

1988

Data for Question 7

Normal retirement benefit: \$10 per month for each year of service.

Actuarial cost method: Frozen initial liability.

Actuarial assumptions:

Interest: 6%.

Preretirement deaths and terminations: None.

Retirement age: Normal retirement age.

Date of birth of sole participant: 1/1/38.

The plan is amended effective 1/1/88 to change the normal retirement age from 65 to 62 and to increase the benefit rate for all years of service from \$10 to \$12.

Valuation results as of 1/1/88, based on \$10 benefit rate:

	<u>Assumed Retirement Age</u>	
	<u>65</u>	<u>62</u>
Present value of future benefits	\$15,000	\$18,400
Unfunded liability	6,150	-
Actuarial value of assets	5,000	5,000
Accrued liability under entry age normal method	13,100	16,350

Question 7

In what range is the normal cost for 1988 as of 1/1/88?

- (A) Less than \$400
- (B) \$400 but less than \$475
- (C) \$475 but less than \$550
- (D) \$550 but less than \$625
- (E) \$625 or more

1988

Data for Question 12

Plan effective date: 1/1/87.

Normal retirement benefit: \$15 per month for each year of service up to 20 years plus \$20 per month for each subsequent year of service.

Death benefit: None.

Actuarial cost method: Attained age normal.

Actuarial assumptions:

Interest: 6%.

Preretirement deaths and terminations: None.

Retirement age: 65.

Participant data as of 1/1/87:

	<u>Smith</u>	<u>Brown</u>
Date of birth	1/1/37	1/1/27
Date of hire	1/1/62	1/1/72

Brown dies on 12/31/87. There were no new participants during 1987.

Contribution for 1987: Normal cost as of 1/1 plus \$3,000 paid on 1/1/87.

Selected annuity value:

$$\begin{matrix} (12) \\ 12\ddot{a}_{65} \end{matrix} = 112$$

Question 12

In what range is the unfunded liability as of 1/1/88?

- (A) Less than \$36,500
- (B) \$36,500 but less than \$37,000
- (C) \$37,000 but less than \$37,500
- (D) \$37,500 but less than \$38,000
- (E) \$38,000 or more

2003

Data for Question 17 (5 points)

Plan effective date: 1/1/2002.

Normal retirement benefit: \$35 per month for each year of service.

Early retirement benefit: Accrued benefit reduced by 4% for each year by which commencement of payments precedes age 65.

Actuarial cost method: Attained age normal.

Valuation interest rate: 7% per year.

Data for all plan participants:

<u>Name</u>	<u>Date of Birth</u>	<u>Date of Hire</u>
Smith	1/1/1963	1/1/1989
Jones	1/1/1941	1/1/1978

Contribution for 2002 made on 12/31/2002: \$16,000.

Selected annuity values:

$$\ddot{a}_{62}^{(12)} = 10.60$$

$$\ddot{a}_{65}^{(12)} = 10.00$$

Participant Jones retired on 12/31/2002.

Question 17

In what range is the minimum required contribution for 2003 payable on 1/1/2003?

- (A) Less than \$3,800
- (B) \$3,800 but less than \$4,300
- (C) \$4,300 but less than \$4,800
- (D) \$4,800 but less than \$5,300
- (E) \$5,300 or more

2004

Data for Question 4 (3 points)

Normal retirement benefit:

Prior to 2004	\$30 per month for each year of service.
After 2003	\$30 per month for each year of service as of 1/1/2004, plus \$33 per month for each year of service after 1/1/2004.

Actuarial cost method: Attained age normal.

Selected valuation results as of 1/1/2004 before plan change:

Present value of future benefits	\$2,900,000
Unit credit accrued liability	1,500,000
Present value of future service	16,000
Number of active participants	1,000

All participants are active employees.

Question 4

In what range is the increase in the normal cost as of 1/1/2004 as a result of the plan amendment?

- (A) Less than \$9,000
- (B) \$9,000 but less than \$12,000
- (C) \$12,000 but less than \$15,000
- (D) \$15,000 but less than \$18,000
- (E) \$18,000 or more

2014

Data for Question 39 (3 points)

Type of plan: Multiemployer.

Actuarial cost method: Frozen initial liability.

Interest rate: 7.0%.

Credit balance as of 12/31/2014: \$0.

Selected information as of 1/1/2015:

Unfunded accrued liability	\$34,000
Actuarial (market) value of assets	261,000

Data for all participants as of 1/1/2015:

	<u>Smith</u>	<u>Jones</u>	<u>Brown</u>
Status	Active	Active	Retired
Age	50	60	65
Projected monthly benefit at normal retirement	\$2,500	\$3,500	\$1,250

The plan's formula is unrelated to compensation.

Selected annuity factor:

$$\ddot{a}_{65}^{(12)} = 10.11$$

Question 39

In what range is the normal cost as of 1/1/2015?

- (A) Less than \$25,000
- (B) \$25,000 but less than \$40,000
- (C) \$40,000 but less than \$55,000
- (D) \$55,000 but less than \$70,000
- (E) \$70,000 or more

2015

Data for Question 26 (3 points)

Type of plan: Multiemployer.

Valuation date: 1/1/2016.

Actuarial cost method: Frozen initial liability.

There are no inactive participants.

Selected valuation results at 1/1/2016 (before plan amendment):

Present value of future benefits	\$500,000
Present value of future normal costs	200,000

The plan was amended on 12/20/2015, effective 1/1/2016, to increase benefits for all service by 10%.

Increase in entry age normal accrued liability at 1/1/2016 due to plan amendment: \$20,000.

$\$X$  is the present value of future normal costs after the plan amendment.

Question 26

In what range is  $\$X$ ?

- (A) Less than \$215,500
- (B) \$215,500 but less than \$225,500
- (C) \$225,500 but less than \$235,500
- (D) \$235,500 but less than \$245,500
- (E) \$245,500 or more

2000

Data for Question 9

Normal retirement benefit: 50% times the average of final 3 calendar years' compensation, less the amount of an annuity from a prior plan.

Plan effective date: 1/1/1999.

Actuarial valuation date: 1/1/2000.

Actuarial cost method: Individual aggregate (level dollar).

Actuarial assumptions:

Interest rate:	7% per year
Compensation increases:	3.5% per year
Preretirement decrements:	None
Retirement age:	65

Valuation data for sole participant:

Date of birth:	1/1/1950
Date of hire:	1/1/1995
1999 compensation:	\$50,000
Paid-up annuity (payable at age 65):	\$1,250/month (from prior plan)

Actuarial value of assets as of 1/1/2000: \$7,500

Selected annuity value:

$$\ddot{a}_{65}^{(12)} = 8.736$$

Question 9

In what range is the normal cost as of 1/1/2000?

- (A) Less than \$6,600
- (B) \$6,600 but less than \$7,400
- (C) \$7,400 but less than \$8,200
- (D) \$8,200 but less than \$9,000
- (E) \$9,000 or more

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