ACTUARIAL SOCIETY OF SOUTH AFRICA
Advancing Actuarial Excellence

Actuarial Society of South Africa

EXAMINATION

October 2025

Subject N211 — Communications

EXAMINERS' REPORT

This subject report has been written with the aim of helping candidates. This report summarises the main points that the examiners were looking for and some common problems encountered.

General Examiner's comments

Question 1

Objectives

The question required candidates to write a letter to an actuary, Francis Neison in which they introduce Florence Nightingale, illustrate her work and invite the two to meet. Neison and Nightingale share a common interest in public health while Nightingale collected important mortality statistics during the Crimean war that show the impact of hygiene on mortality. Nightingale was a pioneer in data visualisation and candidates were expected to make good use of graphs and tell the story behind the graphs.

The crux of the question was to relay a lot of information that was provided in the question in a way that made a compelling case for the two parties to meet.

The question instructed the candidate to deal with six aspects, namely to

- introduce Ms Nightingale to Mr Neison,
- illustrate the difference between mortality of civilians and soldiers at home,
- illustrate the contribution to mortality of different causes of death for soldiers at war,
- illustrate the changes in mortality over time as the war progressed and what was happening at the time to identify a reason for the change in mortality,
- identify the lessons learned, and
- propose a meeting.

To perform well on the question the candidate had to convince Mr Neison

- of Ms Nightingale's firsthand experience and statistical credentials,
- that the statistics were significant and important,
- that the hygiene lessons of the war could be applied in civilian and military life and,
- to meet with Ms Nightingale.

Common Errors

Some candidates failed to realise that graphs and telling the story behind the graphs were critical to answering this question. A lot of numerical data was provided, and Ms Nightingale was a pioneer in data visualisation. The only way to communicate a lot of numerical data succinctly is with a graph. Furthermore, to be true to Ms Nightingale, graphs had to play a role. Tables were used by some candidates but, in this instance, were less effective communicatively than bar, column or pie graphs.

Graphs cannot stand on their own; they must be supported by drawing out the key observations that the author wants the reader to take away. Candidates did not do this consistently. In particular, the progression of the war graph needed the observation that the change in disease mortality occurred when the hygiene standards were improved.

It is especially important to point out anomalies and the unexpected. The author cannot assume that readers will see these for themselves. For example, soldiers at home have higher mortality than civilians even though soldiers are a select group of lives and we

expect soldiers at war to have higher mortality than civilians but due to war injuries rather than disease.

Candidates must ensure they understand the data that they have been given. For example, many candidates overlooked the fact that the comparison between civilian and soldier mortality by age band was for soldiers at home, not at war.

In some cases, the introduction of Ms Nightingale was weak. This introduction was key to ensure Mr Neison took the information presented thereafter as credible. Likewise, many conclusions did not sufficiently position a meeting as beneficial to Mr Neison to support his work in trying to improve public health. Ms Nightingale has a lot to offer, and the conclusion should make Mr Neison want the meeting for his benefit.

Although not a common error, there were instances where candidates wrote their letter from Ms Nightingale to Mr Neison. This contradicted the instruction in the question and could not be considered for a pass. There were also instances where Ms Nightingale was excluded from the proposed meeting with Mr Neison. While this did not result in automatic failure, a candidate lost important marks as this was the purpose of the letter.

Sections done well

Where candidates used graphs, labelling was generally complete with headings and axes labels, and the data was correct. The one common omission though, was being clear on the period a mortality relates to. In this case all rates were annual rates of mortality.

Summary

Overall, the technical marks for this question were lost due to

- not using all opportunities to use graphs,
- not drawing out the key observations from the graphs, and
- weak conclusions,

Communicatively speaking, style and tone were very important. Given the date and the fact that this was an unsolicited letter between strangers (albeit actuary to actuary), a formal style was recommended. That said, the tone needed to be enthusiastic and persuasive to pique Mr Neison's interest. A logical structure dealing with the six aspects mentioned above was also critical to enhance unity, coherence and emphasis.

A letter dealing with this subject matter should be visually appealing. This could be achieved by using headings to guide the reader as well as graphical integration within the text - graphs should be of an appropriate size and fit naturally into the text. The use of colour and differing font sizes enhanced readability (and hence interest).

As mentioned many times in these reports, some candidates lost unnecessary word count and formatting marks. It was clearly stipulated in the instructions that words and numbers in graphs and tables must be counted. Tables are usually part of the automatic word count but graphs, if inserted, are not and must be added manually. Their inclusion needs to be checked through highlighting to ensure the correct word count. Students must add this to the bottom of their answer; those who failed to do so, lost all word count marks (as did students who gave wildly incorrect word counts - we check!) The format mark includes spacing. Single spacing with 0/0 (not multiple 0/8) is recommended in all Word questions.

Question 1 - Draft Solution

<Letterhead with full address and contact details>

4 October 1858

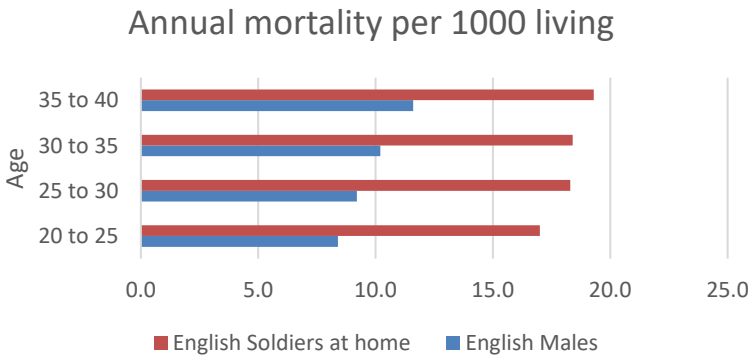
Mr Francis GP Neison
120 Russell Square
London W1

Dear Mr Neison

I hope you are well. I am writing to introduce the remarkable work of Ms Florence Nightingale during the recent Crimean War. In addition to revolutionising nursing, she provided critical insights into public health through her pioneering use of statistics and data visualisation. Given your interest in these areas, I believe her findings may assist your efforts in improving societal well-being.

Ms Nightingale was prominent as the organiser of treatment for British soldiers during the war, where she observed firsthand the devastating impact of disease. She kept meticulous statistics of her experience in hospitals and camps.

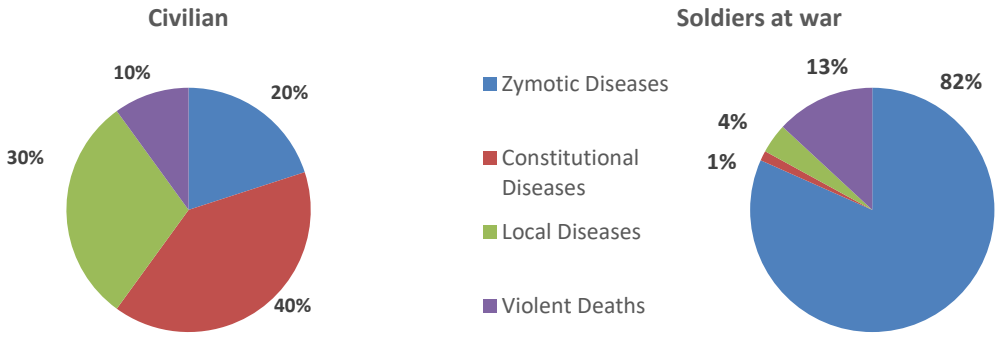
Soldier Mortality



Irrespective of age, soldiers at home experience almost double the mortality of civilian English males. This may be expected of soldiers at war, but not while at home!

This higher mortality is even more alarming given that soldiers are a select group of the population expected to be healthier than the general population.

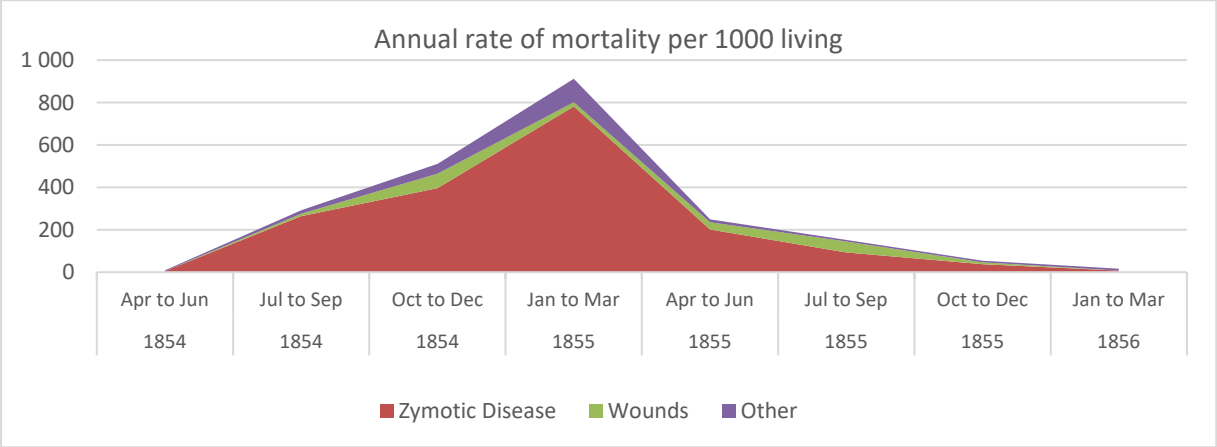
More dramatic is the difference in mortality by cause of death between civilian English males and soldiers at war. The pie charts show the relative contribution to annual mortality per 1000 living of four key causes of death for the two population groups.



While at war, zymotic diseases such as typhus, yellow and scarlet fevers, diarrhoea, typhoid, cholera and dysentery account for 82% of English soldier mortality while war injuries account for only 13%. For the civilian population, zymotic diseases account for 20% of the total mortality rate.

Progression of the war

During the war the contribution of zymotic diseases to mortality varied.



The high contribution from zymotic diseases started in July 1854 when the soldiers reached the campsites in Varna, Bulgaria. These campsites were unsanitary leading to a high disease prevalence.

Sick soldiers were then transported by poorly ventilated and overcrowded ships to Sebastopol, Crimea. The early winter landing in Crimea of these already fatigued and ill soldiers was further compounded by cold, inadequate shelter and poor nutrition. If they ended up in hospital, they were again exposed to overcrowding in unsanitary buildings leading to unprecedented mortality of more than 78% on annualised basis from January to March 1855.

In April 1855, significant improvements began in hospital buildings, including better ventilation, sewage management, and hygiene protocols. By March 1856, these changes had substantially reduced deaths from preventable diseases. This evidence underscores her assertion that disease prevention through improved sanitation can drastically reduce mortality - not only in military settings but also among civilian populations facing similar challenges.

Lessons learned

The lessons drawn from Ms Nightingale's work are clear: addressing unsanitary conditions and overcrowding can mitigate the spread of zymotic diseases and improve survival rates. These principles can be applied broadly to enhance public health outcomes across both military and civilian environments. Her findings align closely with your own efforts to use statistical analysis for societal benefit, particularly in advocating for measures that reduce mortality and improve quality of life.

Ms Nightingale would be honoured to meet you to discuss these mutual interests further and explore how her statistics might support your reform initiatives. Such collaboration could promote the economic benefits of lower mortality rates while advancing overall societal well-being.

I look forward to hearing your thoughts and hope we can arrange a meeting soon.

Yours sincerely

<Signature>

Alex Baker
Actuary

[Words 534 + 28 (bar chart) + 34 (pie charts) + 49 (area chart) = 645]

Question 2

Objectives

The question required students to explain the impact of the potential 2% increase in VAT on the retirement fund members and economy. Three data sources were provided for constructing a coherent slide deck. In addition to information provided, marks were available for providing insights into the impact of the increase that were not explicitly stated in the data sources.

The question provided a draft agenda with six points. Using one slide per point plus a title and a questions/contact slide resulted in eight slides, meeting the minimum eight slides required. Candidates were then able to extend some points to two slides or add other agenda items and still remain within the ten-slide maximum. Communicatively, this is recommended to avoid overloading.

Technical marks were available for including pertinent information extracted from data sources and drawing relevant and correct inferences from the data. Marks were also available based on whether the target audience, viz the trustees, would:

- understand VAT and what changes will be made,
- appreciate the implications on the members and the economy,
- understand the impact of VAT compliance, and
- know what the alternatives are to a VAT increase.

Where candidates performed poorly

- Where students scored a low mark, it was likely that they did not do well on the explanation of VAT and the proposed changes.
- The possibility and impact of raising corporate and personal taxes was often excluded or not fully dealt with.
- Inferring relevant points from the information provided was regularly weak. For example, mentioning that increasing VAT could:
    - have an impact on the retirement fund through higher expenses, lower investment returns on fund assets and lower retirement balances, and
    - lead to social unrest, food poverty, poor health outcomes etc.
- Selecting key points to include on the conclusion slide.

Sections done well

Candidates were generally able to include the relevant information for explaining the impact on the economy, alternatives to VAT and the Laffer curve.

Summary

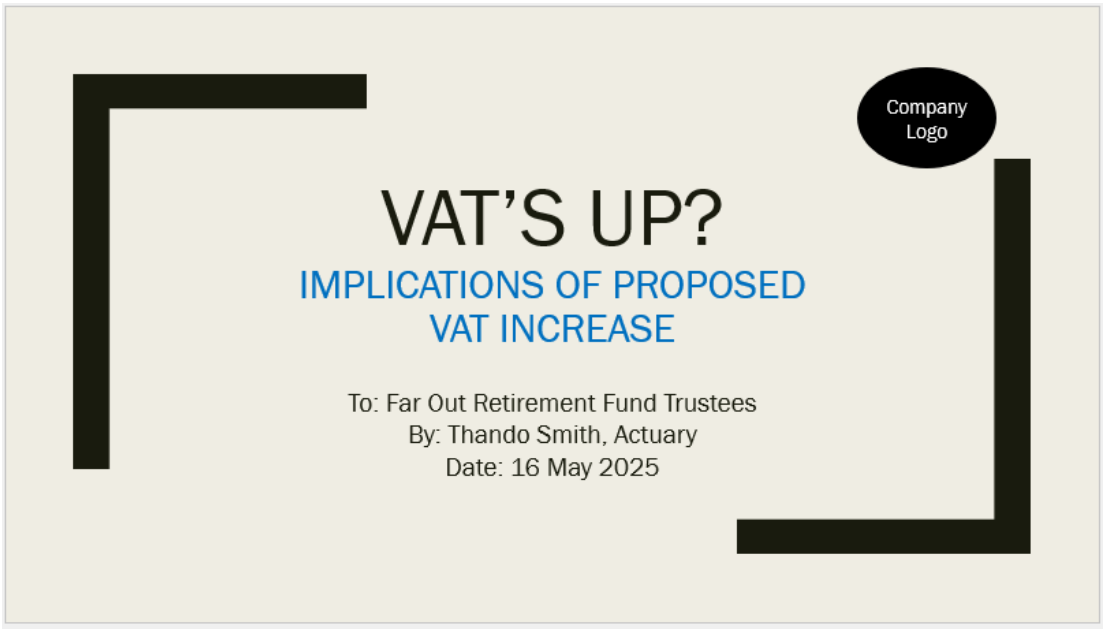
Overall, the technical marks were generally high for this question. Low marks were often due to candidates not including enough technical points as opposed to including incorrect information.

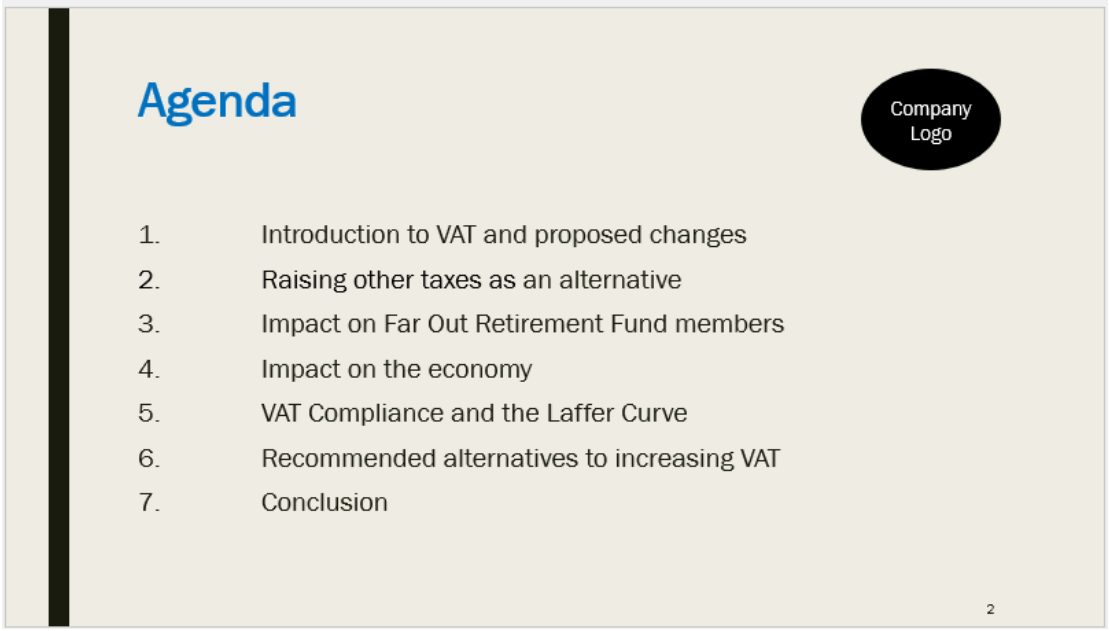
Communicatively, most students used attractive templates rather than boring black text on a white background. An audience's attention needs to be held so good use of colour, spacing, text variation, shapes, icons and other aids enhanced readability and interest.

However, all pictures, photographs etc. must add value and not be merely ornamental – appropriateness is the name of the game.

An important element of structure and balance is the concept of grammatical parallel structure. It is essential when using bullets that all sentences or phrases be consistently used and follow on from a lead-in sentence (if used). Punchy short phrases rather than long-winded sentences are recommended. Some students cut and paste chunks of text from the question which weakened presentation guidelines (and marks!).

Question 2 - Draft Solution





Introduction to VAT and proposed changes

Company Logo

- Efficient source of government revenue
- Broad based and simple
- Proposed rate increase from 15% to 17% on 1 July
  - *Prices will increase by 1.74%*
- To mitigate impact on low-income earners:
  - *Social grants will increase by more than inflation*
  - *Additional food items will be zero rated*

Will raising other taxes not be a better solution?

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Raising other taxes as an alternative

Company Logo

- Higher corporate tax - will discourage investment and result in job losses
- Higher personal tax
  - *SA already has high tax rates*
  - *taxpayers will try to minimise their tax payable*

BUT is a VAT increase the answer?

4

Impact on Far Out Retirement Fund members

Company Logo

- Increased cost of living, especially for the poor
- Reduced spending on non-essential items
- Higher food poverty with worse health outcomes
- Higher retirement fund expenses (e.g. admin and investment fees) means lower allocation to retirement savings
  - *Leads to lower retirement balances and retirement incomes*

5

Impact on the economy

Company Logo

- Higher government revenue to fund public services and infrastructure projects

BUT BEWARE

- Higher inflation rates
  - Business will pass the VAT increase on to consumers
  - Reserve bank may need to keep interest rates high to manage inflation
- Negative impact on businesses leading to:
  - Job losses
  - Reduced economic growth
  - Lower investment returns on retirement fund investments
- Potential social instability/unrest

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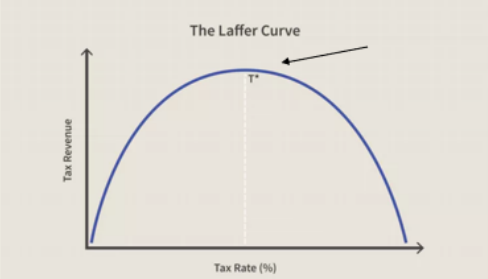
VAT Compliance and the Laffer Curve

Company Logo

- Laffer curve shows relationship between tax rates and tax revenue
- As tax rate rises, revenue increases
- At high tax rates, tax compliance reduces which may decrease revenue
- Government must get the balance right!
- A lower VAT rate increase may result in more tax revenue than a higher VAT rate increase



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Recommended alternatives to increasing VAT

Company Logo

- Reduce government spending and wage bill
- Reduce inefficiency, especially in state-owned enterprises
- Improve tax compliance and collection
- Expand the tax base through economic growth

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Conclusion

Company Logo

- Proposed VAT increase may provide additional revenue

However, may lead to:

- Possible VAT non-compliance
- Higher living costs and reduced consumer spending
- Potential for harm to the economy
- Lower income in retirement

And the impact of these is related to the size of the VAT increase.

Government should consider alternatives to increasing VAT

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QUESTIONS?

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- Contact details:
  - *Tsmith@farout.co.za*
  - 042 899 0625

Sources:

2025 Ministry of Finance Budget Review

Laffer Curve – plaineconomics.com

businessnews.co.za, 14/2/2025

THANK YOU

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