Cambridge International Examinations
Cambridge International Advanced Level

THINKING SKILLS **9694/41**

Paper 4 Applied Reasoning **May/June 2015**

1 hour 30 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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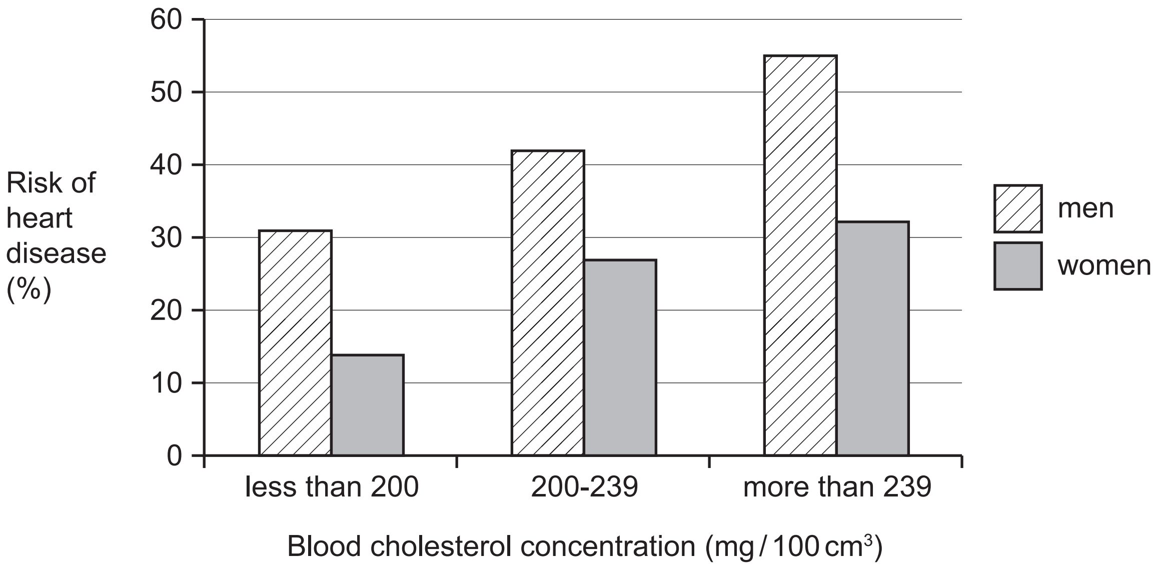
1 *Study the information below and answer the question that follows.*

How bad is cholesterol?



The above data were collected recently by a respected scientific publication, from a very large sample of patients.

A newspaper commented on the data with the headline, "The more cholesterol you eat, the sooner you will die."

Make **five** criticisms of the data presented and/or the claim that, "The more cholesterol you eat, the sooner you will die." [5]

Questions 2, 3 and 4 refer to Documents 1 to 5.

2 Briefly analyse Business Studies Teacher's argument in Document 1: *Risk-based Pricing,* by identifying its main conclusion, intermediate conclusions and any counter-assertions. [6]

3 Give a critical evaluation of the strength of Business Studies Teacher's argument in Document 1: *Risk-based Pricing,* by identifying and explaining any flaws, implicit assumptions and other weaknesses. [9]

4 'Financial products should be offered to everyone on equal terms.'

Construct a reasoned argument to support **or** challenge this claim, commenting critically on some or all of Documents 1 to 5 and introducing ideas of your own. [30]

DOCUMENT 1

Risk-based Pricing

At various stages of life, most people find they need to purchase financial products, such as insurance policies, pensions and bank loans. It might seem obvious that these products should be sold to everyone on equal terms, but in fact they should be priced according to risk. This has been the system for many years, and there is therefore no need to change it.

Houses built on a flood plain are more likely than other houses to suffer flood damage during bad weather. Similarly, homes in areas of high crime are more likely to be burgled than those in places where neighbours notice and report suspicious behaviour. It would be unfair for all householders to pay the same for their household insurance.

Similarly, the cost of insuring your car should vary according to the likelihood that you will be involved in an accident. It would not be fair if a driver with an unblemished record had to pay the same premium as someone who had several convictions for driving recklessly and exceeding the speed limit.

Female drivers have fewer accidents than men, and insurance companies therefore offer them more favourable terms. Sexist male judges have recently argued that women should pay the same for car insurance as men, but women must resist this attempt to deprive them of one of the few advantages they enjoy, because, if they give it up, they will gradually lose all the hard-won equality which they have gained in recent years.

A special form of insurance is ‘life assurance’. Everyone dies eventually, and therefore the company will have to pay out on every life assurance policy sooner or later. Whether the company makes a profit or not depends on how many premiums you pay before you die. Insurance companies therefore employ actuaries to calculate the odds for each insured person, and premiums are fixed accordingly. Setting different charges for each individual is the fairest system for both the companies and their clients.

The price of bank loans should take into account the possibility that the borrower will default on the loan. No loan is completely risk-free, but some potential borrowers have less financial backing than others and some of the purposes for which loans are sought are intrinsically more risky than others. Banks have a responsibility to look after their funds and to protect themselves and their investors against possible losses. If loans had to be provided on identical terms to all borrowers, vast sums of money would be thrown away on hare-brained schemes with little chance that they would be repaid.

Business Studies Teacher

DOCUMENT 2

What is risk-based pricing?

Risk-based pricing occurs when lenders offer different consumers different interest rates or other loan terms, based on the estimated risk that the consumers will fail to pay back their loans.

This means, for example, that lenders will generally offer a higher interest rate to you if they view you as a higher risk borrower – say, because you recently declared bankruptcy, lost a job, or are several payments behind on a mortgage. For the same exact loan, lenders will generally offer a lower interest rate if they view you as a lower risk – say, because you have a good credit score and are employed.

Lenders in the United States may NOT use certain legally prohibited factors to come up with their risk-based pricing. The Equal Credit Opportunity Act makes it illegal for a creditor such as a lender or dealer to discriminate in any credit transaction against any applicant because of:

- Race
- Colour
- Religion
- National origin
- Sex (Gender)
- Marital status
- Age (if the applicant is old enough to enter into a contract)
- Receipt of income from any public assistance program
- Exercising in good faith a right under the Consumer Credit Protection Act, which includes consumer protection statutes relating to credit

US Government public information website

DOCUMENT 3

Insurance premiums based on gender 'discriminatory'

In 2011, The European Court of Justice ruled that using differences between men and women in setting risk premiums for car and medical insurance and pension schemes breached EU rules on equality.

The verdict was expected to force changes in the standard practice of basing insurance rates on statistics about things like reckless driving, road accidents or life expectancy differences between the sexes. Women had traditionally been able to obtain cheaper car insurance because statistics show they have fewer accidents and make fewer claims. They had also been able to obtain cheaper life insurance because they have longer life expectancies. By contrast, pension or annuity income for men had tended to be higher, because on average men have fewer years in retirement than women.

But the court's judgment said: "Taking the gender of the insured individual into account as a risk factor in insurance contracts constitutes discrimination."

The Association of British Insurers said the decision was "disappointing", and highlighted the potential changes in costs for consumers.

A British Member of the European Parliament (MEP), Sajjad Karim, said: "This ruling is utter madness. It is a setback for common sense. It is a statistical reality that young men have more accidents than women so it should be reflected in their premiums. Once again we have seen how an activist European Court can over-interpret European human rights legislation. Unelected judges have overruled the will of democratically elected MEPs and governments; is it any wonder people are so disenchanted with the EU? Boy racers will now have even more money to buy unsafe fast cars, whilst safer drivers will be hit hard in their insurance premiums. This is a victory for boy racers and a major blow for both democracy and careful women drivers."

But Ronnie Bowie, President of the Institute of Actuaries, warned that the longer-term impact of the ruling would probably be on pensions, where men – who usually die younger – have been getting a better deal than women. "As people reach retirement, they need to buy a pension – and men will find they will not get anything like the pension they thought, with a reduction of about 10%, which doesn't sound much in the first year – but if you think that a man is going to live for about 25 years beyond retirement, then that adds up to a very sizeable sum of money," he said. "So motor insurance is the short-term headline-catcher, but pensions are the longer-term issue."

News report

DOCUMENT 4

Consider a hypothetical case involving Lee, a junior executive at the ABC Marketing Firm, who has recently applied for an automobile loan at the XYZ Bank. To secure the loan Lee agrees to complete the usual forms required by the bank for loan transactions. He indicates that he has been employed at the ABC Marketing Company for more than three years and that his current annual salary is \$120 000. He also indicates that he has \$10 000 in a separate savings account, which he intends to use as a down payment for a new BMW. On the loan form, Lee also indicates that he is currently repaying a \$15 000 personal loan used to finance a family vacation to Europe the previous year.

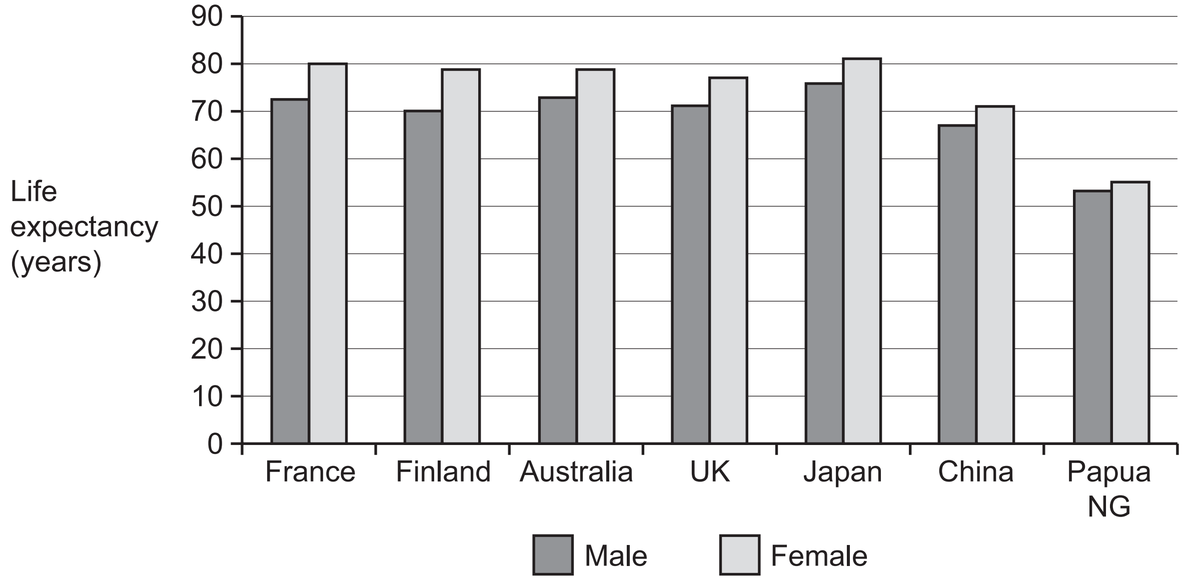
Thus far, the transaction between Lee and the bank seems appropriate. To borrow money from XYZ Bank, Lee has authorized the bank to have the information about him – that is, his current employment, salary, outstanding loans, etc. – that it needs to make an informed decision as to whether or not to grant him the loan.

Next, imagine that the bank's computing centre runs a data-mining program on information in its customer databases and discovers a number of patterns. One reveals that executives earning more than \$120 000 but less than \$150 000 annually, or who purchase luxury cars (such as BMWs) and who take expensive vacations often go into business for themselves within five years of employment. A second data-mining algorithm reveals that the majority of marketing entrepreneurs declare bankruptcy within one year of starting their own businesses. All of a sudden, Lee is a member of a group that neither he nor possibly even the loan officers at the bank had ever known to exist, namely, the group of marketing executives likely to start a business and then declare bankruptcy within a year. With this new category and new information about Lee, the bank determines that Lee, and people that fit into Lee's group, are long-term credit risks.

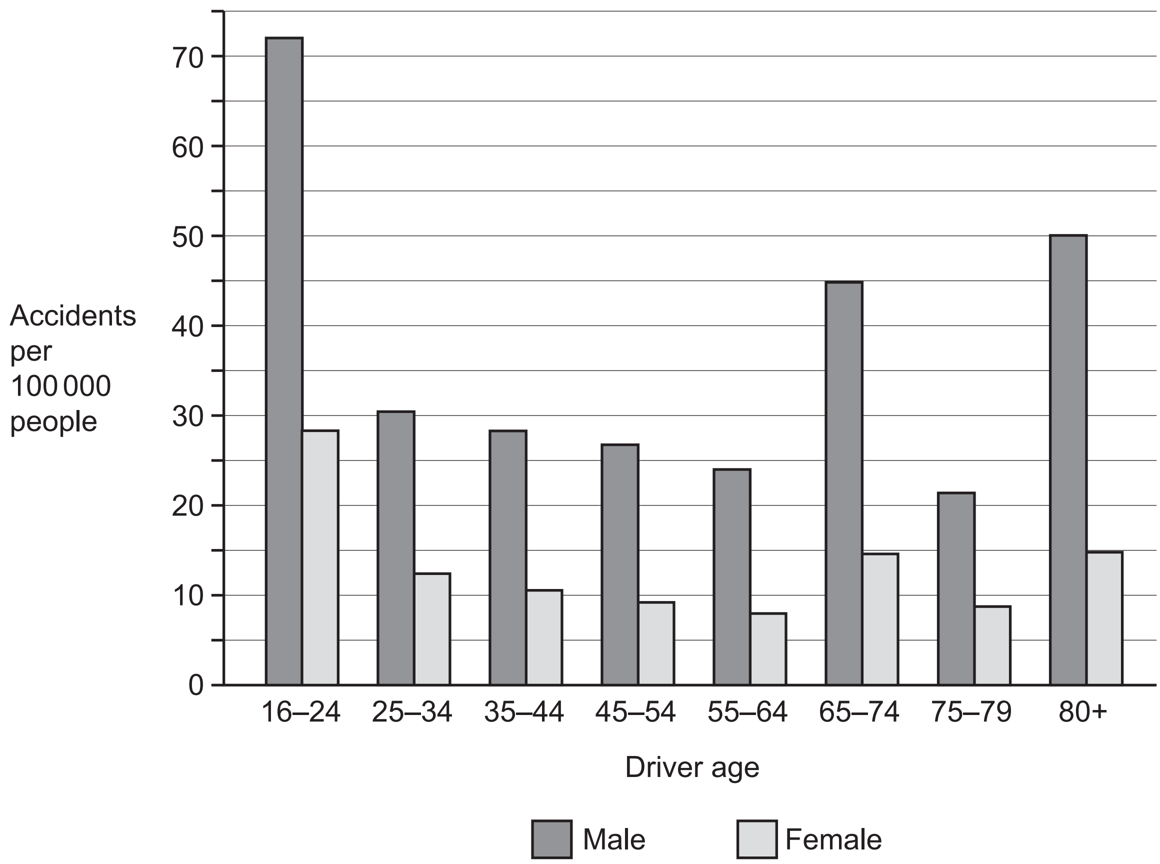
Herman T Tavani
Ethics and Technology: Ethical Issues in an Age of Information and Communication Technology, Wiley, 2004

DOCUMENT 5

Life Expectancy at Birth



Involvement in Fatal Car Accidents by Age and Gender



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