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**THINKING SKILLS**

Paper 2 Critical Thinking

**9694/22**

**May/June 2017**

**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****Letter of complaint**

Dear Mr Jones

I am very disappointed that one of the walls of the garage you recently built for me has fallen down. In the past you have done a number of jobs for me and they have all been satisfactory. Something has clearly gone wrong this time. I would be grateful if you could visit me at the earliest opportunity to assess the situation and to see what has caused the wall to collapse.

Mr Smith  
Acacia Cottage  
Milton  
Burwell County

**Source B****Statement from Mr Jones**

I was not entirely happy with the quality of my work on the garage at Acacia Cottage. Mr Smith bought his teenage daughter a car, as she was just starting to learn to drive. He was pressing for the garage to be completed before the date when delivery of the car was expected. There were some 'rough edges' which I would have normally tidied up – as a matter of professional pride, I like a job to look as neat and tidy as possible. However, only the appearance of the completed job was affected; the walls of the garage were well constructed.

**Source C****Newspaper report**

An earth tremor of considerable force was felt in Burwell County last Tuesday. Windows rattled and there was some damage to buildings. Such tremors are very rare in this area and buildings are not constructed to withstand them, as they would be in areas prone to frequent and more serious earth tremors. However, the County Inspector of Buildings reported that damage was confined to buildings which were already damaged or had been poorly maintained. He rejected claims that building regulations needed to be tightened in the light of this tremor.

**Source D****Extract from internet forum**

Mortar comes in three different grades. Grade A is guaranteed for 50 years, Grade B is guaranteed for 25 years and Grade C for 10 years. Whilst Grade A and B are more expensive, the fact that they need renewing less often means they can prove more economical in the long run. However, most builders opt for Grade C because it means they can offer a more competitive price. Also, if walls built with Grade C need attention after 10 years this will provide more work for the builder. So builders have little incentive to use the more expensive grades of mortar.

**Source E****Bricklaying tuition manual**

When constructing a wall, it is essential that the mortar is of a consistency to allow it to set sufficiently before laying another row of bricks on top. Failure to observe this rule is liable to lead to faulty construction and, in extreme cases, can result in the wall falling down. More usually, however, the wall will be of uneven construction because some bricks have sunk too far into the mortar. Mortar that is too thick will be unusable. Mortar that is too thin may be usable but progress will be slow as the worker will have to wait for it to set sufficiently before laying the next row of bricks.

- (a) How useful is the evidence from Mr Jones in Source B? [3]
- (b) What is the possible relevance of the information that Mr Smith's daughter was just starting to learn to drive, in the light of information about damage to buildings from the County Building Inspector in Source C? [3]
- (c) Mr Jones used Grade C mortar. How significant is this additional information in assessing the reason why the garage wall fell down? [3]
- (d) How likely is it that the wall fell down as a result of Mr Jones' poor workmanship? 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 record journal**

Many people argue that the purest way to hear a musical recording is to listen to a brand new analogue vinyl record. This is because the bumps and grooves in a vinyl record have a direct relation to the actual sounds being made when recording. In contrast, a digital recording is a reproduction of sound that has been turned into an electronic signal. So, it is only an estimate of the sounds the sound waves are producing, whereas a vinyl recording reproduces the exact sound. The main reason that digital recording now dominates is because it is the only method that can be used with computers. The shortcomings of digital recordings are particularly noticeable in lower-frequency bass notes, which have more impact if they have been recorded with an analogue method. However, great care is needed to preserve the sound quality of vinyl records. They require very careful handling and cleaning. Most people find it difficult to maintain these high standards of care.

**Source B**

**Extract from *Digital News***

Much of the bad reputation of digital recordings in comparison to analogue is because early digital record releases were often 'digitally re-mastered' versions of analogue recordings. These always failed to reproduce the quality of the original recording because something was inevitably lost in the transfer. Modern sound engineers in recording studios have adapted the music they are creating to digital techniques of recording and are able to replicate authentically sounds being produced in the studio.

**Source C**

**Comment by popular culture commentator**

The problem with all this expert discussion about what produces the highest quality of sound is that it is based on the assumption that people are particularly concerned about sound quality anyway. Many people are quite happy watching a film on their phone or tablet even though this was intended to be seen in a big-screen cinema. They clearly do not think that the quality of the viewing experience matters.

**Source D**

**Report from specialist journal**

In 2014, the Journal of the Audio Engineering Society published a study which sought to determine if listeners could tell the difference between an analogue and a digital recording of the same piece of music. The study involved 60 people and 554 listening trials. During the trials people were asked to identify if they were hearing an analogue or a digital recording. Listeners were able to identify the recording method only 49.82% of the time, suggesting they were effectively guessing rather than making an informed choice. This is probably because the recording method – analogue or digital – is only one factor determining the quality of sound.

- (a) (i) “The shortcomings of digital recordings are particularly noticeable in lower-frequency bass notes” (Source A).  
Why can we not draw the conclusion that this is always a problem when people listen to music on a digital recording? [1]
- (ii) “They require very careful handling and cleaning” (Source A).  
To what extent does this undermine the claim that vinyl records produce a purer musical sound? [2]
- (b) People are going to the cinema in increasing numbers.  
How effective is this as a reply to the argument in Source C? [3]
- (c) “This is probably because the recording method is only one factor determining the quality of sound” (Source D).  
Suggest **three** other factors that might influence the quality of recorded sound, as experienced by the listener. [3]
- (d) ‘Critics of digital recordings are old-fashioned and irrationally prejudiced against them.’  
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–D. [6]

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

- 1 A key problem facing humanity is the issue of global warming. Many people advocate measures, such as reducing emissions from the burning of fossil fuel, to combat this threat. However, this is an unworkable strategy and we should not try to combat the effects of global warming.
- 2 Global warming is a well-established trend that cannot be reversed. The advocates of an international effort to combat global warming seem to have an over-optimistic view of the ability of humans to find solutions to problems. They seem to think that science will be able to create a paradise on earth for humanity. This is just a childish dream.
- 3 The negative effects of global warming have been exaggerated. Colder areas of the world will become warmer and this will cut down the consumption of fossil fuels by reducing heating bills. Whilst some areas of the world will become too hot to sustain the growing of crops, others at present too cold to grow crops will become warmer, meaning agriculture will simply shift in to different zones.
- 4 The drive to develop 'green' renewable energy as a way of combating global warming has been exploited for financial gain. For example, in the UK, wind turbines with a maximum output of less than 500kW get a larger subsidy from the government than those with an output of more than 500kW. This has resulted in many wind turbines being operated at below their true capacity, enabling their owners to get the larger subsidy. Supporting the efforts to tackle global warming simply encourages this sort of scam.
- 5 Humans have made such a mess of life on Earth that the planet is not worth saving anyway. The way forward for humanity is to colonise other planets. A one-way trip to Mars, known as Mars 1, is already being planned and it has attracted many volunteers who are keen to make the trip. The launch date has been set for as early as 2024. Pessimists have argued that lack of food and the production of too much oxygen by plants will mean that the colonists will start to die within 68 days. However, human ingenuity will find a solution to these problems.

- (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) 'It is not possible to achieve global agreements to tackle climate change.'

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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