



Cambridge International AS & A Level

THINKING SKILLS

9694/22

Paper 2 Critical Thinking

October/November 2020

1 hour 45 minutes



You must answer on the enclosed answer booklet.

You will need: Answer booklet (enclosed)

INSTRUCTIONS

- Answer **all** questions.
- Follow the instructions on the front cover of the answer booklet. If you need additional answer paper, ask the invigilator for a continuation booklet.

INFORMATION

- The total mark for this paper is 50.
- The number of marks for each question or part question is shown in brackets [].

This document has **8** pages. Blank pages are indicated.

Section A

Study the evidence and then answer questions 1 and 2.

Source A**Extract from an environmental magazine**

There is general agreement that the use of fossil fuels in electricity generation is a major contributor to the carbon dioxide (CO₂) emissions that cause global warming. This has led to policies that aim to eliminate fossil fuels as a source of power. In the search for alternatives, it has been argued that wood is a suitably 'green' fuel. This seems an odd idea, as wood is simply a pre-fossilised form of coal. However, the argument is that the planting of trees to produce wood reduces CO₂ in the atmosphere because trees absorb CO₂ and release oxygen. This means that burning wood is 'carbon neutral', as the CO₂ released by burning will eventually be re-absorbed by new tree growth. Twigs, small branches and sawdust are the most carbon-efficient; they can be turned into wood pellets, which emit less than 100 kg of CO₂ per megawatt hour. This is a tenth of the amount of CO₂ emitted when coal is burned. Major coal-fired power stations are now being converted to burning wood pellets on the basis that this is a 'green' form of energy that will help countries meet climate change targets. Demand for wood pellets will increase massively in the future.

Source B**Publicity pamphlet for a large wood-pellet fuelled power station**

Compressed wood pellets will play a vital role in moving away from coal, towards a lower carbon energy future. Deforestation is a valid concern when it comes to using wood as a renewable fuel. However, working forests in the USA are not threatened by deforestation. Annual wood growth in the south-eastern USA increased by 112% between 1953 and 2015. Wood that is commercially valuable for other uses, such as construction, is not used to produce wood pellets. Most of our wood pellets are sourced from the south-eastern USA.

Source C**Extract from Green Party manifesto**

Wood is often seen as a 'green', carbon-neutral renewable resource, the use of which can help tackle the problem of global warming. However, this may not be the case. If the trees cut to supply wood are slow-growing hardwoods rather than fast-growing pines it will take longer for the CO₂ emissions from burning the wood to be reabsorbed from the atmosphere. The time lag between the emissions and their reabsorption will cause 'CO₂ emission spikes' that will last for decades. This means the devastating effects of global warming are likely to hit the planet long before any improvement is felt.

Source D**Extract from environmental magazine**

Many of the world's forests are privately owned, or are in countries where there is little environmental protection or where this is not well-enforced – for example, the hardwood forests in the marshy land of the south-eastern USA. These forests have historically been of little commercial value, but host dozens of plant species and more than 200 animal species, including muskrats and black bears. Conservationists fear that the demand for wood pellets will encourage land owners to convert these forests into less diverse, faster growing pine tree plantations.

Source E

Extract from European Union information leaflet

Biomass is a renewable energy source which can be used to produce electricity, heat and liquid fuels for vehicles. It accounts for roughly two-thirds of renewable energy in the European Union (EU). Although biomass can come from many different sources, wood is by far the most common. Under EU legislation, biomass is classified as carbon neutral based on the assumption that the carbon released when solid biomass is burned will be re-absorbed during tree growth. Burning wood emits CO₂; this creates a 'carbon debt'. The 'carbon pay-back period' is 5–30 years, depending on the wood used, but can be over 100 years old if old trees are intensively harvested.

- 1 (a) (i) Identify **one** feature of Source B that **increases** its reliability. [1]
- (ii) Identify **one** feature of Source B that **decreases** its reliability. [1]
- (b) Look at Source B.
- (i) Identify the conclusion drawn from the statistic quoted. [1]
- (ii) Suggest **one** problem with drawing this conclusion. [2]
- (c) Is Source C an argument? Justify your answer. [2]
- (d) 'If land owners wanted to replace their hardwood forests for commercial reasons they would have done so long ago.'
- Evaluate the strength of this objection to the point being made in Source D. [3]
- (e) Suggest **two** possible explanations for why the burning of wood, rather than the use of other carbon neutral options such as wind power, is the most popular choice for renewable energy in the EU. [4]

- 2 *You are advised to spend some time planning your answer before you begin to write it.*

'Burning wood for power generation will not help to combat global warming.'

To what extent do you agree with this claim? Write a short, reasoned argument to support your conclusion, using and evaluating the evidence provided. [8]

Section B

Read the following passage and then answer questions 3, 4 and 5.

- 1 It has long been understood that children are easily bored and crave excitement and adventure. There was a time when people were expected to grow out of this. But adults now have the same need for excitement and adventure; this is regrettable. High-adrenalin sports such as skiing are very popular even with people in their fifties and sixties. This adult craving for excitement represents a failure to grow up.
- 2 Social scientists have noted a shift in the last 15 years, from an employment situation where workers had a secure job for life to one that has been called 'disorganised capitalism'. In this new situation, people are encouraged to think of themselves as self-sufficient risk-takers, who relish the challenges of an uncertain future. So, rather than having a job for life, young people find themselves in what has been called the 'gig economy', in freelance self-employed work such as delivering parcels. Work of this kind has none of the advantages of secure employment, such as paid holidays and sick pay. In order to cope with these new conditions, one needs a risk-taking mindset, which is provided by exciting, adrenalin producing activities. So leisure involving such activities is a preparation for work, not an escape from it.
- 3 Many areas of natural beauty are threatened by this search for excitement. Mountain areas are disfigured by ski-lifts, and it was recently proposed that a zip-wire be put across a valley in the Lake District, a beautiful unspoilt area in England. This proposal was defeated but other such plans will come from the adrenalin junkies. If we want to preserve the beauty of these areas, we must leave them to the hikers and walkers.
- 4 These activities that produce an adrenalin rush have to have an element of risk in order to be exciting. This means that injuries are very common, which have to be dealt with by health services. So encouraging these activities increases the workload of health professionals. It is inconsistent for governments to mount health campaigns against excessive eating and drinking and not do the same for activities such as mountaineering, which also pose a risk to health.
- 5 The stresses of modern life are such that people need a safety valve to escape from them. Activities that produce an adrenalin rush enable people to do this, releasing them from the demands of society. People should not have to rely on these adrenalin rushes to cope with life. So we must instead strive to produce a society where such stresses no longer occur.

- 3 (a) Using the exact words from the passage as far as possible, identify the *main conclusion*. [2]
- (b) Using the exact words from the passage as far as possible, identify **three** *intermediate conclusions*. [6]
- (c) Identify an *unstated assumption* required by the reasoning in paragraph 3. [2]
- (d) Identify the argument element and explain the function of the following words from paragraph 3:

'a zip wire be put across a valley in the Lake District' [2]

- 4 (a) Identify an *inconsistency* between the reasoning in paragraph 1 and that in paragraph 2. [2]
- (b) Identify and explain **one** flaw or weakness in paragraph 4. [2]
- (c) (i) Identify and explain the flaw of *restricting the options* in paragraph 5. [2]
- (ii) To what extent does this flaw weaken the argument as a whole? [2]

- 5 *You are advised to spend some time planning your answer before you begin to write it.*

'School should be an exciting experience for pupils.'

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. [8]

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