SOCIETY OF ACTUARIES

AMERICAN SOCIETY OF PENSION ACTUARIES

JOINT BOARD FOR THE ENROLLMENT OF ACTUARIES

NOVEMBER 2000 EA-2 (COURSE 365) EXAMINATION

JOINT BOARD BASIC EXAMINATION

This is the November 2000 examination which has been released to the public by the administering organizations.

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Conditions Generallv Applicable to All EA-2 Examination Questions

The following conditions should be considered a part of the data for each question, unless otherwise stated or implied:

General Conditions Regarding Plan Provisions

(1) "Plan" or "pension plan" means a defined benefit pension plan.

(2) The plan is qualified under Code section 401. Thus, for example, any benefit formulas should be understood to be limited by other plan provisions required by the Code.

(3) The plan is sponsored by a single employer; the sponsoring employer is not a member of a controlled group.

(4) The plan is not established or maintained in connection with a collectively bargained agreement .

(5) The plan year, the employer's limitation year, and the employer's tax year are all the calendar year.

(6) The normal retirement age is 65.

(7) Retirement pensions commence at normal retirement age and are paid monthly for life at the beginning of each month.

(8) The plan covers all active employees of the employer; there is no age or service requirement for participation. Thus, when referring to active employees, the terms "employee" and "participant" are synonymous.

(9) There are no, and never have been, mandatory or voluntary employee contributions.

(10) Service for purposes of vesting and benefit accrual is credited on the basis of time elapsed since date of hire.

(11) When the normal retirement benefit is computed as a dollar amount, or as a percentage of compensation, for each year of service, the accrued benefit is defined likewise.

(12) Actuarial equivalence is based on the mortality table and interest rate assumed for funding purposes.

(13) Qualified joint and survivor annuities and qualified preretirement survivor annuities are provided in such manner that they result in no cost to the employer.

(14) The plan has not been top-heavy in any year.

(15) The plan has not been amended since its effective date.

General Conditions Regarding Funding

(16) Any actuarial valuation encompasses not only all active employees but also retired employees, beneficiaries, and former employees entitled to vested deferred pensions.

(17) The valuation date is the first day of the plan year; i.e., participant data, present values, asset values, etc. are as of that date. Also, normal costs are payable annually, the first being due on the valuation date.

(18) The actuarial cost method, or funding method, is "reasonable" within the meaning of Code section 412 and the regulations thereon. Thus, for example, the unit credit cost method should be used in accordance with the regulations under Code section 412.

(19) Where the normal cost under an actuarial cost method may be computed as either a level percentage of compensation or a level dollar amount, the level percentage approach is used if the plan benefits are based on compensation, and the level dollar approach is used if they are not.

(20) Under the frozen initial liability method, whenever there is a change in the plan, actuarial assumptions, or asset valuation method, the unfunded liability is adjusted by adding to it the increase (positive or negative) in the unfunded entry age normal accrued liability due to the change. Likewise, under the attained age normal method, the unfunded liability is adjusted by adding to it the increase in the unfunded unit credit accrued liability.

(21) The terms "actuarial value of assets" and "market value of assets" mean the values developed for purposes of Code section 412, before being adjusted as required under funding methods of the aggregate type for items such as the existing credit balance or the outstanding balances of certain bases.

(22) All actuarial assumptions are deemed "reasonable" and meet the "best estimate" criterion.

(23) The actuarial cost method, asset valuation method, and actuarial assumptions have not been changed since the plan effective date.

(24) The adoption date of any plan or amendment is the same as its effective date.

(25) The term "minimum required contribution" means the smallest contribution for a plan year which will prevent a funding deficiency at the end of that plan year, without regard to the alternative minimum funding standard account. Amounts to be amortized are not combined or offset against one another.

(26) Additional funding charges and additional interest charges due to late quarterly con1ributions have never applied and there is no liquidity shortfall.

(27) No waivers of funding deficiencies or extensions of amortization periods have been granted.

(28) The interest rate used for amortizing waivers and for extensions of amortization periods is the same as the valuation interest rate.

(29) The employer is taxable, and all employer contributions for each prior plan year have been deducted by the employer for its tax year coincident with such plan year.

(30) For purposes of determining the deductible limit for any year, the employer does not use (and has never used) the fresh-start alternative and does not combine (and has never combined) amortization bases.

(31) The full funding limitation has never applied.

(32) Expenses are paid directly by the employer, rather than from the assets of the plan, and therefore do not affect the funding of the plan.

(33) Assumed compensation increases first apply to the year immediately following the latest year for which valuation compensation is shown.

(34) The additional funding charge shall be disregarded if sufficient information to determine such charge is not provided.

(35) For purposes of determining the additional funding charge, the optional role and the transition rule shall be disregarded unless there is specific reference to such rules.

(36) The quarterly contribution requirement and the liquidity shortfall shall be disregarded if sufficient information to determine such requirement is not provided.

(37) The full funding limitations based on current liability shall be disregarded if sufficient information to determine such limitations is not provided.

(38) F or purposes of determining the deductible limit, the unfunded current liability shall be disregarded if sufficient information to determine such liability is not provided.

(39) Unless separate current liabilities are provided, the current liability is the same for all purposes.

Miscellaneous General Conditions

(40) All plan provisions and funding comply with all temporary and final regulations under the Internal Revenue Code and ERISA, as amended through June 30, 2000.

(41) The employer has never maintained a defined contribution plan. No employee has been covered by a defined contribution plan that is required to be aggregated with his employer's plans for purposes of Code section 415.

(42) The terms "applicable mortality (table)" and "applicable interest (rate)" are as defined in Internal Revenue Code section 417(e)(3).

(43) For purposes of coverage testing under Internal Revenue Code Section 410(b), “snapshot” testing is not used and permitted disparity is not imputed.

(44) Transition rules under Revenue Ruling 98-1 shall be disregarded unless there is specific reference to such rules.

The preceding conditions should be considered a part of the data for each question, unless otherwise stated or implied.

2000

Data for Question 1   (1 point)

Consider the following statement:

> When performing an average benefit percentage test for an employer sponsoring multiple plans with differing plan years, employee benefit percentages under each plan are to be determined on the basis of plan years beginning in the same calendar year.

Question 1

Is the above statement true or false?

(A) True

(B) False

<u>Data for Question 2</u> (1 point)

An employer acquires a calendar year pension plan through the purchase of another company on 6/30/2000. Immediately before acquisition, the plan met the requirements of IRC section 410(b). Coverage and benefits under the acquired plan are not changed.

Consider the following statement:

> The plan automatically continues to satisfy the requirements of IRC section 410(b) through 12/31/2001.

<u>Question 2</u>

Is the above statement true or false?

(A) True

(B) False

Data for Question 3 (1 point)

An employer sponsors a plan that is a collectively bargained plan described in IRC section 413(a).

Consider the following statement:

> Future benefit increases that are scheduled to take effect during the term of the bargaining agreement are to be taken into account in determining current liability for the additional funding charge.

Question 3

Is the above statement true or false?

(A) True

(B) False

<u>Data for Question 4</u> (1 point)

Consider the following statement:

> In determining the additional funding charge under IRC section 412(l), pre-participation service can be disregarded only if the employer has never sponsored a defined benefit plan in the past.

<u>Question 4</u>

Is the above statement true or false?

(A) True

(B) False

<u>Data for Question 5</u> (1 point)

Consider the following statement:

> Under a reasonable funding method, employees who are not yet 21 years old may be excluded from a valuation, even though the plan provides that they participate immediately upon date of hire.

<u>Question 5</u>

Is the above statement true or false?

(A) True

(B) False

Data for Question 6 (1 point)

Consider the following statement:

> Under a reasonable funding method, the same method used to compute retirement benefits must be used to compute ancillary benefits under the plan.

Question 6

Is the above statement true or false?

(A) True

(B) False

Data for Question 7   (1 point)

Employer A is owned equally by Smith and Jones. Smith and Jones are the only employees of Employer A.

Consider the following statement:

> Employer A can adopt a qualified defined benefit plan that covers only highly compensated employee Smith.

Question 7

Is the above statement true or false?

(A) True

(B) False

<u>Data for Question 8</u> (1 point)

A tax is imposed on the plan sponsor of a defined benefit plan that fails to meet minimum funding standards.

Consider the following statement:

> The amount of tax is equal to 10 percent of the amount of the accumulated funding deficiency, and such tax may be increased to 100 percent, to the extent that the deficiency is not corrected on a timely basis.

<u>Question 8</u>

Is the above statement true or false?

(A) True

(B) False

<u>Data for Question 9</u> (1 point)

Consider the following statement:

> Two defined benefit plans, maintained by the same employer, may not be permissively aggregated to demonstrate compliance with nondiscriminatory coverage requirements under IRC section 410(b) if they have different plan years.

<u>Question 9</u>

Is the above statement true or false?

(A) True

(B) False

Data for Question 10 (1 point)

Two defined benefit plans are merged.

Consider the following statement:

> If the sum of the assets is greater than the sum of the present value of accrued benefits determined using reasonable assumptions, it is not necessary to create a schedule of benefits under the IRC section 414(*l*) regulations.

Question 10

Is the above statement true or false?

(A) True

(B) False

2000

Data for Question 11 (1 point)

Consider the following statement:

> When determining the disbursements from a plan for the purpose of calculating the liquidity requirement of IRC section 412(m), the purchase of annuities during the requisite 12-month period may be excluded if the payments from those annuities are added.

Question 11

Is the above statement true or false?

(A) True

(B) False

2000

Data for Question 12 (1 point)

	1/1/1997	1/1/1998	1/1/1999	1/1/2000
Funded current liability percentage	92%	91%	88%	84%
Number of participants on each day of the plan year	175	180	190	200

There is a PBGC variable rate premium payable for the year 2000.

Consider the following statement:

> The plan is not subject to the PBGC notice to participants of underfunded plans for the 2000 plan year.

Question 12

Is the above statement true or false?

(A) True

(B) False

Data for Question 13 (1 point)

A participant elected to start receiving his pension at age 65 on 1/1/1999, even though he continued to work for the plan sponsor.

- The participant had more than 10 years of participation in the plan.

- The annual benefit payable to the participant is $100,000 which equals 100% of the participant's high 3-year average compensation.

- The plan has a cost-of-living feature increasing pensions in pay status each year based on the increase in the CPI as used for IRC section 415 cost-of-living adjustments.

- The participant is still employed on 1/1/2000 and his high 3-year average compensation remains at $100,000.

Consider the following statement:

> The participant's pension can be increased on 1/1/2000 for the cost-of-living increases without violating IRC section 415.

Question 13

Is the above statement true or false?

(A) True

(B) False

2000

<u>Data for Question 14</u> (1 point)

Smith owns 20% of XYZ Company. Smith's daughter is also an employee of XYZ Company. Smith's daughter is not an officer of XYZ nor does she own any portion of XYZ Company.

Consider the following statement:

> Smith's daughter is a key employee for purposes of the top-heavy rules of IRC section 416.

<u>Question 14</u>

Is the above statement true or false?

(A) True

(B) False

<u>Data for Question 15</u> (1 point)

A company sponsors a defined benefit pension plan that offers an early retirement window to employees retiring between July 1, 2000 and June 30, 2001. The plan year for the defined benefit plan is a calendar year.

Consider the following statement:

> The early retirement window is subject to separate nondiscrimination testing for both the 2000 and 2001 plan years.

<u>Question 15</u>

Is the above statement true or false?

(A) True

(B) False

Data for Question 16 (1 point)

Smith never earned more than $150,000 a year. Smith retired in 1999 and elected to receive a monthly pension payable under the qualified joint & 50% survivor form of benefit. This benefit was limited by IRC section 415(e). The plan sponsor amends the plan in 2000 to increase benefits for participants who were previously limited by IRC section 415(e).

Consider the following statement:

> Smith will receive an increase in his monthly pension in 2000 and beyond as a result of the amendment.

Question 16

Is the above statement true or false?

(A) True

(B) False

<u>Data for Question 17</u> (1 point)

A pre-OBRA '87 full funding credit applied to the 1999 funding standard account. There is a credit balance as of 12/31/1999. An experience loss occurred during 1999 resulting in an unfunded liability.

Consider the following statement:

> The amortization base that is established as of 1/1/2000 is equal to the actual unfunded liability plus any credit balance.

<u>Question 17</u>

Is the above statement true or false?

(A) True

(B) False

Data for Question 18 (1 point)

The normal form of payment for a top-heavy defined benefit plan is an annuity payable for 60 months certain and life thereafter. The plan has always been top-heavy. The top-heavy minimum annual accrual for a participant with less than 10 years of service must be actuarially equivalent to 2% of average annual compensation payable as a single life annuity.

Consider the following statement:

> The actuarially equivalent conversion must be determined using a "standard interest rate" and "standard mortality table" (as defined under the regulations pertaining to general nondiscrimination testing).

Question 18

Is the above statement true or false?

(A) True

(B) False

Data for Question 19 (1 point)

Consider the following statement:

> The PBGC is not permitted to proceed with an involuntary termination of a single employer plan if that termination violates an existing collective bargaining agreement.

Question 19

Is the above statement true or false?

(A) True

(B) False

Data for Question 20 (1 point)

Consider the following statement:

> An insolvent employer who withdraws from a multiemployer plan is not subject to payment of a withdrawal liability.

Question 20

Is the above statement true or false?

(A) True

(B) False

<u>Data for Question 21</u> (4 points)

Plan effective date: 1/1/2000.

Type of plan: Cash balance plan.

Cash balance account:	10% of compensation credited at the end of the plan year accumulated at the applicable interest rate.
Actuarial equivalence:	Interest rate: Applicable interest rate. Pre-retirement mortality: None. Post-retirement mortality: Applicable mortality table.
Applicable interest rate:	6.25% per year.
Vesting service:	All service from date of hire.
Vesting schedule:	6-year graded schedule for top-heavy plans.

Data for non-key employee Smith:

Date of birth	01/01/1941
Date of hire	01/01/1997
Date of termination	12/31/2000
Compensation for each year	$50,000

Selected annuity factors (applicable interest rate and applicable mortality table):

x	$\ddot{a}_x^{(12)}$
60	11.648
65	10.443

The plan is top-heavy for the year 2000.

<u>Question 21</u>

In what range is the lump sum to which Smith would be entitled on 12/31/2000?

(A) Less than $3,200

(B) $3,200 but less than $3,800

(C) $3,800 but less than $4,400

(D) $4,400 but less than $5,000

(E) $5,000 or more

Data for Question 22 (4 points)

Effective date of plan: 1/1/1993.

Freeze date (under Revenue Ruling 98-1): 12/31/1999.

Final implementation date (under Revenue Ruling 98-1): 1/1/2000.

Normal retirement benefit: 12% of final 3-year average compensation for each year of service.

Actuarial equivalence:	Interest:	5% per year.
	Pre-retirement mortality:	None.
	Post-retirement mortality:	Applicable mortality table.

Applicable interest rate: 6.25% per year.

Data for participant Smith:

Date of birth:	1/1/1936
Date of hire:	1/1/1995
Date of retirement:	12/31/2000
Compensation:	

Year	Compensation
1995	$50,000
1996	60,000
1997	70,000
1998	80,000
1999	90,000
2000	100,000

Selected annuity values using applicable mortality table:

x	$\ddot{a}^{(12)}_{x(5\%)}$	$\ddot{a}^{(12)}_{x(6.25\%)}$
64	11.847	10.698
65	11.534	10.443

The plan sponsor has elected the transition rule under Revenue Ruling 98-1 that provides the greatest lump sum.

Defined benefit dollar limitation under IRC section 415 for:

1999	$130,000
2000	$135,000

Question 22

In what range is Smith's lump sum on 12/31/2000?

(A) Less than $565,000
(B) $565,000 but less than $610,000
(C) $610,000 but less than $655,000
(D) $655,000 but less than $700,000
(E) $700,000 or more

Data for Question 23 (4 points)

Plan effective date: 1/1/1985.

Normal retirement benefit: $200 per year of service with a maximum of 10 years.

Service credits: One year of service for each year a participant completes 1000 hours.

Data for all employees for 2000 plan year:

	Date of Hire	Date of Termination	Hours Worked
HCE 1	1/1/1985		2000
HCE 2	1/1/1990		2000
HCE 3	1/1/1995		2000
NHCE 1	1/1/1990		2000
NHCE 2	1/1/1990		2000
NHCE 3	1/1/1990		2000
NHCE 4	1/1/1990	3/1/2000	400
NHCE 5	1/1/1990	8/1/2000	1100
NHCE 6	1/1/1995	5/1/2000	600
NHCE 7	1/1/1995		2000
NHCE 8	1/1/1995		400
NHCE 9	1/1/1999		800
NHCE 10	8/1/2000	11/1/2000	400

The plan is not permissively aggregated or disaggregated for the purpose of testing coverage.

Question 23

In what range is the ratio percentage for the coverage testing under IRC section 410(b) for the 2000 plan year?

(A) Less than 60%

(B) 60% but less than 70%

(C) 70% but less than 80%

(D) 80% but less than 90%

(E) 90% or more

Data for Question 24 (4 points)

Plan effective date: 1/1/1993.

Normal retirement benefit: 10% of final 3-year average compensation for each year of service.

Early retirement eligibility: Age 60 with 5 years of service.

Early retirement benefit: Actuarial equivalent accrued benefit.

Actuarial equivalence: Interest: 7% per year.
Mortality: Pre-retirement: None
Post-retirement: GAM71

Applicable interest rate: 6.25% per year.

Death benefit: Present value of accrued benefit.

Data for participant Smith:

Date of birth:	1/1/1940
Spousal date of birth:	1/1/1940
Date of hire:	1/1/1993
Early retirement date:	1/1/2000
Compensation for each year after 1995	$150,000
Form of benefit elected	Joint & 100% Survivor Annuity

Selected annuity factors:

	Plan Assumptions	6.25% Applicable Mortality	5% Applicable Mortality
$\ddot{a}_{60}^{(12)}$	9.82	11.64	13.04
$\ddot{a}_{62}^{(12)}$	9.37	11.19	12.46
$\ddot{a}_{65}^{(12)}$	8.67	10.44	11.53
$\ddot{a}_{\overline{60:60}}^{(12)}$	11.50	13.24	15.02
$\ddot{a}_{\overline{62:62}}^{(12)}$	11.12	12.86	14.51
$\ddot{a}_{\overline{65:65}}^{(12)}$	10.49	12.23	13.69

Defined benefit dollar limitation under IRC section 415 for 2000: $135,000.

Question 24

In what range is Smith's annual benefit commencing on 1/1/2000?

(A) Less than $58,400
(B) $58,400 but less than $60,400
(C) $60,400 but less than $62,400
(D) $62,400 but less than $64,400
(E) $64,400 or more

Data for Question 25 (4 points)

Plan effective date:	1/1/1999.
Normal retirement age:	Earlier of age 62 or 30 years of service.
Normal retirement benefit:	2% of final 3-year average compensation for each year of plan participation. Compensation is included for years of participation only.
Early retirement age:	60.
Early retirement reduction:	7% for each year by which the early retirement precedes age 62.
Optional form of payment:	Fully subsidized qualified joint and 100% survivor annuity.

Testing assumptions:

Date:	12/31/2000.
Measurement period:	Service while participating in the plan.
Interest:	8% per year.
Testing age:	65

Data for participant Smith:

Date of birth:	1/1/1940
Date of hire:	1/1/1998
Date of entry:	1/1/1999
Compensation:	

Year	Compensation
1998	$50,000
1999	60,000
2000	70,000

Selected annuity factors for testing:

x	$\ddot{a}_x^{(12)}$	$\ddot{a}_{\overline{x:x}}^{(12)}$
60	9.63	10.95
61	9.45	10.81
62	9.26	10.66
63	9.06	10.50
64	8.86	10.33
65	8.65	10.16

Question 25

In what range is Smith's most valuable accrual rate as of 12/31/2000?

A) Less than 2.75%
(B) 2.75% but less than 3.00%
(C) 3.00% but less than 3.25%
(D) 3.25% but less than 3.50%
(E) 3.50% or more

2000

Data for Question 26 (4 points)

Plan effective date: 1/1/1971.

Actuarial cost method: Frozen initial liability.

Valuation interest rate: 7% per year.

150% of the Federal mid-term rate for January, 2000: 9% per year.

Unfunded accrued liability as of 1/1/1976: $950,000, amortized over 40 years

Credit balance in funding standard account on 12/31/1998: $0.

Normal cost for 1999 as of 1/1/1999: $400,000.

Contribution for 1999 as of 1/1/1999: $50,000.

Waiver of minimum funding requirement granted for 1999: $300,000.

Normal cost for 2000 as of 1/1/2000: $420,000.

Question 26

In what range is the minimum required contribution for 2000 payable 12/31/2000?

(A) Less than $753,000

(B) $753,000 but less than $756,000

(C) $756,000 but less than $759,000

(D) $759,000 but less than $762,000

(E) $762,000 or more

Data for Question 27 (4 points)

Plan effective date: 1/1/1992.

Plan termination date: 12/31/2000.

Data for participant Smith:

Date of birth	1/1/1939
Date of retirement	1/1/1999
Monthly benefit under formula effective 1/1/92	$2,200.00
Monthly benefit under formula effective 1/1/98	$2,250.00
Monthly benefit under formula effective 1/1/99	$2,550.00
Form of benefit payment	Life annuity with 5 year certain

Smith is not a substantial owner.

Maximum monthly benefit guaranteed by the PBGC at age 65 in life only form of payment: $3,221.59.

PBGC adjustment factor for life annuity with 5-year certain form of payment: 0.975.

PBGC adjustment for early retirement: 7/12 of 1% for each of the first 60 months and 4/12 of 1% for each of the next 60 months by which the benefit commencement date precedes age 65.

Question 27

In what range is the monthly benefit guaranteed for Smith by the PBGC as of 12/31/2000?

(A) Less than $2,275

(B) $2,275 but less than $2,300

(C) $2,300 but less than $2,325

(D) $2,325 but less than $2,350

(E) $2,350 or more

Data for Question 28 (4 points)

Plan effective date: 1/1/1982.

Valuation date: 12/31.

Actuarial cost method: Attained age normal.

Valuation interest rate: 7% per year.

Current liability interest rate: 6.3% per year.

Selected valuation results as of 12/31/2000:

Normal cost under attained age normal method	$ 110,000
Limit adjustment	12,000
Normal cost under unit credit cost method	75,000
Accrued liability under unit credit cost method (excluding normal cost for year)	880,000
Normal cost under entry age normal cost method	80,000
Accrued liability under entry age normal cost method (excluding normal cost for year)	900,000
Market value of assets	850,000
Actuarial value of assets	870,000
OBRA'87 current liability (including current year accrual)	950,000
RPA'94 current liability (including current year accrual)	1,040,000

Number of employees participating in plan	80
Number of employees participating in other defined benefit plans	0
Number of employees not covered by any defined benefit plan	200

Question 28

In what range is the deductible limit for 2000 payable 12/31/2000?

(A) Less than $115,000

(B) $115,000 but less than $130,000

(C) $130,000 but less than $145,000

(D) $145,000 but less than $160,000

(E) $160,000 or more

Data for Question 29 (4 points)

Plan effective date: 1/1/1996.

Service for benefit accrual is granted from date of hire.

The employer has never sponsored a defined benefit plan prior to sponsoring this one.

Actuarial cost method: Unit credit.

Selected actuarial assumptions for 2000:

Valuation interest rate:	7.00%
Current liability interest rate:	6.30%

Selected valuation results and funding standard account items as of 1/1/2000:

Normal cost	$ 250,000
Accrued liability	1,650,000
Actuarial (market) value of assets	1,000,000
RPA'94 current liability based on all service	1,700,000
RPA'94 current liability based only on service prior to 1/1/1996	1,000,000
RPA'94 current liability normal cost	200,000
Credit balance	45,000
Net amortization charges	50,000
Expected benefit payments	0

The plan has always had over 150 participants.

Pre-participation service is excluded as provided in IRC section 412(*l*).

Question 29

In what range is the minimum required contribution for 2000 payable 12/31/2000?

(A) Less than $314,500

(B) $314,500 but less than $321,500

(C) $321,500 but less than $328,500

(D) $328,500 but less than $335,500

(E) $335,500 or more

Data for Question 30 (4 points)

Valuation interest rate: 8.5%

Current liability interest rate: 6%

Credit balance in funding standard account as of 12/31/1999: $100,000

Selected valuation results and funding standard account items as of 1/1/2000:

Normal cost	$ 90,000
Actuarial (market) value of assets	1,300,000
Amortization charges:	
Due to initial accrued liability	60,000
Due to experience gains and losses	30,000
Due to plan amendment	35,000
OBRA'87 current liability	2,000,000
Expected increase in OBRA'87 current liability	80,000
RPA'94 current liability	2,000,000
Expected increase in RPA'94 current liability	80,000
Unfunded old liability under OBRA'87 (7 years remaining)	400,000
Unfunded old liability under RPA'94 (7 years remaining)	500,000

Highest number of participants during 1999 plan year: 130
Highest number of participants during 2000 plan year: 135

The one-time optional rule was elected in 1995.
The transition rule was not elected in 2000.

Question 30

In what range is the additional funding charge for 2000 as of 12/31/2000?

(A) Less than $26,000

(B) $26,000 but less than $34,000

(C) $34,000 but less than $42,000

(D) $42,000 but less than $50,000

(E) $50,000 or more

Data for Question 31 (4 points)

Plan effective date: January 1, 1995.

Normal retirement benefit: 4% of highest 5-year average compensation times years of service to maximum of 25 years.

Mandatory employee contributions: 2% of compensation, paid on 12/31.

Vesting eligibility: 3 to 7-year graded vesting.

Data for participant Smith:

Date of birth: 1/1/1945
Date of hire: 1/1/1996
Annual compensation during year:

1996	$20,000
1997	30,000
1998	40,000
1999	50,000

Selected values:

Year	120% of applicable Federal mid-term rate	Interest rate for determining lump sum actuarial equivalence under IRC section 417(e)	$\ddot{a}_{65}^{(12)}$ using 417(e) rate
1995	10.00% per year	7.87%	---
1996	9.00% per year	6.06%	---
1997	8.00% per year	6.50%	---
1998	7.00% per year	7.00%	---
1999	6.00% per year	5.50%	11.07
2000	7.50% per year	6.25%	10.44

Question 31

In what range is Smith's annual vested accrued benefit as of 1/1/2000?

(A) Less than $2,500

(B) $2,500 but less than $2,520

(C) $2,520 but less than $2,540

(D) $2,540 but less than $2,560

(E) $2,560 or more

Data for Question 32 (4 points)

The following information applies to a plan that has always had more than 150 participants:

Plan Year	Gateway Percentage
1996	92%
1997	94%
1998	86%
1999	101%
2000	82%

Which of the following statements is/are true?

I. The plan is subject to the additional funding charge in 2000.

II. PBGC Notices of Underfunding must be sent to participants for the 2000 plan year.

III. The plan is exempt from quarterly contributions in 2000.

Question 32

(A) I only

(B) II only

(C) III only

(D) I, II, and III

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

Data for Question 33 (4 points)

Plan effective date: 1/1/1994.

Actuarial cost method: Entry age normal.

Valuation interest rate: 7% per year.

Credit balance in funding standard account as of 12/31/1999: $10,000.

2000 normal cost as of 1/1/2000: $37,500.

Amortization bases for 2000:

	Date of Establishment	Initial Amount of Base
Initial accrued liability	1994	$ 600,000
Experience (gain)/loss	1995	20,000
OBRA'87 full funding limit credit	1997	30,000
Assumption change (turnover)	1998	(45,000)
OBRA'87 full funding limit credit	1999	25,000

There have been no other experience gains or losses.

The full funding limitation for 2000 does not apply.

The contribution for 2000 was paid on 1/1/2000 in an amount equal to the deductible limit for 2000.

Question 33

In what range is the credit balance in the funding standard account as of 12/31/2000?

(A) Less than $45,000

(B) $45,000 but less than $49,500

(C) $49,500 but less than $54,000

(D) $54,000 but less than $58,500

(E) $58,500 or more

Data for Question 34 (4 points)

Plan effective date: 1/1/1990.

Actuarial cost method: Frozen initial liability.

Valuation interest rate: 7% per year.

Initial accrued liability: $800,000.

Credit balance in funding standard account as of 12/31/1999: $0.

Effective 1/1/2000 the plan was amended to increase benefits.

Selected valuation results and funding standard account items as of 1/1/2000:

Present value of future benefits reflecting plan amendment	$2,500,000
Present value of future compensation	2,000,000
Annual compensation	200,000
Actuarial (market) value of assets	950,000
Entry age normal accrued liability before plan amendment	1,000,000
Entry age normal accrued liability after plan amendment	1,150,000

The contribution for the 2000 plan year was deposited on 12/31/2000.

Question 34

In what range was the minimum required contribution for the 2000 plan year?

(A) Less than $125,000

(B) $125,000 but less than $145,000

(C) $145,000 but less than $165,000

(D) $165,000 but less than $185,000

(E) $185,000 or more

Data for Question 35 (4 points)

Plan effective date: 1/1/1990.

Actuarial cost method:

Before 1/1/2000: Frozen initial liability.
After 12/31/1999: Unit credit.

Valuation interest rate: 7% per year.

Initial past service liability: $450,000.

Credit balance in funding standard account as of 12/31/1999: $25,000.

Selected valuation results as of 1/1/2000:

	Frozen Initial Liability	Unit Credit
Normal cost	$60,000	$40,000
Actuarial (market) value of assets	1,000,000	1,000,000
Actuarial accrued liability	N/A	1,600,000

There were no amortization bases as of 12/31/1999 other than the initial past service liability.

Question 35

In what range is the minimum required contribution for 2000 if paid on 12/31/2000?

(A) Less than $70,000

(B) $70,000 but less than $75,000

(C) $75,000 but less than $80,000

(D) $80,000 but less than $85,000

(E) $85,000 or more

Data for Question 36 (4 points)

401(k) plan effective date: 1/1/1995.

Defined benefit plan effective date: 1/1/1990.

Total compensation as defined in IRC section 404: $2,550,000.

Selected valuation results for defined benefit plan as of 12/31/2000:

Minimum required contribution	$535,000
Normal cost plus 10-year amortization	520,000
Unfunded current liability	650,000

Employer and employee contributions for 2000:

Employer contribution to the defined benefit plan paid 12/31/2000	$750,000
Employer discretionary contributions to the 401(k) plan	15,000
Employer matching contributions to the 401(k) plan	25,000
Employee elective pre-tax deferrals	50,000
Employee voluntary after-tax contributions	20,000

Minimum number of participants in the plan during 2000: 140.

All employees participate in both plans.

Question 36

In what range are the employer's total non-deductible contributions for 2000?

(A) Less than $100,000

(B) $100,000 but less than $150,000

(C) $150,000 but less than $200,000

(D) $200,000 but less than $250,000

(E) $250,000 or more

Data for Question 37 (4 points)

Plan year for which PBGC premium payment is due: 2000.

Valuation interest rate: 7% per year.
Current liability interest rate for 1999 and 2000: 6.3% per year.

PBGC required interest rate (RIR):
1999: 5.00%
2000: 5.25%

Assumed retirement age: 60.

Selected valuation results:

	1/1/1999	1/1/2000
Current liability	$510,000	$680,000
Vested current liability	500,000	665,000
Current liability (RIR)	680,000	708,000
Vested current liability (RIR)	670,000	700,000
Actuarial value of assets (including contributions receivable)	550,000	600,000

Contributions for 1998: $15,000 paid 1/15/1999.
$30,000 paid 9/15/1999.
Contributions for 1999: $9,000 paid 3/15/2000.

Factor for adjusting liabilities under the alternative calculation method (including 7% for additional accruals): 1.261.

There are more than 500 participants.
There are no participants receiving benefit payments.
The plan is not exempt from the variable premium requirement.

Question 37

In what range is the minimum variable premium payment for the 2000 plan year?

(A) Less than $600

(B) $600 but less than $700

(C) $700 but less than $800

(D) $800 but less than $900

(E) $900 or more

Data for Question 38 (4 points)

Plan effective date: 1/1/1990.

Actuarial cost method: Aggregate.

Valuation interest rate: 9% per year.

Current liability interest rate: 6.3% per year.

Credit balance in funding standard account as of 12/31/1999: $0.

Eligible employees: Non-union.

Selected valuation results as of 1/1/2000:

Normal cost	$105,000
Actuarial value of assets	800,000
Market value of assets	775,000
Normal cost under entry age normal method	40,000
Accrued liability under entry age normal method	820,000
OBRA'87 current liability (including expected increase)	900,000
RPA'94 current liability (including expected increase)	940,000

Expected benefit payments for 2000: $0.

Number of participants on each day in 2000: 80.

The plan sponsor also maintains a qualified defined benefit plan that covers 60 union employees.

Question 38

In what range is the deductible limit for 2000 for the non-union plan?

(A) Less than $85,000

(B) $85,000 but less than $105,000

(C) $105,000 but less than $125,000

(D) $125,000 but less than $145,000

(E) $145,000 or more

Data for Question 39 (4 points)

Plan effective date: 10/1/1996.

Plan year: 10/1 - 9/30.

Plan sponsor's tax year: Calendar year.

Actuarial cost method: Aggregate.

Valuation interest rate: 7% per year.

Credit balance in funding standard account on 9/30/1998: $0.

Selected valuation results:

	10/1/1998	10/1/1999
Present value of future benefits	$850,000	$950,000
Actuarial value of assets	200,000	280,000
Present value of future compensation	1,100,000	1,000,000
Current compensation	100,000	90,000

The deductible limit for any tax year is based on the valuation for the plan year ending in that tax year.

For each tax year prior to 1999, the deduction taken was equal to the contribution for the applicable plan year.

The 1999 corporate tax return was filed on 3/15/2000. A contribution to the plan was made on 3/15/2000 in the amount of $50,000 and was deducted on the 1999 return. The remaining required contribution for the plan year ending 9/30/1999 was made after the filing of the corporate tax return and is an "includible employer contribution".

Question 39

In what range is the deductible limit for the tax year ending 12/31/2000?

(A) Less than $73,000

(B) $73,000 but less than $75,000

(C) $75,000 but less than $77,000

(D) $77,000 but less than $79,000

(E) $79,000 or more

Data for Question 40 (4 points)

Defined benefit plan and defined contribution plan effective dates: 1/1/1990.

Defined benefit plan termination date: 12/31/2000.

Defined benefit plan valuation date: 12/31/2000.

Actuarial cost method: Entry age normal.

Valuation interest rate: 7% per year.

Selected valuation results and funding standard account items as of 12/31/2000:

Normal cost	$ 800,000
Total compensation paid to plan participants during 2000	6,000,000
Actuarial (market) value of assets excluding contributions for 2000	7,500,000
Credit balance in funding standard account	0
Accrued liability excluding normal cost for 2000	7,800,000
Current liability (including expected increase)	9,500,000

Present value of benefits on a termination basis as of 12/31/2000:

Priority categories 1 through 4 (all guaranteed)	$8,700,000
Priority categories 5 and 6 (all non-guaranteed)	1,000,000

Highest number of participants during 2000: 200.

No participants receive compensation in excess of $170,000.

Year 2000 contributions to the defined contribution plan paid at 12/31/2000: $300,000.

Year 2000 contributions to the defined benefit plan paid at 12/31/2000: $1,650,000.

All participants in the defined benefit plan also participate in the defined contribution plan.

Question 40

In what range is the total non-deductible contribution for the two plans for 2000?

(A) Less than $200,000
(B) $200,000 but less than $400,000
(C) $400,000 but less than $600,000
(D) $600,000 but less than $800,000
(E) $800,000 or more

Data for Question 41 (4 points)

Plan effective date: 1/1/1996.

Actuarial cost method: Entry age normal.

Valuation interest rate:

Before 2000:	6% per year
After 1999:	7% per year

Selected valuation results as of 1/1/2000:

	6%	7%
Normal cost	$55,000	$51,000
Accrued liability	320,000	270,000
Actuarial (market) value of assets	230,000	230,000

Outstanding balance of initial accrued liability base for the funding standard account as of 12/31/1999: $160,000.

There were no experience gains or losses from the plan's effective date to 12/31/1998.

The contribution for each year was paid on the last day of the plan year in an amount equal to the deductible limit.

Question 41

In what range is the minimum required contribution for 2000 as of 12/31/2000?

(A) Less than $5,000

(B) $5,000 but less than $10,000

(C) $10,000 but less than $15,000

(D) $15,000 but less than $20,000

(E) $20,000 or more

Data for Question 42 (4 points)

Employer 1 participates in multiemployer Plan X with respect to a collective bargaining agreement. The following table is a history of Employer 1's contribution base units to the multiemployer plan:

Year	Contribution Base Units
1992	14,634
1993	31,792
1994	19,006
1995	23,478
1996	13,660
1997	27,584
1998	7,744
1999	8,724
2000	8,228

Employer 2 participates in multiemployer Plan Y with respect to two collective bargaining units. During 2000, a new agreement with one of the collective bargaining units was reached, which requires that Employer 2 contribute to multiemployer Plan Y for the collective bargaining unit in 2000. Employer 2 ceased to have an obligation to contribute to multiemployer Plan Y under its original agreement with such collective bargaining unit in 2000.

Employer 3 participates in multiemployer Plan Z with respect to three collective bargaining units, each at a separate facility. Employer 3 closes one of the facilities in 2000 and ceases to have an obligation to contribute for the collective bargaining unit representing the closed facility. The work formerly performed by the closed facility is now performed at another of Employer 3's facilities.

Question 42

Which of the employers had a partial withdrawal in 2000?

(A) Employer 1 only

(B) Employer 2 only

(C) Employer 3 only

(D) Employers 1, 2, and 3

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

<u>Data for Question 43</u> (4 points)

Actuarial cost method: Entry age normal.

Valuation interest rate: 7% per year.

Funded current liability percentage as of 1/1/1997: 110%.

Credit balance in the funding standard account as of 12/31/1997: $0.

Selected valuation results for the following plan years:

	1998	1999	2000
Normal cost as of 1/1	$200,000	$240,000	$260,000
Net amortization charges as of 1/1	100,000	100,000	120,000
Funded current liability percentage	110%	95%	100%

The only contributions to the plan for plan years 1998 through 2000 were made as follows:

Plan year	Date of contribution	Contribution amount
1998	12/31/1998	$350,000
1999	12/31/1999	150,000
1999	9/15/2000	300,000
2000	4/15/2000	200,000

Interest rate on late quarterly contributions for 2000: 11% per year.

<u>Question 43</u>

In what range is the smallest additional contribution for 2000 that must be paid on 1/15/2001 to avoid an additional interest charge for 2000 due to late quarterly contributions?

(A) Less than $14,700

(B) $14,700 but less than $19,700

(C) $19,700 but less than $24,700

(D) $24,700 but less than $29,700

(E) $29,700 or more

Data for Question 44 (4 points)

Defined benefit plan effective date: 1/1/1986.

Defined benefit plan termination date: 3/1/2000.

Distribution date for defined benefit plan benefits upon termination: 12/31/2000.

Data for terminated defined benefit plan as of 12/31/2000:

Termination liability before amendment	$1,225,000
Market value of assets	1,800,000
Actuarial value of assets	1,700,000

The plan sponsor establishes a defined contribution plan as a qualified replacement plan.

Defined contribution plan effective date: 1/1/2000.

In order to reduce the 50% excise tax otherwise payable, the plan sponsor amends the defined benefit plan as of the termination date to provide a 6% pro-rata increase of participant benefits as of the termination date and also makes the minimum transfer of assets from the terminated defined benefit plan to the qualified replacement plan.

Question 44

In what range is the minimum transfer to the qualified replacement plan as of 12/31/2000?

(A) Less than $35,000

(B) $35,000 but less than $70,000

(C) $70,000 but less than $105,000

(D) $105,000 but less than $140,000

(E) $140,000 or more

Data for Question 45 (4 points)

Smith retires on 1/1/2000 under a defined benefit pension plan. Smith is one of the 25 highly compensated employees with the greatest compensation in the current or any prior year.

Annual pension payable for life only to Smith: $10,000.

Lump sum payment actuarially equivalent to Smith's accrued benefit under the terms of the plan: $100,000.

Selected valuation results (prior to any distribution to Smith) as of 1/1/2000:

Current liability:	
Total for plan	$6,000,000
For Smith only	80,000
Actuarial (market) value of assets	$6,600,000

Smith elects to receive his benefits in the form of a lump sum payment.

Question 45

In what range is the amount by which Smith's lump sum payment exceeds the amount that could have been paid without restriction?

(A) Less than $10,000

(B) $10,000 but less than $35,000

(C) $35,000 but less than $60,000

(D) $60,000 but less than $85,000

(E) $85,000 or more

Data for Question 46 (4 points)

Plan effective date: 1/1/1995.

Actuarial cost method: Frozen initial liability.

Valuation interest rate: 7% per year.

Initial accrued liability as of 1/1/1995: $400,000.

Credit balance in funding standard account as of 12/31/1999: $0.

Selected valuation results as of 1/1/2000:

Present value of future compensation	$6,400,000
Annual compensation	400,000
Present value of future normal costs	600,000
Entry age normal accrued liability	550,000
Entry age normal cost	30,000
Actuarial (market) value of assets	490,000
Current liability projected to 12/31/2000	410,000
Expected benefit payments	0

For 2000, a contribution equal to the deductible limit was made on 12/31/2000.

Question 46

In what range is the credit balance in the funding standard account as of 12/31/2000?

(A) Less than $18,000

(B) $18,000 but less than $20,000

(C) $20,000 but less than $22,000

(D) $22,000 but less than $24,000

(E) $24,000 or more

Data for Question 47 (4 points)

Plan A effective date: 1/1/1990.

Actuarial cost method: Entry age normal.

As of 1/1/2000, Plan A was split into Plans B and C.

The sponsors of Plan B and Plan C are not in the same controlled group.

The credit balance is allocated in accordance with Revenue Ruling 86-47.

Selected valuation results and funding standard account items as of 1/1/2000:

	Plan A	Plan B	Plan C
Credit balance in funding standard account	$ 20,000		
Market value of assets	400,000	$ 80,000	$320,000
Actuarial value of assets	375,000		
Present value of plan benefits on a termination basis	180,000	58,000	122,000
Entry age normal accrued liability	425,000	200,000	225,000

Question 47

In what range is the credit balance allocated to plan B?

(A) Less than $3,000

(B) $3,000 but less than $5,000

(C) $5,000 but less than $7,000

(D) $7,000 but less than $9,000

(E) $9,000 or more

Data for Question 48 (4 points)

Profit sharing plan effective date: 1/1/1990.

Defined benefit plan effective date: 1/1/1977.

Actuarial cost method: Aggregate.

Valuation interest rate: 7% per year.

Credit balance as of 12/31/1999: $0.

Selected valuation results as of 12/31/2000:

Present value of future benefits	$50,000,000
Actuarial value of assets excluding contributions for 2000	20,500,000
Market value of assets excluding contribution for 2000	20,000,000
Present value of future compensation	48,000,000
Annual compensation	5,000,000
Current liability (including the accrual for the year)	24,500,000
Contribution for 2000	
Profit sharing plan	1,000,000
Defined benefit plan	3,500,000

There have always been more than 100 participants in the plan.

The plan is exempt from the additional funding charge under IRC section 412(*l*) for the 2000 plan year.

Question 48

In what range is the excise tax on non-deductible contributions for the tax year ending 12/31/2000?

(A) Less than $30,000

(B) $30,000 but less than $90,000

(C) $90,000 but less than $150,000

(D) $150,000 but less than $210,000

(E) $210,000 or more

Data for Question 49 (4 points)

Type of plan: Multiemployer.

Plan effective date: 1/1/1989.

Actuarial cost method: Frozen initial liability.

Valuation interest rate: 7% per year.

Valuation mortality assumption:

Before 2000: 71GAM
After 1999: 83GAM

Credit balance in funding standard account as of 12/31/1999: $500,000.

Actuarial (market) value of assets as of 1/1/2000: $11,500,000.

Number of covered active participants as of 1/1/2000: 150.

Outstanding balances of all amortization bases in funding standard account for 2000 as of 1/1/2000 before the assumption change:

Initial unfunded liability	$1,100,000
Plan amendment effective 1/1/1990	700,000

Selected valuation results as of 1/1/2000:

	71GAM	83GAM
Present value of future benefits	$17,000,000	$18,000,000
Entry age normal actuarial accrued liability	14,000,000	14,650,000
Present value of future service (in years)	1,170	1,225

Question 49

In what range is the minimum required contribution as of 12/31/2000?

(A) Less than $240,000

(B) $240,000 but less than $270,000

(C) $270,000 but less than $300,000

(D) $300,000 but less than $330,000

(E) $330,000 or more

Data for Question 50 (4 points)

Plan effective date: 1/1/1960.

Proposed date of distribution in connection with the termination of the plan: 12/31/2000.

Early retirement: Age 60 with 10 years of service.

Early retirement benefit:
Accrued benefit reduced by 6% per year benefit commences before normal retirement age.
Unreduced accrued benefit for retirement age after age 60 with 30 years of service.

Data for all participants in the plan as of 12/31/2000:

Participant	Birth	Hire	Monthly accrued benefit payable at normal retirement
Smith	12/31/1940	12/31/1972	$3,000
Jones	12/31/1950	12/31/1980	$2,000

Selected premium rates used to settle obligations upon plan terminations:

Current Age	Benefit Commencement Age	Premium Rates
60	60	11.905
60	62	10.024
60	65	7.631
50	60	6.369
50	65	4.083

Market value of plan assets as of proposed date of distribution is $600,000.

Upon plan termination, all excess assets in the plan will revert to the employer.
The employer is purchasing annuities to settle its obligations upon plan termination. The insurance company will assume that each employee will elect the most valuable benefit.

Question 50

In what range is the amount of excess assets reverted back to the employer, before payment of any excise taxes?

(A) Less than $100,000
(B) $100,000 but less than $150,000
(C) $150,000 but less than $200,000
(D) $200,000 but less than $250,000
(E) $250,000 or more

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ANSWER KEY

1.	B	26.	B
2.	A	27.	D & E
3.	B	28.	B
4.	B	29.	D
5.	A	30.	D
6.	B	31.	D
7.	B	32.	E
8.	A	33.	D
9.	A	34.	C
10.	A	35.	E
11.	B	36.	C
12.	A	37.	B
13.	B	38.	D
14.	A	39.	D
15.	B	40.	B
16.	A	41.	B
17.	A	42.	E
18.	B	43.	B
19.	B	44.	C
20.	B	45.	B
21.	D	46.	D
22.	B	47.	A
23.	B	48.	B
24.	A	49.	C
25.	D	50.	A