Strathmore
U N I V E R S I T Y

INSTITUTE OF MATHEMATICAL SCIENCES
Bachelor of Business Science (Actuarial Science)

END OF SEMESTER EXAMINATION

BSA 3220: ACTUARIAL PRACTICE AND COMMUNICATION

DATE: 20th November 2018   **TIME:** 2 Hours

INSTRUCTIONS: ANSWER **QUESTION ONE** AND **ANY OTHER TWO** QUESTIONS

This examination paper consists of 5 printed pages

Question 1 (30 marks)

The *JengaPensheni* pension plan prided itself as a new age pension scheme that offered its members real time information on benefits estimates based on an automated system. The pension plan gained great popularity over time with active membership of 100,000 employed pensioners and 300,000 casual workers who were attracted to the improved communication system, a persistent problem in Kenya where pensioners got 'surprised' at how little they had in their account on retirement – at a time when they could do little to remedy the situation.

On average *JengaPensheni* pension plan received over 50,000 requests for benefit estimates by telephone, SMS and email. They relied on an outsourced data vendor to collect and collate data from their database of the history of a member's contribution and thereafter compute estimated benefits based on current contribution rate and investment return rate for every possible year of retirement from that date to age 65.

The summary statement provided advised the member that the *".. estimates are not binding; if a mistake is made, you will be paid the corrected amount, even if less than the estimated amount."*

Considering retirement either at age 45 or 55, William, a member of the plan requested and received several estimates which indicated that the range of benefits per month could work out to between 77,715 and 82,335 based on the chosen date of retirement. Each estimate indicated his contribution rate as band X. As a scheme member he was aware that the bands were used in computing the benefit level but did not care to understand the nitty gritty behind the impact of the bands.

Based the estimates, William opted to retire early and received and signed a benefit election option indicating a monthly benefit till death of 79,123. Again this form had a disclaimer indicating that the computation was *"subject to change, based on a final review of payroll data and applicable plan provisions."* Again the computation was from the outsourced data vendor.

When he retired the plan performed the final computation using a manual audit of his actual contributions and his band of contribution. In William's case, the audit revealed an error of band rate. On joining the plan William had opted into band Q for which contributions were invested in low risk money market fund and for one year only upgraded to band X which allowed for 50% investment in high risk equity and real estate fund. Thereafter, following a bear run in the market he opted to revert back to band Q. However, all estimated were provided based on band X. Correcting this error reduced his benefits to 57,793/-

William however felt aggrieved and filed a complaint with the Financial Services Authority dispute tribunal against *JengaPensheni* pension plan arguing they had failed in their duty of care. He contended that it was a breach of fiduciary duty to knowingly cause a plan beneficiary to retire based on materially overstated benefit estimates. He demanded the withdrawal of professional licenses issued to the plans top managers including the plan actuary and administrator. Further he demanded for penalties to be levied against *JengaPensheni* for the forgone income he will incur following their error.

 The tribunal agreed that the plan owed William a duty of care in the provided estimated but pointed out that there was no evidence that the plan or its managers had knowingly provided the false or overstated estimates. It therefore saw no cause to withdraw professional licenses or issue penalties. William however argued that the performance of the time consuming manual audit was an indication that the managers were aware that the system could be flawed. In their defense *JengaPensheni* pension plan admitted there were minor flaws in the system and showed evidence of working with the vendor towards elimination of those errors. The court therefore ruled in favor of *JengaPensheni* arguing it was not disloyal for the plan to adopt a "prompt, inexpensive, substantially accurate benefit estimate system" that was used 50,000 times a year, accompanied by adequate disclosures that the estimates were non-binding and might not always be accurate.

William unsatisfied by the ruling took the campaign to social media posting the issue on some popular sites that aim to name and shame poor organizations that do not meet their promise. His campaign slogan dubbed "*BomoaPensheni*" gained momentum on social media. It portrayed the plan as a sham that encouraged people to join in the promise of always knowing how much they have but giving fake information, which was worse than older schemes that at least did not bother to give any [false] information. Subsequently *JengaPensheni* pension plan lost a significant market following the negative publicity.

Required:

A. Identify and briefly explain the principles contained in the actuarial code of conduct.

[6 marks]

B. Do you agree with the tribunal's ruling to uphold the professional practice of the plan's actuary? Why or Why not?

[4 marks]

C. With the use of a suitable model <u>identify</u> and <u>categorize</u> key stakeholders that could be affected by the ongoing conflict with William

[5 marks]

D. The management is worried that the continued negative and erroneous publicity will cause irreparable harm to *JengaPensheni.* The CEO has made a decision to speak to the public on the issue to iron out the misunderstandings and has requested you to draft the speech on her behalf.
Draft a speech to be delivered to the press in approximately 500 to 600 words. The speech should
   (i)   Effectively communicate to a general audience the operations of *JengaPensheni* pension plan
   (ii)   Define and explain the duty of care in the context of the issue at hand
   (iii)   and adequately explain the issue at hand. It should ideally portray a positive image of the organization.

Professional marks will be awarded for appropriate tone, format, logical flow and persuasiveness of the speech.

[15 marks]

[Total 30 marks]

Question 2 (10 marks)

An insurance company sells policies which aim to cover post-retirement medical and long term care expenses including covering pre-existing terminal illnesses and care in old people's home nursing homes.

The insurance company operates in a debt ridden developing economy which is experiencing reduced government spending in medical care and other social security benefits. Demand for these policies has steadily increased over the years. However in the last 2 years since the last general elections there has been a near double increase in the uptake.

With the use of an appropriate model, evaluate which external environment factors may have contributed towards this increase in demand.

[Total 10 marks]

Question 3 (10 marks)

A. List six areas of actuarial work where data would be required.

[3 marks]

B. Discuss at least 7 ways that actuaries can mitigate or make allowances for the problems that may arise from poor quality data.

[7 marks]

[Total 10 marks]

Question 4 (10 marks)

A. Identify at least four different ways that an organization can use to mitigate against risk

[2 marks]

B. The government of a developing country is considering developing one of the largest oil refineries in the region. These plants are owned and operated directly by the government. The government's objective is to provide a significant proportion of the country's energy needs as well as export finished products to fetch better revenues.
The government is considering possible ways of covering the potential costs arising from incidents at its refineries. Discuss how effective insurance or other risk pooling approaches might be in covering these exposures and subsequent costs.

[8 marks]
[Total 10 marks]

Question 5 (10 marks)

A. Identify at least four principal aims of regulation of financial markets.

[2 marks]

B. In a developing economy, the commercial bank lending rates are determined every quarter based on review by the Central Bank Rate by the regulators Monetary Policy committee.
By law, the interest offered on any personal savings account, or charged on any personal loan or mortgage, must be equal to the Central Bank Rate plus a fixed amount specified at the outset of the contract.
There has been recent pressure on the country to review the cap on the bank lending rates. Technocrats have argued that the cap has led to reduced access to credit for small and medium sized enterprises.

    (i)   Discuss reasons why the Bank lending rates may, or may not, be regulated.

[4 marks]

    (ii)   A politician has suggested the scrapping of the Central Bank Rate reference to be replaced by an annual rate approved by the national assembly. Discussed the advantages and disadvantages of this suggestion.

[4 marks]

[Total 10 marks]

END OF EXAMINATION PAPER