



UNIVERSITY OF CAMBRIDGE INTERNATIONAL EXAMINATIONS  
General Certificate of Education Advanced Subsidiary Level

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GENERAL PAPER

8001/22

October/November 2010

1 hour 30 minutes

Additional Materials: Answer Booklet/Paper



**READ THESE INSTRUCTIONS FIRST**

If you have been given an Answer Booklet, follow the instructions on the front cover of the Booklet.

Write your Centre number, candidate number and name on all the work you hand in.

Write in dark blue or black pen.

Do not use staples, paper clips, highlighters, glue or correction fluid.

Answer **one** question.

The total time of 1 hour 30 minutes includes 10 minutes for you to study the questions before you begin your answer. You may make notes during this time if you wish.

Up to 15 marks will be given for the quality and accuracy of your English throughout this paper.

Dictionaries are **not** permitted.

At the end of the examination, fasten all your work securely together.

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

This document consists of **7** printed pages and **1** blank page.



1 Below are four separate responses in a series of interviews on the subject of lying and the notes on the speakers, then answer all the questions (a–d) which follow.

- A** Unlike many folk that I know, I'm glad to say that I've never told a lie. I would lose all respect if I did. The truth's the truth and has to be told at all times, whatever the consequences. All right, so I am unpopular, and, yes, I have hurt people on occasion, when they wanted to hear something else, but at least they know where they are with me. And you're bound to be found out sooner or later, I've seen it time and time again. Believe you me, honesty is always the best policy, whatever the temptation to wriggle out of an awkward situation. Tell one lie and you can never be sure where it will lead you. Take the case of my lodger who lives in daily fear of arrest ... (*Looks down at the floor.*) Young man, you really do need to clean those shoes before you're much older.
- B** You're absolutely sure you're not interested in the Bargain of the Month? Oh, well, as I said before, I wouldn't survive at home or at work if I didn't take a few liberties with the facts, once in a while. You have to keep customers happy, when you can't offer them exactly what they want, otherwise they go elsewhere, and that's not so good for business. Then there's the Boss who has to be kept sweet when things aren't going too well. And how could I enjoy a few extra days off work with the family if I didn't invent the occasional 'illness'? There are all sorts of domestic situations, too, which require some quick thinking: 'Why are you back so late?' 'What's happened to Aunt Zora's antique clock?' ... You've got to live on your wits!
- C** And there was a real, live snake in my laundry basket, I assure you. People say I'm a compulsive liar, but I'm not: I simply have a highly developed imagination and find the world so boring without a little story-telling. And I really don't expect them to believe me when I rush out of the house announcing that I've just had a telephone call from the President whereas, in fact, it's the electrician, so no harm is done. I know, I ought to start writing novels, but I do so enjoy entertaining the neighbours who would find life dull otherwise. Still, I admit that the police would not have taken kindly to my hoax call during the recent State of Emergency, nor would the parents of that child who went missing...
- D** Moral coward? Over protective? Maybe I am, but I don't regret not telling my children their favourite uncle committed suicide last year. I told them it was a nasty accident. More recently, I also pretended that I couldn't afford any more treatment for my medical condition when I was convinced that the practitioner did not know what he was doing. In point of fact, it soon righted itself of its own accord and I now enjoy excellent health. But is tact always a good thing? Perhaps not. I really should have mentioned to my husband that I did not particularly like that expensive dress he bought me, so that he could have taken it back and got a refund. Instead, I said how wonderful it was but I shall never actually wear it. The same goes for the holiday he booked...

Notes on the speakers:

*A is a retired rent-collector who worked for a company that owns a great deal of rundown property in a poor district of the local town. During his long career, he had frequently been assaulted by tenants who resented his unsympathetic manner. He allows his lodger, a niece, to live with him rent-free and has not reported her to the authorities for her involvement in computer fraud.*

*B is a car salesman threatened with redundancy and struggling to support a large family. His preferred way of coping with stress is to have several quick drinks with his colleagues after working hours, before returning home. On occasion, he has had to borrow money from people at work rather than from his bank, which has refused him several loans. He is a heavy smoker.*

*C inherited a considerable fortune and has not had to work for a living for many years. He is a generous supporter of deserving causes in his immediate neighbourhood. Although he lives alone, the lavish parties he gives are famous. His guests have to put up with his frequent practical jokes. He is subject to bouts of severe depression and is on a high dose of medication.*

*D is happily married with three nice young children. Before her marriage, she had been a teacher but had to give up because of problems in the classroom. She has twice been alone in the house when it was burgled. In both instances, she fled up to the bathroom and locked herself in while the burglar worked through the other rooms. The alarm was raised only later and neither burglar was ever caught.*

- (a) On the basis of what they have said and on what you know about them, which of the four speakers appeals to you most? **Give your reasons in about 100 of your own words.** Do not refer to the other three speakers. [10]
- (b) On the basis of what they have said and on what you know about them, which of the remaining speakers appeals to you least? **Give your reasons in about 100 of your own words.** Do not refer to the other three speakers. [10]
- (c) Now consider the other two speakers that you have not dealt with already. In what respects would they feel uncomfortable if what they had said was broadcast on local radio together with their personal details? **Answer in about 100 of your own words.** [10]
- (d) Looking at all four responses, what seems to you to be the remark made during the course of the interviews that has the least relevance to the issue of lying? **Justify your choice in about 50 words.** [5]

Note: Up to an additional 15 marks will be available for use of English.

- 2 Read the following information and then answer all the questions (a–d) which follow.

In 2011, Melkuma College, a day school twelve kilometres from Nolessa, the provincial capital of Oprovit, is due to celebrate its Centenary. Over the past five years, the College's Centenary Appeal Fund has accumulated 225,000 Oprovit dollars from a wide variety of sources, including two or three wealthy donors.

It has been decided to spend the money on **one** of the following:

- A An annual Foreign Travel Scholarship, to be awarded to the student who has made the most outstanding contribution to College life.
- B The purchase of three school coaches.
- C The acquisition and conversion of a nearby derelict restaurant to house the collection of rare plants donated by Professor Pancie, the College's most famous pupil.

- 1 Not every country abroad is prepared to accept the Oprovit dollar as international currency.
- 2 There is no-one employed at the school with any experience of driving coaches.
- 3 The Botany Department of the University of Nolessa would be prepared to pay for study visits to the rare plants collection.
- 4 It is the policy of Oprovit universities to encourage applicants to spend 'a year out' between school and degree course.
- 5 One of Melkuma College's claims to excellence is that it stays open late during the week for a wide range of sporting and cultural activities.
- 6 At the moment, Oprovit is involved in an airline dispute with two of its four neighbours.
- 7 There have been allegations in the past of favouritism in the allocation of prizes.
- 8 Over the past year, the former restaurant has become the venue for local drug dealers.
- 9 When he was at the College, Professor Pancie was by no means a popular pupil.
- 10 In financial difficulties, the Nolessa Bus Company has reduced services between the city centre and the College.
- 11 Quite a few rare plants recently imported by Professor Pancie have died for no apparent reason within weeks of being added to his collection.
- 12 The relatively few parents with cars are now starting to give lifts to other children when they take their own to and from school.
- 13 The grounds round the former restaurant could also provide the College with a much needed extra games pitch.
- 14 In the current economic climate, money invested may well depreciate in value.
- 15 In recent years, there have been four serious accidents involving coaches on the narrow and hilly roads near Melkuma College.
- 16 Melkuma College has, in recent years, lost quite a few promising pupils to schools that are more accessible.
- 17 The flourishing Pen Pals Society at Melkuma College has many contacts with schools and families in other countries.
- 18 The Biology Laboratory at Melkuma College is too small even for its present purposes.
- 19 In the short term, a local coach firm could transport pupils to and from Melkuma College at competitive rates.
- 20 One of the ideals of Melkuma College is to foster a spirit of service to others amongst its pupils.
- 21 Melkuma College currently holds the Inter Schools high-jump record.
- 22 The founder of Melkuma College was a renowned linguist.

- 23 No-one has made a bid for the restaurant since it was closed three years ago.
- 24 Extra staff would be required to tend the rare plants collection and maintain the newly acquired premises.
- 25 Many pupils have to travel considerable distances between outlying areas and Melkuma College.
- 26 One of the rare plants in Professor Pancie's collection is named the Melkuma Rose.
- 27 A third of the teachers at Melkuma College are newly qualified.
- 28 Persistent vandalism was the main reason why the restaurant was forced to shut.

- (a) In your opinion, which is the best way to celebrate the Centenary of Melkuma College? In your answer, you should show how the merits of your preferred option outweigh any objections that can be levelled against it. Do not refer to the other alternatives. **Answer in about 100 of your own words.** [10]
- (b) In your opinion, which is the worst way to celebrate the Centenary of Melkuma College? In your answer, you should show how the objections against your least favoured option outweigh any merits it may have. Do not refer to the other alternatives. **Answer in about 100 of your own words.** [10]
- (c) From the information provided, what impression have you formed of the current financial position of Melkuma College? **Answer in about 100 words.** [10]
- (d) In your view, what is the least relevant factor in the list above when it comes to deciding the best way to commemorate the Centenary Year of Melkuma College? **Justify your choice in about 50 words.** [5]

Note: Up to an additional 15 marks will be available for use of English.

3 Read the following passage, and then answer all the questions (a–f) below.

He's used to marching across the frozen expanse of Antarctica, his sleek silhouette and monochrome plumage marking him out from the harsh, windswept landscape. Plunging hundreds of metres into the dark, icy depths of the Southern Ocean and spending weeks on end expertly hunting fish is just a way of life for him. But waddling along on an adapted treadmill inside a rickety transparent box, Roy the king penguin looks bemused and far from majestic. Though he might not have appreciated it at the time, he and his friends have been recruited as scientific researchers in an ambitious project.

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Scientists have for a long time suspected that warming seas and intensive fishing in the waters around Antarctica are affecting marine stocks. They believe that, left unchecked, this could have serious implications for penguins and many other species in the food chain, from microscopic plankton to killer whales. However, measuring fish stocks using traditional methods is a costly and inexact science. Researchers spend vast sums chartering fishing boats to make the long and perilous journey deep into the ice of the Antarctic, where intrepid scientists and volunteers trawl the few patches of ocean they have the time and money to reach, simply counting what they find. 'The Southern Ocean is so vast,' says Dr Lewis Halsey, who is leading the Penguin Project with a team from Birmingham University, 'that it's very difficult to sample with any validity using boats and fishing nets.' So why not recruit a natural-born swimmer with good local knowledge to do the job instead?

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King penguins inhabit the sub-Antarctic islands where, during the winter, they breed. Then, in the summer, they embark on a lengthy diving expedition to find food for themselves and their chicks. This double life makes them ideal for research. Halsey says: 'You can get to them easily on land, equip them cheaply with a data-logging chip, and off they go into the ocean, leading us to the fish. They are also large and numerous, so they have a significant role in the ecosystem – effects felt by them will be felt by everything else.'

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But just how do you expect a penguin to count fish? Halsey's experiments are based on the theory that by measuring the energy king penguins spend hunting for their favourite food – the lantern-fish – you can calculate how many fish there are: the harder the penguins have to work to find food, the fewer fish there are likely to be.

To measure energy expenditure, Halsey implants smart tags into the abdomens of 50 penguins. These tags measure the temperature at the back of each animal's throat, recording a temporary drop when it swallows a cold fish. This means scientists can work out when, and roughly how much, the penguins eat. The data logger also includes a hydrostatic sensor that measures pressure, which increases as the penguins dive. If lantern-fish are scarce, the penguins are forced to go deeper, sometimes as far down as 350 metres. Finally, and crucially, the chip monitors the animal's pulse, which ranges from a sedentary 30 beats per minute, while it sits on land, to a rib-rocking 200 beats per minute as it powers through the water hunting down its prey.

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Unfortunately, that alone is not a reliable enough indicator of energy expenditure. A more accurate indication is how much oxygen the animals use while hunting, something that's impossible to measure in the wild, hence the treadmill. Thus, Halsey and his team set Roy on a specially adapted running machine. Researchers also built a 30 metre-long water channel in which a penguin could swim against water flows of various strengths. By placing a sealed transparent box around Roy as he swam or ran, Halsey could measure how quickly the penguin consumed oxygen. At the same time he recorded Roy's heart rate. The treadmill and water flow were then varied to find out how the penguin's heart rates changed at different levels of exertion. By comparing this data with the heart-rate information retrieved from the penguins when they return to the same spot of dry land, Halsey can estimate energy expenditure and, in turn, the number of fish in the sea.

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The data reveal that king penguins have entered a vicious cycle of working harder to find less food. This suggests that over-fishing and warming of the Southern Ocean are pushing lantern-fish deeper and further south, upsetting the ecological balance of the whole ocean. For Roy, it means working harder to find lantern-fish or, increasingly, relying on squid as an alternative. 'You can't get as much energy from squid as you can from fatty, oily lantern-fish,' says Halsey. 'This means they have to eat more to make up the calories, which requires even more energy and takes more biomass out of the ocean, and that has knock-on effects on other species that rely on squid.' Hence, if fishing and the warming of the seas go on at the present rate, it could result in reduced breeding success, which would be a tragedy for far more creatures than the phenomenal penguins that have proved so useful to the Birmingham team.

- (a) Identify **three** instances in the first two paragraphs in which the penguins are presented by the writer as though they were human beings. You should quote directly from the article. [3]
- (b) In what ways was the research using penguins supposed to be far better than previous investigations attempted into what was happening to the life-forms of the Antarctic? **Answer in about 100 of your own words.** [10]
- (c) When it came to the use of smart tags, how could it be claimed that this method was hardly a great improvement on the 'inexact science' of previous expeditions? **Answer in about 40 of your own words.** [4]
- (d) What possible objections can you think of against the use of penguins, or any other creatures, in Dr Halsey's experiments? **Answer in about 40 of your own words.** [4]
- (e) In your opinion, what would appear to be the **two** long-term solutions to the state of affairs in the Antarctic confirmed by the Penguin Project? **Answer in about 20 words.** [2]
- (f) (i) Explain the meaning of **six** of the following words as they are used in the passage. You may answer in one word or a short phrase.  
silhouette (line 1); adapted (line 4); intensive (line 8); validity (line 17); embark (line 21); crucially (line 36); consumed (line 45); exertion (line 47). [6]
- (ii) For **each** of the words that you have chosen from the list, write a separate sentence to illustrate its meaning as used in the passage. Your six sentences should not deal with the subject matter of the passage. [6]

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