

EXAMINATIONS

April 1999

Subject 201 — Communications

Time allowed: 1½ hours

INSTRUCTIONS TO THE CANDIDATE

Write your surname in full, the initials of your other names and your Candidate's Number on the front of the answer booklet.

AT THE END OF THE EXAMINATION

Hand in BOTH your answer booklet and this question paper.

<p><i>In addition to this paper you should have available Actuarial Tables and an electronic calculator.</i></p>
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A certain major surgical operation has been performed 10,000 times a year for many years. Improvements in surgical techniques have dramatically improved the success rate, and the number of patients dying within a year of the operation has dropped from 1,500 in 1977 to exactly 300 in 1997. In recent years, though, the rate of improvement appears to be significantly slower.

Figures for 1998 have just been published, and these show that the number of deaths has risen to 315. Based on this, an article entitled 'Cost-cutting costs lives' has just been printed in a national newspaper. This states that the downward trend has not simply stopped but has been reversed, and suggests that the cause of this is that less care is being taken over the operation due to reduced healthcare budgets. However, the article did not refer to any evidence to support this beyond the bare figures.

You believe that the article is ill-informed because the size of the increase is well within the bounds of random fluctuations which should be expected, and in any case you feel that one year is too short a time to draw firm conclusions. You do not wish to encourage complacency, but think it is important that the public should not be misled.

Draft a letter to the newspaper's editor expressing your views in 400–500 words.

Notes

You may assume that:

- The published figures are accurate
- There have been no obvious changes which might have affected the survival rate
- There are no possible geographic or other effects which could be distorting the figures
- If the actual mean number of deaths in a year is now 300, the expected distribution may be approximated by a normal distribution with standard deviation 17