

SOA真题November2003Course8I PDF转换可能丢失图片或格式  
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[https://www.100test.com/kao\\_ti2020/84/2021\\_2022\\_SOA\\_E7\\_9C\\_9F\\_E9\\_A2\\_98N\\_c50\\_84035.htm](https://www.100test.com/kao_ti2020/84/2021_2022_SOA_E7_9C_9F_E9_A2_98N_c50_84035.htm) COURSE 8I: Fall 2003 -1- GO ON TO NEXT PAGE Individual Insurance Morning Session Society of Actuaries Course 8I Fall 2003\*\*BEGINNING OF EXAMINATION\*\*MORNING SESSION1. (4 points) The Chief Actuary of a small life insurance company expects large fluctuations in future interest rates. (a) Describe measures the Chief Actuary would use to help predict the impact of interest rate fluctuations. (b) Describe asset/liability matching methods that the Chief Actuary can use to minimize the financial effect of interest rate fluctuations on the portfolio. (c) Explain the desired relationship between the asset and liability durations given the relative significance of disintermediation and reinvestment risk. COURSE 8I: Fall 2003 -2- GO ON TO NEXT PAGE Individual Insurance Morning Session Question 2 pertains to the case study. 2. (12 points) Saturn Life is considering the introduction of variable immediate annuities to help retain assets accumulated within their deferred variable annuities. (a) Assess Saturn's opportunity for growth with respect to: (i) Historical results, (ii) Strengths and (iii) Weaknesses. (b) Describe pricing considerations for a variable immediate annuity. (c) Describe the steps to implement stochastic modeling for pricing a rider option that provides a floor for the monthly payments. (d) Marketing has suggested that clients be given the choice of Assumed Investment Returns (AIR). You are given: Annuity Payments Year

Unit Value AIR 3% AIR 5% 10.0000 \$2,120 \$2,200 9.25003

9.62004 10.19725 11.0130 (i) Calculate the missing values in the above table. Show all work. (ii) Re-calculate the missing values in the above table, assuming the attachment of a rider that provides a floor for the monthly payments equal to 90% of the initial payment. (iii) Identify design choices that would manage the cost of the AIR choice granted to the customer. COURSE 8I: Fall 2003 -3- GO ON TO NEXT PAGE

Individual Insurance Morning Session 3. (7 points) Company XYZ currently sells level premium term products with Smoker and Nonsmoker underwriting classes. The products will be re-priced with 3 underwriting classes (Smoker, Standard Nonsmoker, Preferred Nonsmoker). A fourth underwriting class, Super Preferred Nonsmoker, is also being considered. The following underwriting definitions have been proposed:

	Smoker	Standard Nonsmoker	Preferred Nonsmoker	Super Preferred Nonsmoker
Personal History	Maximum	Total	Cholesterol Level	280mg/dec
	280mg/dec	240mg/dec	205 mg/dec	Maximum Blood Pressure (untreated)
	160/95	160/95	140/90	130/85
Diabetes acceptable	Yes	Yes	Yes	No
Tobacco Use	Yes	None within past 60 months	None within past 60 months	None within past 60 months
Maximum # of moving violations within a 3 year period	3	3	2	2
Regular exercise	Not Required	Not Required	Required	Required
Family History	Heart Disease death prior to age 65	Allowed	Allowed	Not Allowed
	Not Allowed	Not Allowed	Not Allowed	Not Allowed
Cancer death prior to age 70	Allowed	Allowed	Allowed	Allowed

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