

## **CAMBRIDGE INTERNATIONAL EXAMINATIONS**

Cambridge International Advanced Subsidiary and Advanced Level

### **MARK SCHEME for the October/November 2015 series**

#### **9694 THINKING SKILLS**

**9694/22**

Paper 2 (Critical Thinking), maximum raw mark 45

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- 1 (a) How significant is the evidence in Source A in assessing the overall effects on health of the pollution of water with aluminium sulphate? [3]

Highly significant as regards short-term health effects [1]. However, a government report which has high credibility [1] concluded there was no evidence that there were long-term effects [1]. It is only long-term effects that would have significance [1]. However, further/future evidence may show there are long-term effects/undermine the government report [1].

- (b) How reliable is the evidence in Source C? [3]

It is from an investigative journalistic TV programme that may have a tendency to exaggerate [1]. However, the point about telling people to boil water is corroborated by Source D [1]. The evidence is consistent with a general lack of action by the water company to counteract the effects of the aluminium sulphate as indicated in Source F [1] which comes from a professional journal [1].

- (c) How useful is the evidence in Source E in assessing the effects on health of the aluminium sulphate pollution? [3]

It has some use/not much use [1]. It shows links between premature death, high aluminium levels and being resident in Camelford at the time of the incident [1]. It also casts doubts on the conclusions of the government report on long-term effects [1]. However, it does not establish a causal link between these factors [1] and it is only one case [1].

- (d) To what extent should the lorry driver be held responsible for the incident in Camelford?

Write a short, reasoned argument to support your conclusion, with critical reference to the evidence provided and considering a plausible alternative conclusion. [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.
<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.

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### ***Indicative content***

Possible conclusions:

- The lorry driver should bear full responsibility.
- Other employees should bear the main responsibility (e.g. person who was meant to meet driver).
- The water company should be held responsible because they had inadequate procedures.
- The delivery company is responsible because they gave the job to an inexperienced driver.

Clearly the incident only happened because the lorry driver put the aluminium sulphate in the wrong tank. If he was in doubt about which tank it should go in, then he should have consulted somebody before going ahead. However, somebody was meant to be there to meet him and he might not have realised the seriousness of the consequences of the chemical going in the wrong tank. If his message about being late was not passed on, then whoever was meant to pass the message on holds some responsibility.

The incident was made much more serious by the actions of the water company. They should have supervised the delivery of the aluminium sulphate much more closely and/or had clear indication of which tank the chemical was meant to go in. Their complacency after the incident meant swift action, which might have alleviated the harmful effects, was not taken. In particular, the advice given about boiling water actually made things worse and the correct advice about drinking mineral water was not given. Source C seems to suggest some sort of cover-up was attempted.

The delivery firm must bear some responsibility for allowing the delivery to be made by somebody without experience.

There is still some uncertainty about the long-term effects of the water pollution. However, this is not relevant to the actual responsibility for the incident, as opposed to the question of how serious the consequences were.

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- 2 (a) “Bee populations have also declined in countries where neonicotinoids are not used.”  
(Source B) Does this enable one to conclude that neonicotinoids are not a significant cause of bee decline? [3]

No [1]. It might still be the case that they are a significant cause in those countries where they are used [1]. If most countries do use neonicotinoids, then this would mean they could be of global significance [1]. Also, the decline in numbers might be much greater in countries where they are used [1].

- (b) Is the passage in Source D an argument? Explain your answer. [2]

*2 marks for a correct answer with accurate explanation.  
1 mark for a correct answer with vague or generic explanation.  
0 marks for correct answer without a correct explanation.  
0 marks for incorrect answer with or without explanation.*

Yes. The conclusion (the assertion that a ban on neonicotinoids is needed to save bees from extinction is absurd) is supported by reasoning consisting of two counter arguments.

- (c) Look at Source E. Suggest two examples of additional information needed in order to assess the threat of synergisation posed by neonicotinoids. [4]

*2 marks for a clear, valid point.  
1 mark for a vague, incomplete or marginal point.*

- Whether neonicotinoids contain copper.
- Whether neonicotinoids are mixed with other pesticides OR whether they are mixed with other pesticides that contain copper.
- Whether the synergisation can occur if the bee is exposed to the two pesticides independently.
- Whether non-pesticide chemicals can synergise with pesticides.
- Whether neonicotinoids have any of the other features leading to “potential problems”.

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- (d) 'Banning the use of pesticides would contribute significantly to halting the decline in the bee population.'

How justified is this statement? Write a short, reasoned argument to support your conclusion, using and evaluating the information provided in Sources A–E. [6]

<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.

**Indicative content**

- The proposition in the question is too categorical as it generalises the conclusion to all pesticides and not just neonics.
- Source A offers scientific experimental evidence that neonics are harmful and an explanation of why they are harmful.
- However, the experiment in Source A may be flawed. Source B suggests they failed to replicate actual doses in a natural setting.
- Source B does not directly tackle the question of neonics' harmfulness. It fails to address the problem of synergy in its point about concentration levels and merely argues that other things are harmful to bees.
- Source B seems to concede that neonics may be harmful if the dose is large enough.
- Source C only deals with bumble bee colonies – other bee types may be susceptible.
- Source D argues that the threat to honeybees is exaggerated/other causes to bee decline.
- Source E offers an explanation of how the dangers of neonics can be amplified.
- The problem is disentangling the effects of the pesticide from other factors, especially more intensive styles of agriculture. It is likely that such agriculture involves pesticide use but that other aspects of it e.g. hedgerow destruction, are the real explanatory variable.

- 3 (a) Using the exact words from the passage as far as possible, identify the main conclusion. [2]

2 marks: (However), in the case of the remote control, (the) dislike is fully justified.

1 mark: The television remote control is one of those gadgets we could well do without.

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- (b) Using the exact words from the passage as far as possible, identify three reasons used to support the main conclusion. [3]

1 mark for each of the following, to a maximum of 3:

- The television remote control is one of those gadgets we could well do without.
- This develops a lazy mindset in the individual.
- The mindless practice of channel hopping is only possible because of the remote control.
- The distinction between the technology and the way people use it is meaningless.
- Children in particular suffer from the harmful effects of the remote control.

- (c) Evaluate the strength of the reasoning in the argument. In your answer you should consider any flaws, unstated assumptions and other weaknesses. [5]

Marks for each evaluative point as follows, up to a maximum of 5 marks:

2 marks: Valid evaluative point, clearly expressed.

1 mark: Weak attempt at a valid evaluative point.

### Indicative content

#### Paragraph 1

- Assumption: a thing not being necessary is sufficient grounds to dislike it.
- Flaw: generalisation from television remote controls to all remote controls.

#### Paragraph 2

- Assumption: there are no circumstances in which being lazy is acceptable.
- Flaw: having a remote is a sufficient condition for not needing to move.
- Post hoc: it seems just as likely that the lazy mindset is a cause of using the remote in this way.
- Exaggerated assessment of the effects of the remote control: worldwide obesity.
- Conflates the effects of watching T.V. (e.g. sitting around) with the use of the remote control.

#### Paragraph 3

- Assumption: television should not confine itself to programmes requiring a short attention span.
- Assumption: “endless car chases” do hold the attention of viewers.
- Inconsistency between programmes being “attention-grabbing” and “tiresome”.
- Slippery slope: moving from using the remote to endless car chases on T.V.

#### Paragraph 4

- Choice of a selective example to deny technology/use distinction. Example not appropriate as using remotes does not impact on society in way car use does. A more appropriate analogy with the car would be driving recklessly where it is clear it is the way the technology is used rather than the technology that it is to blame.

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*Paragraph 5*

- Assumption: there are not other screens that children are stuck in front of.
- Assumption: the lack of a remote would be sufficient to persuade children to go out to play/children would not be stuck in front of the television if they had to operate the controls directly.
- Assumption: children cannot be using a remote control of some sort whilst out playing.
- Assumption: the parents would use the remote control differently;
- Following this assumption, there is inconsistency with the logic of the previous reasoning that they would use it just as mindlessly.
- Flaw: illogical leap from harm to the child because of remote, to an improvement in behaviour in its absence/absence of remote a sufficient condition to improve behaviour.

(d) ‘Humanity will be destroyed by technology rather than be saved by it.’

**Write your own short argument to support or challenge this claim. The conclusion of your argument must be stated. Credit will not be given for repeating ideas from the passage.** [5]

<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.

*Maximum 3 marks if conclusion is implied but not stated.*

*Maximum 3 marks if argued to wrong conclusion.*

*No credit for material merely reproduced from the passage.*

**Specimen level 3 answers**

*Support (79 words)*

Technology has become a monster we have ceased to be able to control. It is the high-tech nature of modern society and our dependency on such technology that has been the major contribution to global warming. It seems unlikely that world governments will agree on action to control the emissions that cause global warming in sufficient time to reverse it. Global warming will therefore ultimately make human life on the planet unsustainable. So humanity will be destroyed by technology.

*Challenge (94 words)*

Before the development of modern technology life was painful and short. Technology has meant that humanity has been able to create a much more comfortable lifestyle. In particular, modern medicine has prolonged life and increased its quality. With this increased comfort have come increased civilisation and more enlightened attitudes to issues such as human rights. Technological developments will enable us to find a solution to problems such as global warming, and the global nature of modern communications will help foster a sense of common purpose. So humanity will not be destroyed by technology.