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**THINKING SKILLS**

**9694/23**

Paper 2 Critical Thinking

**May/June 2016**

**1 hour 45 minutes**

No Additional Materials are required.

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**READ THESE INSTRUCTIONS FIRST**

An answer booklet is provided inside this question paper. You should follow the instructions on the front cover of the answer booklet. If you need additional answer paper ask the invigilator for a continuation booklet.

Answer **all** the questions.

The number of marks is given in brackets [ ] at the end of each question.

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This document consists of **6** printed pages, **2** blank pages and **1** insert.

1 Study the evidence and answer the questions that follow.

### Source A

#### Extract from Coles and Son Newsletter

One of our longest-serving employees, Edward Platt, suffered a serious accident on Thursday morning of last week. He badly injured his arm when it was caught in a lathe\* he was working at. He will be off work for several months and it is not clear at the moment whether his arm will ever be fully functional again. We wish Edward a speedy recovery.

\*lathe: a machine for working with wood

### Source B

#### Letter

*from Edward Platt's lawyer*

Dear Mr Coles,

Our client, Edward Platt, is seeking compensation from your firm in the light of the accident he suffered at work on 02 April 2015. It seems likely that his arm has been so severely injured that he will not be able to continue as a skilled lathe operator in the future. We hold your firm responsible on the following counts:

a) The lathe at which Mr Platt was working was of an old-fashioned design and lacked modern safety features.

b) Your firm's policy of linking pay to the number of finished items per day encourages your employees to work at a very fast speed.

### Source C

#### Reply

*to Edward Platt's lawyer from Coles and Son's lawyer*

Our client, Mr Coles, has forwarded us the letter you sent him regarding the accident to his employee Edward Platt. Coles and Son deny responsibility for this accident. This is the third accident Mr Platt has had at work this year, suggesting he is somewhat accident prone. He had been celebrating his birthday over lunch in the canteen and the canteen staff reported that the behaviour of him and his group had been very boisterous. Mr Coles assures us that his company's lathes and work-practices are within government safety guidelines and that the company has a good safety record.

**Source D****e-mail**

*from Coles Junior to Coles Senior*

That idiot Platt has done it again! Arm was very mangled and he was rushed to hospital. I think we need to take this opportunity to get rid of him – a good lawyer should be able to pin the blame on him. I keep saying we need to invest in some new machines; we are already behind with that order for 500 baseball bats from Montana Waste Management and they are not people one wants to let down.

**Source E****Extract from magazine article**

*'Woodworking Journal'*

As all experienced woodworkers know, lathes remain inherently dangerous machines. The response in recent years has been to attach increasingly sophisticated safety devices to these machines. The problem with this is that it has made the recommended start-up procedures both laborious and time-consuming. There is a temptation not to bother with them. It can be argued that the best way to avoid accidents is a simple machine with a safety guard that can be quickly put into place, operated by an experienced, skilled worker.

- (a) How useful is the evidence in Source A? [3]
- (b) How significant is the information that this was Platt's third accident that year (Source C)? [3]
- (c) How could the information in Source E be used to challenge the case being made by Platt's lawyer in Source B? [3]
- (d) How likely do you think it is that Coles and Son are to blame for the injury to Edward Platt? Write a short, reasoned argument to support your conclusion, with critical reference to the evidence provided and considering a plausible alternative conclusion. [6]

2 Study the evidence and answer the questions that follow.

**Source A**

**Extract from diesel engine manufacturer's publicity material**

There are two main types of engine in a conventionally-fuelled (i.e. non-electric) car. These are a petrol-fuelled engine and a diesel-fuelled engine. The diesel-fuelled car has many advantages. It travels more kilometres per litre. In many countries diesel is cheaper than petrol. In terms of the environment, diesel cars emit less carbon dioxide per unit distance than petrol engines. Carbon dioxide emission into the atmosphere is the main cause of global warming. Many countries charge less road tax on diesel vehicles because of this. Also, diesel cars are more environmentally friendly because of their better fuel consumption. The problem of 'diesel particulates' (small particles of soot that are emitted by diesel engines) can be solved by fitting a diesel particulate filter (DPF). Many countries now require all new cars to be fitted with this device. Finally, a diesel engine will last longer than a petrol engine.

**Source B**

**Extract from 'Developments in Diesel Engine Technology'**

Whilst generating a lot of power, diesel engines used to have very slow acceleration rates. However, modern diesel engines are fitted with a turbo charger that cuts in and gives the car a surge of power when the accelerator is pressed. Modern diesel engines can now produce faster acceleration than many petrol-fuelled engines of the same size.

**Source C**

**Extract from motoring magazine**

The diesel engine used to have a reputation for being very simple and robust but lacking in speed. It was typically associated with high-mileage vehicles, like taxis, where the driver wanted a long-lasting engine that would not involve expensive repair bills or replacement, even after 240 000 kilometres. HGVs (heavy goods vehicles) have always been powered by diesel engines. However, the modern diesel engine is a sophisticated piece of engineering. Turbo chargers have improved the performance of diesel engines, but they frequently go wrong and are very costly to replace. This is also true of the diesel particulate filter (DPF) which is fitted to most modern diesel engines. A new filter will be needed after 130 000 kilometres and it will typically cost \$4000. Furthermore, this life span can be considerably reduced if the car is used for many short journeys which cause the filter to block up and fail.

## Source D

**Diesel and petrol cars – the facts***From a motoring expert*

The significantly lower fuel consumption of diesel cars has caused many people to swap to them at a time of increasing fuel prices. However, diesel cars are typically 15% more expensive than the equivalent petrol model. In addition, routine maintenance of a diesel engine is more expensive than that of a petrol engine. A driver will need to do a high mileage to recoup these costs by what is saved in fuel consumption. After 130 000 kilometres a diesel car is likely to need costly repairs to sophisticated devices such as turbochargers. However, price depreciation in the petrol car is greater: typically 30% in the first 3 years, compared to 20% for the diesel car.

## Source E

**Comparison of petrol and diesel  
prices in \$ per litre**

| <i>Country</i> | <i>Petrol</i> | <i>Diesel</i> |
|----------------|---------------|---------------|
| USA            | 0.755         | 0.773         |
| Austria        | 1.93          | 1.85          |
| Finland        | 2.27          | 1.89          |
| Switzerland    | 2.05          | 2.17          |
| Bulgaria       | 1.68          | 1.75          |
| UK             | 2.19          | 2.32          |
| Australia      | 1.59          | 1.86          |
| Japan          | 1.87          | 1.49          |
| Germany        | 2.22          | 2.02          |
| France         | 2.17          | 1.92          |

- (a) Does the information in Source B enable the conclusion to be drawn that a turbo-charged diesel engine is better than other engines? [3]
- (b) 'Taxi drivers must regret the development of the diesel particulate filter.' To what extent is this statement justified by the evidence in Source C? [3]
- (c) 'All HGVs have diesel engines.' Suggest and briefly explain **two** factors that would account for this. [3]
- (d) 'The diesel engine will become the dominant power source for road vehicles.'

To what extent do you agree with this claim? Write a short, reasoned argument to support your conclusion, using and evaluating the information provided in Sources A–E. [6]

3 *Read the passage and answer the questions below.*

- 1 Going for a holiday on a cruise ship is increasingly popular, but anybody planning a holiday would be well-advised to avoid this option. The glossy brochures are very misleading with their pictures of romantic sunsets over tropical bays. Windswept people huddled on the deck covered in blankets would be nearer the truth. It is better to pack your cases in the car and drive to a holiday destination instead.
- 2 One could probably have more fun on a silent retreat in a Tibetan monastery than on a cruise. The monotony of the horizon, the water and the motion of the ship induce a state of mindless boredom after a few days. The novelty of being at sea quickly wears off.
- 3 There are safety concerns about the design of modern cruise ships. Many layers of decks make the ships very top-heavy with the potential to capsize. In this event, chaos reigns as the many thousands of passengers try to negotiate corridors that become vertical shafts. The Costa Concordia, which capsized near an Italian island after running aground when it sailed too close to the land in January 2012, is an example of this happening.
- 4 These large ships are like floating theme parks, stuffed with trivial forms of entertainment and encouragement to over-indulge in food and drink. An exhausting array of concerts, cocktail parties and dances completely wears out the people on board. You'll need a holiday to recover from a cruise.
- 5 On arriving in a port, the place is overwhelmed as the ship disgorges its passengers. The locals will treat you as an easy target and try to extract as much money from you as possible. You will re-board the ship having had only a few hours in the place, weighed down with expensive so-called authentic local specialities which are probably mass-produced in a factory. It is better to be a normal visitor.

- (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. [3]
- (c) Evaluate the strength of the reasoning in the argument. In your answer you should consider any flaws, unstated assumptions and other weaknesses. [5]
- (d) 'Going on a holiday is selfish and irresponsible.'

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]



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