

UNIVERSITY OF CAMBRIDGE INTERNATIONAL EXAMINATIONS
General Certificate of Education Advanced Level

THINKING SKILLS

9694/04

Paper 4 Applied Reasoning

For examination from 2007

Specimen Paper

1 hour 30 minutes

Additional Materials: Answer Sheet

READ THESE INSTRUCTIONS FIRST

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 **all** the questions.
Start each question on a new Answer Sheet.

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

INFORMATION FOR CANDIDATES

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

This document consists of **10** printed pages and **2** blank pages.



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1 Study the following evidence, and answer the questions which follow. Show your working.

As an introduction to dietary modelling, a group of nutrition students is studying the effectiveness of very simple diets which approximate that which might have been eaten by a working-class family in the early 19th century.

The approximate nutritional values of these foodstuffs are summarised in the table below.

| Foodstuff | Nutritional value per kg | | | |
|--------------|--------------------------|-----------|-------|--------------|
| | Energy kcal | Protein g | Fat g | Vitamin C mg |
| Potato bread | 2000 | 20 | 10 | 50 |
| Meat | 4000 | 120 | 300 | 0 |
| Vegetables | 500 | 10 | 0 | 100 |

Modern dietary recommendations suggest the following daily requirements (based on a moderately active adult male):

| | |
|-----------|---------------------|
| Energy | 3000 kcal |
| Protein | more than 60g |
| Fat | between 50 and 100g |
| Vitamin C | more than 60mg. |

The students are to calculate possible diets, assuming that the daily energy intake is 3000 kcal, and looking at the effect of variation in quantities of the three ingredients on the other requirements.

For example, the 3000 kcal energy requirement would be met by eating 0.75kg of meat. However, this would contain more fat (225g) and less vitamin C (0mg) than recommended. The diet can be balanced better by including some potato bread and cabbage.

- (a) If a person eats 250g of meat and 500g cabbage in a day, how much potato bread is required to make up the 3000 kcal energy requirement? [1]
- (b) Is it possible to meet all the energy requirements with a diet of just potato bread and meat giving the required 3000 kcal per day? If so, give an example of a diet which would work. If not, explain how it would be inadequate. [2]
- (c) Suppose a person eats equal weights of all three foodstuffs to make up the 3000 kcal energy requirement. For **each** of the other three dietary requirements, will the requirement be met or not? Show how you reach your conclusions. [3]

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- (d)** Starting with a daily diet having a fat content at the 100g maximum, investigate possible diets with the 3000 kcal daily energy requirement.
- (i)** What combinations will have adequate vitamin C and how do these diets perform in terms of protein requirement? **[2]**
- (ii)** Give an example of a diet which satisfies all the dietary requirements. **[2]**

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2 Study the following evidence, and answer the questions which follow. Show your working.

The Samovian market for shaving products has four market segments:

- razors
- blades
- disposable razors (called 'disposables') and
- shave gel.

Three companies called Lucis, Maxglide and Nisgon dominate the market. A number of smaller companies also have a significant share of the sales and the three dominant companies also sell some non-shaving goods.

In the last financial year Lucis had total annual sales of \$140 million, of which \$10 million was made up of razors, \$30 million of blades, \$70 million of disposables and \$10 million of shave gel.

The share of each market segment (by total sales value) held by each of the three dominant companies was as follows:

| Company percentage of each market segment (shaving market) | | | | |
|--|--------|--------|-------------|-----------|
| Company | Razors | Blades | Disposables | Shave gel |
| Lucis | 12.5 | 25.0 | 35.0 | 10.0 |
| Maxglide | 25.0 | 33.3 | 20.0 | 15.0 |
| Nisgon | 37.5 | 12.5 | 15.0 | 30.0 |

- (a) What percentage of the blades market was held by companies other than the three market leaders? [1]
- (b) What was the value of Maxglide's sales of disposables in the last financial year? Express your answer in \$ million. [2]
- (c) Which **market segment** accounted for the largest value of sales in the last financial year? [2]
- (d) Rank the three dominant companies in order of their sales in the shaving market (largest to smallest). [3]
- (e) A new company will enter the shaving market at the beginning of the next financial year. Lucis have employed a marketing consultancy to estimate the effect this will have on Lucis's total sales of shaving products. This estimate is based on two assumptions. First, they assume that the new company will take a fixed percentage (say 10%) of each segment. What other assumption must they make? Show how the data in your answer would be used. [2]

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3 Study the following evidence and answer the questions that follow.

DOCUMENT 1

Affirmative action (From Wikipedia, the free encyclopedia)

Affirmative action (U.S. English), or **positive discrimination** (British English), is a policy or a program promoting the representation of a group who have traditionally been discriminated against, with the aim of creating a more equal society. This typically focuses on education and employment.

There is much debate concerning claims that the practice is, in itself, racism; that it fails to achieve its desired goal; and that it has unintended and undesirable side-effects.

Different countries' attitudes

- **Greece** has quotas setting a lower limit for women participating in election lists of political parties for most of the election processes.
- **India**. In order to redress the historical inequity of the caste system, certain positions in university and government are reserved for previously oppressed castes. A large percentage of College admissions and government job quotas are reserved for these castes. There have been recent attempts to introduce it into the private job sector and for Muslim minorities.
- **Malaysia**. The [bumiputra](#) laws are a form of affirmative action meant to provide more opportunity for the majority ethnic Malay population versus the historical financial dominance of the Malaysian Chinese and Malaysian Indian populations.
- **Southeast Asia**. In countries such as Indonesia, affirmative action programs give natives preference over Han Chinese who have immigrated into the country.
- **Japan**. Selection for universities as well as all the government positions (including teachers) are determined by the entrance exam, which is extremely competitive at the top level. It is illegal to include sex, ethnicity or other social background in criteria.
- **South Africa**. The Employment Equity Act aims to promote and achieve equity in the workplace, by encouraging equal opportunity amongst all workers. It includes efforts to identify reasons for inequalities and change the employment rates of previously underrepresented groups for a more equitable job market.
- **Belgium**. Despite 80% of the population being against such actions, the Belgian government approved in January 2006 a measure that will make all job opportunities available exclusively to immigrants (and to a lesser extent disabled and elderly people) for the first three weeks.
- **Brazil**. Some Brazilian Universities (State or Federal) have created systems of preferred admissions (quotas) for racial minorities (black and native Brazilian), the poor and the handicapped.

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DOCUMENT 2

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| <p>Black History Month "Freedom is never given: it is won" A. Phillip Randolph</p> |  |
|---|--|

A Short History of Affirmative Action in the USA

by Borgner Brunner

In its tumultuous 45-year history, affirmative action (or 'positive discrimination') has been both praised and condemned as an answer to racial inequality. In the USA the policy was introduced in 1965 by President Johnson as a method of redressing discrimination that had persisted in spite of civil rights laws.

A Temporary Measure to Level the Playing Field

Focusing in particular on education and jobs, affirmative action policies required that active measures be taken to ensure that black Americans, and other minorities, enjoyed the same opportunities for promotions, salary increases, career advancement, school admissions, scholarships, and financial aid that had been the nearly exclusive province of whites. From the outset, affirmative action was seen as a temporary remedy that would end once there was a "level playing field" for all Americans.

Bakke and Reverse Discrimination

By the late '70s, however, flaws in the policy began to show up amid its good intentions. Positive discrimination became an issue, that came to a head in the famous Allan Bakke case in 1978. Bakke, a white male, had been rejected two years in a row by a medical school that had accepted less qualified minority applicants—the school had a separate admissions policy for minorities and reserved 16 out of 100 places for minority students. The Supreme Court outlawed inflexible quota systems in affirmative action programs, which in this case had unfairly discriminated against a white applicant. In the same ruling, however, the Court upheld the legality of affirmative action in general.

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DOCUMENT 3

Starters orders

If you have been educated at a private school, with a low student-teacher ratio, the best hi-tech equipment and resources, fellow students who are not disruptive or apathetic; if you have parents who can afford the fees and the books, and who have the time and the intellect to help you with your studies, then doesn't it stand to reason that you have a huge head-start in life, especially when it comes to getting a place at a top university or walking into a well-paid job?

Doesn't it, conversely, stand to reason that a student from a deprived community, economically or ethnically, who has had none of these privileges has a harder hill to climb and must therefore be relatively *more* able or determined if they are to achieve the same goals as you? If your superior education has taught you anything, then you must surely answer 'Yes' to both questions.

As US President, Lyndon Johnson, said in 1965: 'You do not take a person who, for years, has been hobbled by chains and liberate him, bring him up to the starting line of a race and then say, "you are free to compete with all the others," and still justly believe that you have been completely fair.'

The solution seems dazzlingly simple. You do something positive which will cancel out the advantage: you make it a bit harder for the person who has had the head-start and a bit easier for the one who did not. What could be fairer than that?

J. C. Dass

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DOCUMENT 4

United Nations Statistics Division

Women in the national Parliament

| Country | Percentage of female members of parliament (MPs) | | |
|--------------------------|--|------|-----------|
| | 1995 | 1999 | 2004 |
| Sweden | 40 | 43 | 45 |
| Denmark | 33 | 37 | 38 |
| Netherlands | 31 | 36 | 37 |
| Cuba | 23 | 28 | 36 |
| Spain | 16 | 22 | 36 |
| Argentina | 22 | 28 | 34 |
| South Africa | 25 | 30 | 33 |
| Australia | 10 | 22 | 25 |
| Pakistan | 2 | 2 | 22 |
| Canada | 18 | 21 | 21 |
| China | 21 | 22 | 20 |
| United Kingdom | 10 | 18 | 18 |
| Singapore | 4 | 4 | 16 |
| United States of America | 11 | 13 | 14 |
| Russian Federation | 13 | 10 | 10 |
| Brazil | 7 | 6 | 9 |
| India | 8 | 8 | 8 |
| Japan | 3 | 5 | 7 |
| Egypt | 2 | 2 | 2 |
| Papua New Guinea | 0 | 2 | 1 |
| Kuwait | 0 | 0 | 0 |

The table shows the countries with some of the highest and lowest percentage of women MPs, and a selection of other countries.

Historical note: In the British Parliament in the 1990s there were more MPs called John than the total number of women!

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DOCUMENT 5:

Do two wrongs make a right?

Does the term 'positive discrimination' seem a self-contradiction? If so, it is particularly pertinent because that is what 'affirmative action' is called in some countries, including the UK. 'Positive Discrimination' quickly gets us to the heart of present-day criticisms of affirmative action -- namely that, even given the best of intentions, discrimination based on *given* characteristics, rather than personal achievement, is both unjust and ineffective.

Given characteristics are traits one is born with and has done nothing to earn. *Achieved* characteristics are things earned through individual effort. That is why it is so terribly unfair to discriminate against someone because of their race, gender, age, ethnicity, and so forth. Being held responsible for something one does not control is the height of injustice.

Positive discrimination in effect uses racism to combat racism, sexism to contest sexism. After all, those given characteristics are still the basis for judgment. But what this approach overlooks is that the individuals who suffered the injustice are often not the individuals gaining the compensatory advantage. Nor are those who enjoyed the benefits of past discrimination necessarily the same individuals who pay the compensatory costs. It is a simple-minded mentality that believes that past injustices are somehow undone by present remedies. Just as easily we end up with two wrongs that don't make a right.

Consider a hypothetical case: a college with an admission policy based on positive discrimination. There are more candidates than places at this college, and two candidates are tied with identical admission-test scores for the last opening.

One of these candidates is a Hispanic female, living in a state where Hispanics are in a minority, and have a history of being under-represented at university. Let's call her Juanita. Her father is a very wealthy cigar manufacturer, her mother a doctor. Juanita was raised in luxury, travelled the world with her parents, had private dance and music lessons, lived in a home filled with books and original art, and so forth. Juanita, however, was unmotivated in school and barely succeeded in gaining a high-school diploma.

The other candidate for the college's last available space is a white American male, let's call him Sam. Sam's father, a laid-off coal miner, died of lung-disease when Sam was twelve. Sam's home is poor and is more filled with overdue bills than books. To help his family while in high school Sam worked 8 hours a day at minimum wages in a local diner. Despite this burden, Sam did the best he could and, with great effort, ended up, like Juanita, just graduating from high school and with only an average score on the college's admission test.

Guess who gets into the college's last available space, and figure out how that sets to rights some past injustice.

Gary K. Clabaugh

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- (a) Provide a brief analysis of the argument presented by Gary Clabaugh in Document 5. **[4]**
- (b) Give a critical evaluation of Clabaugh's reasoning, commenting on its strengths and/or weaknesses, and on any assumptions it makes. **[6]**
- (c) Commenting critically on some or all of the Documents (1)-(5) and, introducing ideas and arguments of your own, construct a well-reasoned case either **for** or **against** a policy of positive discrimination. **[20]**

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Copyright Acknowledgements:

Document 1 http://en.wikipedia.org/wiki/Affirmative_action#Implementation_in_universities
Document 2 <http://www.infoplease.com/spot/affirmative1.html>
Document 4 <http://unstats.un.org/unsd/demographic/products/indwm/ww2005/tab6.htm>
Document 5 <http://www.newfoundations.com/Clabaugh/CuttingEdge/PositiveDiscrimination.html>

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