b>Level 3</b> 5–6 marks	A strong answer, which provides a reasoned argument including thorough evaluation of all or most of the evidence to support an acceptable conclusion in terms of probability and evaluates the plausibility of at least one alternative conclusion.	<b>Level 2</b> 3–4 marks	An answer which evaluates some of the evidence, draws an acceptable conclusion in terms of probability and may mention the plausibility of at least one alternative conclusion.	<b>Level 1</b> 1–2 marks	A weak answer, which refers to some of the evidence, possibly including a simple evaluative comment. The conclusion may be unstated or over-stated.	<b>Level 0</b> 0 marks	No credit-worthy material.	6
<b>Level 3</b> 5–6 marks	A strong answer, which provides a reasoned argument including thorough evaluation of all or most of the evidence to support an acceptable conclusion in terms of probability and evaluates the plausibility of at least one alternative conclusion.									
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Question	Answer	Marks
1(d)	<p><b>Notes for the guidance of markers</b></p> <p>Simple supported conclusion 1 (if no conclusion cap at Level 2)</p> <p>+ simple consideration of alternative + 1 AND reasoned rejection of alternative + 1</p> <p>+ explicit use of some (3 or fewer) sources of evidence + 1 OR explicit use of all or most (4 or more) sources of evidence + 2</p> <p>+ critical evaluation of evidence + 1 or (more than one case) + 2 + good inferential reasoning + 1 or (more than one case) + 2</p> <p><b>Evidence</b></p> <p><b>Source A</b> Use of sophisticated firearm Rich big game hunters seek ‘trophy lions’ (of which Albert probably an example) Government corruption Some hunting is allowed/legal.</p> <p><b>Source B</b> Implies villagers are to blame However may be a story planted by the government.</p> <p><b>Source C</b> NIP is the ruling party NIP want to ease restrictions on hunting lions</p> <p><b>Source D</b> Implies collusion between a big game hunter and the government with bribery of government minister involved. However this is not certain.</p> <p><b>Source E</b> Patrol was diverted away from where Albert was located. This is likely to be a deliberate ploy probably engineered by somebody with power and influence</p>	6

Question	Answer	Marks								
2(a)	Other types of flu. Briefer and/or milder infections could still be a problem.	2								
2(b)	Other health problems may arise from keeping a cat indoors [1]. These health problems may be more severe than cat flu [1].  Only a minority of cats suffer from the side effects of vaccination [1]. If one has a cat that doesn't, then sufficient protection will be offered when the cat goes outside [1].  Other difficulties may arise from keeping a cat indoors [1]. These may make keeping a cat indoors untenable [1].  It may be unethical to keep a cat indoors [1], because... <i>any valid reason</i> [1].	2								
2(c)(i)	The data for the USA [1] shows that 90% of cats were vaccinated, yet 35% lived indoors [1] (, so at least 25 out of every 100 cats must have lived indoors and been vaccinated).  <i>Allow reference to 25% of indoor cats.</i>	2								
2(c)(ii)	<i>1 mark for each valid explanation, for example:</i>  Higher proportion of indoor cats vaccinated in the UK Risk of indoor cats contracting flu higher in the UK Greater prevalence in the UK of flu strains not covered by the vaccination Cat flu strains in the UK more virulent UK cats less healthy so more susceptible to flu than German cats Density of cat population higher in the UK Greater population in the UK of other animals that carry cat flu Other methods of controlling cat flu might be used in Germany.	3								
2(d)	<table border="1"> <tbody> <tr> <td><b>Level 3</b> 5–6 marks</td> <td>A reasoned argument, which uses and evaluates all or most of the evidence provided.</td> </tr> <tr> <td><b>Level 2</b> 3–4 marks</td> <td>A simple argument, which uses and/or evaluates evidence.</td> </tr> <tr> <td><b>Level 1</b> 1–2 marks</td> <td>A weak answer, which makes some correct reference to evidence but consists of opinion and/or assertion rather than argument <b>or</b> a weak argument which makes no reference to evidence.</td> </tr> <tr> <td><b>Level 0</b> 0 marks</td> <td>No credit-worthy material.</td> </tr> </tbody> </table>	<b>Level 3</b> 5–6 marks	A reasoned argument, which uses and evaluates all or most of the evidence provided.	<b>Level 2</b> 3–4 marks	A simple argument, which uses and/or evaluates evidence.	<b>Level 1</b> 1–2 marks	A weak answer, which makes some correct reference to evidence but consists of opinion and/or assertion rather than argument <b>or</b> a weak argument which makes no reference to evidence.	<b>Level 0</b> 0 marks	No credit-worthy material.	6
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Question	Answer	Marks
2(d)	<p><b>Indicative content</b></p> <p>The statement is too sweeping. It might apply if a cat is kept indoors and is never sent to a boarding home. If these conditions do not apply, however, then it does become necessary in the case of the boarding home and at least advisable if the cat goes outdoors. However, ‘necessary’ is probably too strong as it is not clear what the consequences of a cat getting cat flu are.</p> <p><b>Source A</b> Expert analysis but vested interest to supply vaccinations and make money</p> <p><b>Source B</b> Neutral analysis with some expertise but insufficient information to draw a conclusion.</p> <p><b>Source C</b> Some expertise – suggests some problems with vaccination and suggests not really necessary for indoor cats</p> <p><b>Source D</b> UK figures support effectiveness of vaccination USA figures suggest less effective (though there may be explanations for high incidence of cat flu in spite of vaccination) German figures challenge necessity for vaccination South African figures show high incidence where there is little vaccination. Malaysian figures suggest vaccination unnecessary where cats live indoors.</p> <p><b>Source E</b> Suggests vaccination necessary if owners want to put cats in a cattery. However not clear that this is for genuine medical reasons – seems affiliated with vet practice.</p> <p><b>Notes for the guidance of markers</b></p> <p>Simple supported conclusion 1 or nuanced conclusion 2</p> <p>+ <u>use</u> of 1 or 2 sources + 1 or <u>use</u> of all or most (3 or more) sources of evidence + 2 <i>not just mentioning or summarizing or comprehension</i></p> <p>+ critical evaluation of evidence + 1 or (more than one case) + 2</p> <p>+ good inferential reasoning + 1 or (more than one case) + 2</p> <p><i>not speculation</i></p> <p>+ personal thinking + 1</p>	6

Question	Answer	Marks
3(a)	<p><i>2 marks:</i> owners of diesel cars should not rush out to sell them.  <i>1 mark:</i> This suggests it is unethical to own a diesel car, but owners of diesel cars should not rush out to sell them.</p>	<b>2</b>
3(b)	<p><i>1 mark for each of the following, to a maximum of 3 marks:</i></p> <p>There is not much point bothering about emissions from your diesel engine while this is the case.  If you drive a modern diesel car you can drive with a clear conscience.  There is little point in switching to a petrol-engined car on ethical grounds.  They [diesel engines] are a superior type of engine.</p> <p><i>Allow <u>one</u> significant omission or addition in each case.</i></p>	<b>3</b>
3(c)	<p><i>Marks for each evaluative point as follows, up to a maximum of 5 marks:</i></p> <p><i>2 marks:</i>        <i>Valid evaluative point, clearly expressed.</i>  <i>1 mark:</i>         <i>Weak attempt at a valid evaluative point.</i></p> <p><i>Paragraph 2</i></p> <p>Assumption – air quality is the only issue relevant to diesel emissions  Flaw – <i>tu quoque</i>  Flaw – inconsistency; if city pollution is brought in on prevailing winds then emissions in the country may contribute to this city pollution.</p> <p><i>Paragraph 3</i></p> <p>False inference – car manufacturers may have been simply forced to take action because of the law rather than genuine ethical concern.  Assumption – DPFs actually work. If they have been fitted for many years but there is still concern about diesel particles it suggests they do not.  Assumption – that DPFs prevent soot particles from being emitted.  Weakness – this offers only limited support to the conclusion and implies you should sell your car or take some other action if your car is not fitted with a DPF.</p> <p><i>Paragraph 4</i></p> <p>Flaw – restricting the options; there are alternatives to diesel other than petrol engines.  Flaw – the issue of not using diesel is conflated with the choice of an alternative to it.  Flaw – consideration of one ethical issue is not sufficient to make an overall conclusion on the relative ethical merits of petrol v. diesel.</p> <p><i>Paragraph 5</i></p> <p>Assumption – there is an alternative to the diesel engine for these commercial vehicles.</p>	<b>5</b>

Question	Answer	Marks								
3(d)	<table border="1" data-bbox="295 280 1316 772"> <tr> <td data-bbox="295 280 454 481"><b>Level 3</b> 4–5 marks</td> <td data-bbox="454 280 1316 481">Developed, coherent argument. Reasons strongly support conclusion. Development may include intermediate conclusion or apt examples. Simply structured argument – 4 marks. Effective use of IC, etc. – 5 marks.</td> </tr> <tr> <td data-bbox="295 481 454 571"><b>Level 2</b> 2–3 marks</td> <td data-bbox="454 481 1316 571">A simple argument. One reason + conclusion – 2 marks. Two or more separate reasons + conclusion – 3 marks.</td> </tr> <tr> <td data-bbox="295 571 454 672"><b>Level 1</b> 1 mark</td> <td data-bbox="454 571 1316 672">Some relevant comment.</td> </tr> <tr> <td data-bbox="295 672 454 772"><b>Level 0</b> 0 marks</td> <td data-bbox="454 672 1316 772">No relevant comment.</td> </tr> </table> <p data-bbox="295 806 1252 873"><i>Maximum 3 marks for wrong conclusion or if conclusion is implied but not stated.</i></p> <p data-bbox="295 873 1061 907"><i>No credit for material merely reproduced from the passage.</i></p> <p data-bbox="295 940 662 974"><b>Specimen level 3 answers</b></p> <p data-bbox="295 1008 566 1041"><i>Support (145 words)</i></p> <p data-bbox="295 1064 1220 1131">Most accidents are caused by driver error so one of the key hazards of motoring, the road traffic accident, will no longer be a problem.</p> <p data-bbox="295 1164 1316 1355">Driverless cars will be powered by electricity as this is the only power system that is compatible with the idea of a car controlled by a computer. The logistics of producing a driverless car which copes with an internal combustion engine would present insurmountable difficulties. Given the electric car produces no pollution, another key problem is eliminated as a result of the introduction of driverless cars.</p> <p data-bbox="295 1400 1300 1534">Whilst at first sight, driverless cars seem to have no impact on the problem of congestion, it has been shown that congestion is considerably reduced by controlling vehicle speed. The driverless car will stick strictly to speed limits designed to ease congestion.</p> <p data-bbox="295 1568 1045 1601">So the driverless car will introduce problem-free motoring.</p>	<b>Level 3</b> 4–5 marks	Developed, coherent argument. Reasons strongly support conclusion. Development may include intermediate conclusion or apt examples. Simply structured argument – 4 marks. Effective use of IC, etc. – 5 marks.	<b>Level 2</b> 2–3 marks	A simple argument. One reason + conclusion – 2 marks. Two or more separate reasons + conclusion – 3 marks.	<b>Level 1</b> 1 mark	Some relevant comment.	<b>Level 0</b> 0 marks	No relevant comment.	5
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Question	Answer	Marks
3(d)	<p><i>Challenge (155 words)</i></p> <p>Although at first sight the driverless car seems to eliminate the possibility of road traffic accidents, we do not know the likelihood and consequences of a malfunction of the software that would govern the driverless car system. Given the vulnerability of IT systems to cyber-attacks, it is likely that such an attack would occur causing widespread chaos, with cars crashing into each other.</p> <p>Whilst driverless cars are likely to be electric, there is no guarantee of this. The powerful fossil fuel lobby will strive to produce a driverless fossil fuelled car and this is likely to be superior as regards the distance that can be travelled before refuelling/re-charging is necessary.</p> <p>It is difficult to see how the driverless car will have any significant impact on the problem of congestion. Controlling speed, etc. may mitigate the problem but only slightly.</p> <p>So the driverless car will not introduce problem-free motoring.</p>	<b>5</b>