Data for Question 37

Plan effective date: 1/1/81.

Actuarial cost method: Entry age normal method.

Assumed mortality basis: 1971 Group Annuity Mortality (GAM).

Participant data as of 1/1/81:

Attained Age X	q_x	Number of Participants
49	.004	1,000
50	.005	2,000
51	.006	1,000

Consider the following statements:

I. If 21 participants die during 1981, this must cause a gain.

II. If, effective 1/1/82, the assumed mortality basis is changed to 1971 GAM projected to 1980, this must cause a decrease in accrued liability.

III. If, effective 1/1/82, a withdrawal assumption is introduced, this must cause a decrease in accrued liability.

Question 37

Which, if any, of these statements is (are) true?

(A) I only

(B) III only

(C) I and III only

(D) II and III only

(E) The correct answer is not given by (A), (B), (C) or (D) above.

Data for Question 2

Data for all retirees as of 1/1/90:

	Smith	Brown
Age	60	70
Annual benefit	$54,000	$24,000
Status as of 12/31/90	Alive	Deceased

Benefits are payable as of 1/1 of each year.

All deaths within a year are assumed to occur at the end of the year.

Selected probabilities of death and annuity values:

x	q_x	$\bar{a}_x$
60	.020	9.52
61	.022	9.30
70	.040	7.28
71	.044	7.00

Question 2

In what range is the mortality experience gain for 1990 due to the two retirees?

(A) Less than $140,000

(B) $140,000 but less than $145,000

(C) $145,000 but less than $150,000

(D) $150,000 but less than $155,000

(E) $155,000 or more

Data for Question 28 (3 points)

Type of plan: Multiemployer.

Actuarial cost method: Unit credit.

Valuation date: 1/1/2016.

Valuation interest rate: 6.0%.

Selected data for retired participant Smith:

Gender	Male
Date of birth	1/1/1950
Date of retirement	1/1/2015
Date of death	12/31/2015
Monthly benefit	$1,000
Form of annuity	10-year certain and life

Question 28

In what range is the gain as of 1/1/2016 due to Smith's death?

(A) Less than $40,000

(B) $40,000 but less than $43,000

(C) $43,000 but less than $46,000

(D) $46,000 but less than $49,000

(E) $49,000 or more

Data for Question 45 (4 points)

Type of Plan: Multiemployer.

Valuation date: 1/1/2017.

Normal retirement benefit: $83.33 per month for each year of service, maximum 12 years of service.

Pre-retirement death benefit: $30,000, payable on the first day of the plan year following the date of death.

Probability of death at age 64: 0.004.

Valuation interest rate: 5.0%.

There are no pre-retirement decrements other than mortality.

Selected data for participant Smith as of 1/1/2016:

Gender	Male
Age	64
Years of service	12
Marital status	Single

Smith died on 12/31/2016.

$X is the absolute value of the experience gain or loss for 2016 due to Smith's death.

Question 45

In what range is ***$X?***

(A) Less than $108,000

(B) $108,000 but less than $110,000

(C) $110,000 but less than $112,000

(D) $112,000 but less than $114,000

(E) $114,000 or more

Data for Question 49 (4 points)

Type of plan: Multiemployer.

Actuarial cost method: Unit credit.

Valuation date: 1/1/2017.

Normal retirement benefit: $50 per month for each year of service.

Early retirement eligibility: Age 60.

Early retirement reduction: 2% per year prior to age 62.

Actuarial assumptions for the 1/1/2017 valuation:

Interest rate	6.0%
Probability of retirement:	
Ages under 62	0%
Age 62	25%
Ages 63 and 64	0%
Age 65	100%

Data for participant Smith as of 1/1/2017:

Gender	Male
Date of birth	1/1/1957
Date of hire	1/1/1992
Date of retirement	1/1/2017

$X is the absolute value as of 1/1/2017 of the total gain or loss attributable to Smith's retirement.

Question 49

In what range is ***$X***?

(A) Less than $35,000

(B) $35,000 but less than $40,000

(C) $40,000 but less than $45,000

(D) $45,000 but less than $50,000

(E) $50,000 or more

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