

## 2003

### Data for Question 12 (5 points)

Actuarial cost method: Aggregate.

Normal retirement benefit: 50% of final three-year average compensation.

Selected actuarial assumptions:

Valuation interest rate	7% per year
Retirement age	52
Salary increases:	
Before 2003	3.5% per year
After 2002	3.5% for all years except final year of employment, at which time a 40% salary increase is assumed

Credit balance in funding standard account as of 12/31/2002: \$0.

Actuarial (market) value of assets as of 1/1/2003: \$3,400,000.

Selected valuation data as of 1/1/2003:

2003 valuation compensation per participant	\$50,000
Number of active participants	17
Age of each active participant	45
The plan has no inactive participants	

Selected annuity value:

$$\ddot{a}_{52}^{(12)} = 11.8$$

### Question 12

In what range is the change in the normal cost for 2003 as of 1/1/2003, due to the assumption change?

- (A) Less than \$62,000
- (B) \$62,000 but less than \$66,000
- (C) \$66,000 but less than \$70,000
- (D) \$70,000 but less than \$74,000
- (E) \$74,000 or more

## 2003

### Data for Question 29 (4 points)

Normal retirement benefit: \$20 per month times years of service.

Early retirement eligibility: 62.

Early retirement benefit: Unreduced accrued benefit.

Actuarial cost method: Aggregate.

Selected actuarial assumptions:

Valuation interest rate	7% per year
Retirement age	
Before 2003	65
After 2002	64

Credit balance in funding standard account as of 12/31/2002: \$0.

Actuarial (market) value of assets as of 1/1/2003: \$10,000.

Data for sole participant:

Date of birth	1/1/1948
Date of hire	1/1/1978

Selected annuity values:

$$\ddot{a}_{64}^{(12)} = 8.35 \qquad \ddot{a}_{65}^{(12)} = 8.14$$

### Question 29

In what range is the increase in the normal cost for 2003 as of 1/1/2003 due to the change in the assumed retirement age?

- (A) Less than \$400
- (B) \$400 but less than \$500
- (C) \$500 but less than \$600
- (D) \$600 but less than \$700
- (E) \$700 or more

## 2004

### Data for Question 14 (4 points)

Actuarial cost method: Aggregate.

Normal retirement benefit: 50% of final compensation, reduced pro rata for years of service less than 20.

Selected actuarial assumptions:

Valuation interest rate	7% per year
Compensation increases	0% per year

Credit balance in funding standard account as of 12/31/2003: \$5,000.

Actuarial (market) value of assets as of 1/1/2004: \$50,000.

Data for all plan participants as of 1/1/2004:

	<u>Smith</u>	<u>Jones</u>
Compensation for 2003	\$25,000	\$150,000
Age	25	51
Years of service	2	5

Selected annuity value:

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

### Question 14

In what range is the normal cost for IRC section 412 as of 12/31/2004?

- (A) Less than \$21,000
- (B) \$21,000 but less than \$23,000
- (C) \$23,000 but less than \$25,000
- (D) \$25,000 but less than \$27,000
- (E) \$27,000 or more

2009

Data for Question 35 (3 points)

Type of plan: Multiemployer.

Actuarial cost method: Aggregate.

Valuation date: 1/1/2010.

Valuation interest rate: 6%.

Funding standard account credit balance as of 12/31/2009: \$25,000.

Selected valuation results as of 1/1/2010:

Market value of assets	\$500,000
Actuarial value of assets	570,000
Present value of projected benefits	2,500,000
Present value of future compensation	15,000,000
Total compensation for participants below age 65	1,000,000

The employer makes a single contribution of \$ $X$  on 12/31/2010 in the **smallest amount that satisfies the minimum funding standard** for the 2010 plan year.

Question 35

In what range is \$ $X$ ?

- (A) Less than \$103,000
- (B) \$103,000 but less than \$107,000
- (C) \$107,000 but less than \$111,000
- (D) \$111,000 but less than \$115,000
- (E) \$115,000 or more

2011

Data for Question 35 (3 points)

Type of plan: Multiemployer.

Plan effective date: 1/1/2000.

Actuarial cost method: Aggregate.

Valuation interest rate: 7.0%.

Credit balance as of 12/31/2011: \$2,250,000.

Selected valuation results as of 1/1/2012:

Present value of future benefits	\$50,000,000
Actuarial (market) value of assets	40,000,000
Outstanding balance of waiver amounts required to be amortized	1,500,000
Present value of future compensation	175,000,000
Total 2012 expected compensation	21,000,000

Question 35

In what range is the normal cost for 2012 as of 1/1/2012?

- (A) Less than \$1,250,000
- (B) \$1,250,000 but less than \$1,400,000
- (C) \$1,400,000 but less than \$1,550,000
- (D) \$1,550,000 but less than \$1,700,000
- (E) \$1,700,000 or more

## 2012

### Data for Question 6 (4 points)

Plan effective date: 1/1/2012.

Type of plan: Multiemployer.

Normal retirement benefit: 25% of final year compensation.

Actuarial cost method: Aggregate.

Selected actuarial assumptions:

Interest rate	6.0%
Compensation increases	4.0%

Valuation data for each participant as of 1/1/2013:

Date of birth	1/1/1955
2012 compensation	\$31,200

There are 1,000 participants in the plan on 1/1/2013.

The minimum required contribution for 2012 of \$10,600,000 was made on 12/31/2012.

Selected annuity factor:

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

### Question 6

In what range is the normal cost as of 1/1/2013?

- (A) Less than \$8,000,000
- (B) \$8,000,000 but less than \$8,500,000
- (C) \$8,500,000 but less than \$9,000,000
- (D) \$9,000,000 but less than \$9,500,000
- (E) \$9,500,000 or more

Data for Question 6 (4 points)

Type of plan: Multiemployer

Valuation date: 1/1/2019

Actuarial cost method: Aggregate

Assumed age of beneficiary: Same as participant

Valuation results as of 1/1/2019 before amendment:

Present value of future benefits - active participants	\$1,350,000
Present value of future benefits - participants and beneficiaries in pay status	300,000
Actuarial value of assets	750,000
Normal cost	75,000

Credit balance at 12/31/2018: \$0

There are no terminated vested participants or deferred beneficiaries.

Selected annuity factors:

$$\ddot{a}_{65}^{(12)} \quad 12.00$$
$$\ddot{a}_{65:65}^{(12)} \quad 14.00$$

The plan was amended effective 1/1/2019 to provide an unreduced monthly benefit to future retirees who elect a 100% qualified joint and survivor annuity. 75% of the future retirees are assumed to be married and to elect the 100% qualified joint and survivor annuity. The remaining 25% of the future retirees are assumed to be single and to select the single life annuity.

$\$X$  is the normal cost as of 1/1/2019.

Question 6

In what range is  $\$X$ ?

- (A) Less than \$84,000
- (B) \$84,000 but less than \$88,000
- (C) \$88,000 but less than \$92,000
- (D) \$92,000 but less than \$96,000
- (E) \$96,000 or more

Data for Question 27 (4 points)

Type of plan: Multiemployer

Plan effective date: 1/1/1985

Valuation date: 1/1/2019

Actuarial cost method: Aggregate

Early retirement benefit: Unreduced accrued benefit payable at age 50 with 20 years of service

Normal retirement benefit: 50% of final three-year average compensation

Credit balance as of 12/31/2018: \$0

Valuation interest rate: 7.00%

Assumed rate of compensation increases: 3.50% per year

Assumed retirement age: 52

Actuarial value of assets as of 1/1/2019: \$450,000

Selected data for all 10 participants as of 1/1/2019:

Gender	Female
Age	45
Date of hire	1/1/1998
2018 compensation	\$50,000

$\ddot{a}_{52}^{(12)}$  at 7% interest = 11.80

$\$X$  is the normal cost as of 1/1/2019.

Question 27

In what range is  $\$X$ ?

- (A) Less than \$210,000
- (B) \$210,000 but less than \$240,000
- (C) \$240,000 but less than \$270,000
- (D) \$270,000 but less than \$300,000
- (E) \$300,000 or more