SOCIETY OF ACTUARIES

AMERICAN SOCIETY OF PENSION ACTUARIES

JOINT BOARD FOR THE ENROLLMENT OF ACTUARIES

NOVEMBER 1999 COURSE P-365U (EA2)

JOINT BOARD BASIC EXAMINATION

This is the November 1999 examination which has been released to the public by the administering organizations.

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Conditions Generally 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.

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(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 contributions 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 rule 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) For 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.

<u>Miscellaneous General Conditions</u>

(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, 1999.

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

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

1999

Data for Question 1 (1 point)

Consider the following statement:

> For the purpose of determining the present value of an accrued benefit in connection with a plan spinoff or merger under Internal Revenue Code section 414(l) and regulations thereunder, the present value must be calculated using the assumptions used by the Pension Benefit Guaranty Corporation for terminating plans as of the date of the merger or spinoff.

Question 1

Is the above statement true or false?

(A) True

(B) False

1999

Data for Question 2 (1 point)

Consider the following statement:

For purposes of selecting the applicable interest rate under Regulation 1.417(e) -1, all of the following are permitted stability periods.

1. One calendar month
2. One plan year
3. One plan quarter
4. One calendar year

Question 2

Is the above statement true or false?

A) True

B) False

1999

Data for Question 3 (1 point)

Consider the following statement:

> A plan administrator need not provide an ERISA section 204(h) notice of the reduction of future benefit accruals to plan participants who will not be affected by an amendment decreasing future accruals.

Question 3

Is the above statement true or false?

A) True

B) False

1999

Data for Question 4 (1 point)

Consider the following statement:

A Qualified Domestic Relations Order (QDRO) may specify that a defined benefit plan pay a benefit to the alternate payee in a form not offered by the plan.

Question 4

Is the above statement true or false?

A) True

B) False

1999

Data for Question 5 (1 point)

Consider the following statement:

> In the event of a conflict of interest, an Enrolled Actuary shall not perform actuarial services unless full disclosure is made to the plan trustees, named fiduciaries, plan administrator and, if applicable, the collective bargaining representative.

Question 5

Is the above statement true or false?

A) True

B) False

1999

Data for Question 6 (1 point)

Consider the following statement:

> A copy of a plan's Summary Plan Description (SPD) must be filed with the Department of Labor whenever the SPD is updated.

Question 6

Is the above statement true or false?

A) True

B) False

1999

Data for Question 7 (1 point)

A plan currently provides three actuarially equivalent joint and survivor optional benefit forms: 50%, 75% and 100%. The 75% joint and survivor benefit is the qualified joint and survivor annuity under the plan.

Consider the following statement:

> The plan sponsor may eliminate the 75% optional benefit form without preserving this option for benefits already accrued.

Question 7

Is the above statement true or false?

(A) True

(B) False

1999

Data for Question 8 (1 point)

Consider the following statement:

> An enrolled actuary providing actuarial certification for a defined benefit plan is considered a "party in interest."

Question 8

Is the above statement true or false?

(A) True

(B) False

1999

Data for Question 9 (1 point)

Consider the following statement:

The $5,000 limit in the Code on involuntary cash outs is indexed for inflation.

Question 9

Is the above statement true or false?

(A) True

(B) False

1999

Data for Question 10 (1 point)

Consider the following statement:

> Ancillary death benefits may be removed from a pension plan without violating the anti-cutback rules of IRC section 411(d)(6).

Question 10

Is the above statement true or false?

(A) True

(B) False

1999

Data for Question 11 (1 point)

An employer sponsors two qualified defined benefit plans that satisfy the coverage and non-discrimination rules independently. The first plan covers all salaried employees including all key employees. The second plan covers all hourly employees none of whom is a key employee.

Consider the following statement:

> For purposes of the top-heavy determination, these plans must be aggregated.

Question 11

Is the above statement true or false?

(A) True

(B) False

1999

Data for Question 12 (1 point)

The funded current liability percentage for a plan is 90% using an interest rate within the allowable range.

Consider the following statement:

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

Question 12

Is the above statement true or false?

(A) True

(B) False

1999

Data for Question 13 (1 point)

Consider the following statement:

> When determining the value of an annuity payable to a missing participant, the actuarial assumptions required by the PBGC for that purpose are those in effect on the actual date of plan termination.

Question 13

Is the above statement true or false?

(A) True

(B) False

1999

Data for Question 14 (1 point)

Employee A is hired on 1/1/1999 and earns $100,000 during the year. Employee A is the highest paid employee of the plan sponsor and has no ownership in the plan sponsor.

Consider the following statement:

Employee A is a highly compensated employee for 1999.

Question 14

Is the above statement true or false?

(A) True

(B) False

1999

Data for Question 15 (1 point)

The adult son of a 10% owner owns no company stock and earns $10,000 per year.

Consider the following statement:

The son is a key employee.

Question 15

Is the above statement true or false?

(A) True

(B) False

1999

Data for Question 16 (1 point)

Consider the following statement:

> A defined contribution plan with a normal retirement age of the later of age 55 and the fifth anniversary of the date of hire has a uniform normal retirement age for purposes of the non-discrimination regulations under Code section 401(a)(4).

Question 16

Is the above statement true or false?

(A) True

(B) False

1999

Data for Question 17 (1 point)

An employer maintains two plans, a profit sharing plan with a plan year ending 12/31 ___ a defined benefit plan with a plan year ending 6/30.

Consider the following statement:

> The employer may aggregate the plans to determine if they satisfy the 70% ratio percentage test of Code section 410(b).

Question 17

Is the above statement true or false?

(A) True

(B) False

1999

Data for Question 18 (1 point)

A plan has a normal retirement age of 65 and an early retirement age of age 55 with 30 years of service.

The plan covers all non-excludable employees consisting of two HCEs and nine NHCEs. Both HCEs are currently over age 55 and have 30 years of service. All but two of the NHCEs were hired after age 35. No NHCE currently has over 30 years of service.

Consider the following statement:

The group of employees to whom the early retirement benefit is "currently available" satisfies the 70% ratio percentage test of Code section 410(b).

Question 18

Is the above statement true or false?

(A) True

(B) False

1999

Data for Question 19 (1 point)

Consider the following statement:

> Amendments made to correct a failed general test under Code section 401(a)(4) regulations must be adopted and implemented on or before the 15^{th} day of the 10^{th} month after the close of the applicable plan year.

Question 19

Is the above statement true or false?

(A) True

(B) False

1999

Data for Question 20 (1 point)

Consider the following statement:

Average annual compensation used in the general testing of a career average plan must be the employee's IRC section 414(s) compensation determined over an averaging period of the lesser of 3 years or the entire period of compensation.

Question 20

Is the above statement true or false?

(A) True

(B) False

1999

Data for Question 21 (4 points)

Plan effective date: 1/1/1998.

Normal retirement benefit:

Effective 1/1/1998: $24 per month per year of service.
Effective 1/1/1999: $30 per month per year of service.

Actuarial cost method: Entry age normal.

Valuation interest rate: 7% per year.

Selected valuation results:

	1/1/1998	1/1/1999 (After Amendment)
Normal cost as of 1/1	60,000	100,000
Accrued liability	335,000	490,000
Actuarial (market) value of assets	0	110,000

Contribution for 1998: $ 100,000 paid on 3/31/1998.

All participants are active employees.

Question 21

In what range is the minimum required contribution for 1999 payable 12/31/1999?

(A) Less than $115,000

(B) $115,000 but less than $120,000

(C) $120,000 but less than $125,000

(D) $125,000 but less than $130,000

(E) $130,000 or more

1999

Data for Question 22 (4 points)

Type of plan: Multiemployer.

Plan effective date: 1/1/1996.

Actuarial cost method: Projected unit credit.

Valuation interest rate: 7% per year.

Credit balance in funding standard account as of 12/31/1998: $5,500.

The plan was amended effective January 1, 1999.

Selected valuation results and funding standard account items as of 1/1/1999:

Accrued liability after amendment	$925,000
Actuarial (market) value of assets	250,000
Amortization charge due to initial accrued liability	43,000
Amortization charge due to 1996 Experience loss	4,000
Amortization credit due to 1997 actuarial assumption change	3,500
Experience loss for 1997	0
Amortization credit due to 1998 experience gain	5,000

Question 22

In what range is the amortization amount in the funding standard account as of 1/1/1999 due to the plan amendment?

(A) Less than $11,500

(B) $11,500 but less than $14,000

(C) $14,000 but less than $16,500

(D) $16,500 but less than $19,000

(E) $19,000 or more

1999

Data for Question 23 (4 points)

Plan effective date: 1/1/1980.

Valuation interest rate: 7% per year.

Current liability interest rate: 6.5% per year.

Credit balance in funding standard account as of 12/31/1998: $20,000.

Reconciliation account balance as of 12/31/1998: $45,000.

Selected valuation results and funding standard account items as of 1/1/1999:

Nomal cost as of 1/1	$50,000
Net amortization charges as of 1/1	45,400
Actuarial (market) value of assets	925,000
Current liability as of 1/1	1,200,000
Expected increase in current liability as of 1/1	55,000
Benefits expected to be paid during 1999	0

Unfunded old liability amount as of 1/1/1999: $30,000.

Gateway percentage for 1999: 78%.

Additional interest charge for late quarterly contributions for 1999: $600.

There have always been more than 150 participants in the plan.

Question 23

In what range is the reconciliation account balance as of 1/1/2000?

(A) Less than $58,500

(B) $58,500 but less than $60,000

(C) $60,000 but less than $61,500

(D) $61,500 but less than $63,000

(E) $63,000 or more

1999

Data for Question 24 (4 points)

Plan effective date: 1/1/1991.

Actuarial cost method: Frozen initial liability.

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

Valuation interest rate:

Before 1999: 8% per year.
After 1998: 7% per year.

Amortization charges as of 1/1/1998 for:

Initial accrued liability	$40,000
1/1/1995 Amendment	10,000

Selected valuation results as of 1/1/1999:

Normal cost as of 1/1	$100,000
Increase in unfunded accrued liability due to change in assumptions	150,000

Question 24

In what range is the minimum required contribution for 1999 as of 12/31/1999?

(A) Less than $171,500

(B) $171,500 but less than $175,000

(C) $175,000 but less than $178,500

(D) $178,500 but less than $182,000

(E) $182,000 or more

Data for Question 25 (4 points) 1999

Type of plan: Multiemployer

Plan effective date: 1/1/1987

Withdrawal liability method: Rolling five (one pool), with mandatory de minimis rule. The plan was amended to increase the de minimis amount to $100,000.

History of employer contributions:

Year	Employer A	Employer B	All Employers
1987	$50,000	$36,000	$550,000
1988	55,000	40,000	550,000
1989	55,000	40,000	550,000
1990	60,000	42,000	550,000
1991	60,000	45,000	560,000
1992	63,000	55,000	570,000
1993	65,000	60,000	580,000
1994	65,000	65,000	590,000
1995	67,000	67,500	605,000
1996	40,000	72,500	605,000
1997		80,000	607,000
1998		42,000	600,000

Unfunded present value of vested benefits as of 12/31/1997: $1,300,000.

Unfunded present value of vested benefits as of 12/31/1998: $1,350,000.

Withdrawal liabilities expected to be collected for withdrawals before 1998 as of 12/31/1997: $75,000.

Withdrawal liabilities expected to be collected for withdrawals before 1998 as of 12/31/1998: $65,000.

Employer A withdrew from the plan in 1996. Employer B withdrew from the plan in 1998. There have been no other withdrawals from the plan.

Question 25

In what range is Employer B's withdrawal liability?

(A) Less than $139,000

(B) $139,000 but less than $144,000

(C) $144,000 but less than $149,000

(D) $149,000 but less than $154,000

(E) $154,000 or more

1999

Data for Question 26 (4 points)

Plan effective date: 1/1/1994.

Normal retirement benefit: 2.5% of highest 3-year average compensation for each year of service.

Mandatory employee contributions: 3.25% of compensation paid on 12/31 each year.

Vesting eligibility: 3 to 7 year graded vesting.

Lump sum actuarial equivalence: Average yield on 30-year Treasury securities for the month immediately preceding the beginning of the plan year and 1983 Group Annuity Mortality Table blended 50% for males and 50% for females.

Data for participant Smith:

Date of birth	1/1/1972
Date of hire	1/1/1995
Annual compensation for years 1995 - 1998	$40,000

Selected values by year:

Year	120% of January Federal Mid-Term Rate	December 30-year Treasury Rate	$\ddot{a}_{65}^{(12)}$ Based on December 30-year Treasury and Actuarial Equivalent Mortality
1996	6.89%	6.55%	10.21
1997	7.34%	5.99%	10.65
1998	7.13%	5.06%	11.48
1999	5.59%		

Question 26

In what range is the absolute value of the change in Smith's annual vested benefit from January 1, 1998 to January 1, 1999?

(A) Less than $200

(B) $200 but less than $500

(C) $500 but less than $800

(D) $800 but less than $1,100

(E) $1,100 or more

1999

Data for Question 27 (4 points)

Plan effective date: 1/1/1987.

Benefit formula: 100% of final 3-year average compensation.

Preretirement death benefit: None.

Early retirement eligibility: Age 55 with 10 years of service.

Early retirement reduction factor: No reduction between the plan's normal retirement age and age 62, 8% per year reduction below age 62.

Data for participant Smith:

Date of birth:	1/1/1941
Date of hire:	1/1/1984
Date of retirement:	1/1/1999

Year	Compensation
1996	$100,000
1997	105,000
1998	112,250

Defined benefit dollar limit under IRC section 415 for 1999: $130,000.

Selected commutation functions for actuarial equivalence on statutory basis:

Age	N_x
55	19,503
58	15,726
62	11,558
65	8,995
66	8,236
67	7,521

Question 27

In what range is the maximum annual benefit payable to Smith in 1999?

(A) Less than $58,700

(B) $58,700 but less than $62,700

(C) $62,700 but less than $66,700

(D) $66,700 but less than $70,700

(E) $70,700 or more

1999

Data for Question 28 (4 points)

Plan effective date: 1/1/1989

Actuarial cost method: Aggregate.

Valuation interest rate: 7% per year.

Current liability interest rate: 6.5% per year.

Credit balance in funding standard account as of 12/31/1998: $0

Selected valuation results as of 1/1/1999:

Normal cost as of 1/1	$50,000
Actuarial (market) value of assets	250,000
Normal cost under entry age normal cost method as of 1/1	45,000
Accrued liability under entry age normal cost method as of 1/1	240,000
OBRA '87 current liability projected to 12/31	200,000
RPA '94 current liability projected to 12/31	225,000
Expected benefit payments for year	0

Number of participants on each day in 1999: 80.

Question 28

In what range is the deductible limit for 1999?

(A) Less than $34,500

(B) $34,500 but less than $37,000

(C) $37,000 but less than $39,500

(D) $39,500 but less than $42,000

(E) $42,000 or more

1999

Data for Question 29 (4 points)

Plan effective date: 4/1/1997.

Plan year: 4/1 – 3/31.

Plan sponsor's taxable year: 7/1 – 6/30.

Actuarial cost method: Unit credit.

Valuation interest rate: 7% per year.

Deficiency in funding standard account as of 3/31/1998: $3,500.

Initial accrued liability: $500,000.

Normal cost as of 4/1/1998: $40,000.

Experience loss for plan year ending 3/31/1998: $35,000.

The deductible limit for a taxable year is based upon the valuation for the plan year beginning in that taxable year.

The contribution for the plan year beginning 4/1/1998 was paid on 3/15/1999 in an amount equal to the deductible limit for the taxable year ending 6/30/1998.

Question 29

In what range is the credit balance in the funding standard account as of 3/31/1999?

(A) Less than $18,500

(B) $18,500 but less than $20,500

(C) $20,500 but less than $22,500

(D) $22,500 but less than $24,500

(E) $24,500 or more

1999

Data for Question 30 (4 points)

Plan effective date: 1/1/1991.

Actuarial cost method: Attained age normal.

Valuation interest rate: 7% per year.

150% of the Federal mid-term rate for January, 1999: 7.01%

Normal cost as of 1/1/1999: $70,000.

Outstanding balance of all amortization bases in funding standard account for 1999 as of 1/1/1999:

Initial accrued liability	$400,000
Plan amendment	25,000
Funding waiver	60,000

Both the plan amendment and funding waiver bases were established 1/1/1999 with IRS approval.

Credit balance in funding standard account as of 1/1/1999: $0.

Accumulated balance in reconciliation account as of 1/1/1999: $17,000.

Plan sponsor's taxable year: 7/1 - 6/30.

The deductible limit for a given fiscal year is the deductible limit for the plan year commencing within that fiscal year.

Question 30

In what range is the deductible limit for the taxable year ending 6/30/1999 calculated using the fresh start alternative?

(A) Less than $129,000

(B) $129,000 but less than $132,000

(C) $132,000 but less than $135,000

(D) $135,000 but less than $138,000

(E) $138,000 or more

1999

Data for Question 31 (4 points)

Plan effective date: 1/1/1989.

Actuarial cost method: Unit credit.

Valuation interest rate: 7% per year.

Current liability interest rate: 6.5% per year.

Credit balance in funding standard account as of 12/31/1998: $2,000.

Selected valuation results as of 1/1/1999:

Normal cost as of 1/1	$ 45,000
Accrued liability	275,000
Actuarial (market) value of assets	250,000
OBRA '87 current liability projected to 12/31	250,000
RPA '94 current liability projected to 12/31	240,000
Expected benefit payments for year	0

There have always been over 100 participants in the plan.

There was a full funding credit (due entirely to the ERISA full funding limitation) in the funding standard account for 1998.

The contribution for 1998 is paid on 12/31/1998.

Question 31

In what range is the deductible limit for 1999?

(A) Less than $51,500

(B) $51,500 but less than $52,000

(C) $52,000 but less than $52,500

(D) $52,500 but less than $53,000

(E) $53,000 or more

1999

Data for Question 32 (4 points)

Plan effective date: 1/1/1988.

Actuarial cost method:

Before 1999: Frozen initial liability.
After 1998: Entry age normal.

Valuation interest rate: 7% per year.

Initial accrued liability: $800,000.

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

Unfunded accrued liability under the entry age normal cost method as of 1/1/1999: $700,000.

Contributions for 1999: $75,000 paid on 4/1/1999 and $40,000 paid on 12/31/1999.

Credit balance in funding standard account as of 12/31/1999: $8,000.

Question 32

In what range is the normal cost for 1999 as of 1/1/1999?

(A) Less than $38,000

(B) $38,000 but less than $40,500

(C) $40,500 but less than $43,000

(D) $43,000 but less than $45,500

(E) $45,500 or more

1999

Data for Question 33 (4 points)

Data for sponsor of two defined benefit pension plans:

	PLAN A		PLAN B	
	HCE	NHCE	HCE	NHCE
Total employees	50	8,350	250	2,650
Employees excludable due to minimum age and service provisions	5	1,050	20	350
Total employees benefiting under the plan	40	5,500	200	1,750
Collectively bargained employees benefiting under the plan	0	5,000	0	0
Normal accrual rate determined for each plan participant	1.6%	2.0%	1.5%	1.8%

No employee benefits under more than one plan.

The age and service eligibility provisions are identical for both plans.

The plan sponsor elects not to aggregate the plans and not to impute permitted disparity for testing under IRC sections 410(b) and 401(a)(4).

Consider the following statements regarding minimum coverage testing under IRC section 410(b) for Plan B:

I. The ratio percentage exceeds 50%.

II. The nonhighly compensated employee concentration percentage exceeds 95%.

III. The average benefit percentage test result is between 65% and 70%.

Question 33

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

(A) None

(B) I and II 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.

1999

Data for Question 34 (4 points)

Plan effective date: 1/1/1965.

Plan termination date: 12/31/1999.

Normal retirement benefit:

Effective 1/1/1992 (adopted 2/1/1993): $60 per month for each year of service.
Effective 1/1/1995 (adopted 2/1/1996): $80 per month for each year of service.
Effective 1/1/1998 (adopted 2/1/1999): $90 per month for each year of service.

Early retirement eligibility: Earlier of 30 years of service, or age 55 with 15 years of service.

Early retirement reduction factor: No reduction between the plan's normal retirement age and age 62, 7.8% per year reduction for commencement below age 62.

Data for non-substantial owner participant Smith:

		Year	Compensation	Year	Compensation
Date of birth:	1/1/1937	1999	$37,000	1995	$33,000
Date of hire:	1/1/1965	1998	36,000	1994	32,000
Date of retirement:	12/31/1999	1997	35,000	1993	31,000
Form of payment:	Life annuity	1996	34,000	1992	30,000

Maximum monthly benefit guaranteed by the PBGC for plans terminating in 1999 under ERISA section 4022(b)(3)(A) payable at age 65 as a life annuity: $3,051.14.

Factors to adjust the PBGC maximum guaranteed benefit for payments commencing before age 65:

Age	Factor
64	0.93
63	0.86

Question 34

In what range is Smith's PBGC guaranteed monthly benefit payable 12/31/1999?

(A) Less than $2,350

(B) $2,350 but less than $2,400

(C) $2,400 but less than $2,450

(D) $2,450 but less than $2,500

(E) $2,500 or more

1999

Data for Question 35 (4 points)

Plan effective date: 1/1/1997.

Actuarial cost method: Unit credit.

Valuation interest rate: 7 % per year.

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

Initial accrued liability: $540,000.

Normal cost as of 1/1/1999: $40,000.

Experience loss in 1997: $32,000.

OBRA '87 full funding credit for 1998: $28,000.

The contribution for the 1999 plan year was paid on 1/1/1999 in an amount equal to the deductible limit for 1999.

There have been no experience gains or losses other than the experience loss during 1997.

Question 35

In what range is the credit balance in the funding standard account as of 12/31/1999?

(A) Less than $31,500

(B) $31,500 but less than $35,000

(C) $35,000 but less than $38,500

(D) $38,500 but less than $42,000

(E) $42,000 or more

1999

Data for Question 36 (4 points)

Data for all nonexcludable employees:

	Number of HCEs	Number of NHCEs	Normal Accrual Rate	Most Valuable Accrual Rate
Non Participants	40	345	0.00%	0.00%
Rate Group A	25	50	0.80%	1.60%
Rate Group B	60	0	1.00%	1.60%
Rate Group C	50	500	1.20%	1.30%
Rate Group D	200	230	1.40%	1.60%

NHCE Concentration Percentage	Safe Harbor Percentage	Unsafe Harbor Percentage
70	42.50	32.50
71	41.75	31.75
72	41.00	31.00
73	40.25	30.25
74	39.50	29.50
75	38.75	28.75

Question 36

What is the minimum number of non participating NHCEs that need to be added to Group B in order to pass nondiscrimination testing under IRC Sections 401(a)(4) and 410(b)?

(A) Less than 10

(B) 10 but less than 20

(C) 20 but less than 30

(D) 30 but less than 40

(E) 40 or more

1999

Data for Question 37 (4 points)

Valuation interest rate: 7% per year.

Current liability interest rate: 6.5% per year.

Funding deficiency in funding standard account as of 12/31/1998: $10,000.

Selected valuation results and funding standard account items as of 1/1/1999:

Normal cost as of 1/1	$200,000
Actuarial (market) value of assets	2,300,000
Amortization charges in funding standard account as of 1/1:	
Due to initial accrued liability	60,000
Due to experience gains and losses	12,000
Due to funding waiver	7,000
Amortization credit in funding standard account as of 1/1:	
Due to assumption changes	5,000
Current liability as of 1/1	3,000,000
Expected increase in current liability as of 1/1	159,900
Unfunded old liability as of 1/1 (8 years remaining)	375,000
Expected benefit payments or plan disbursements	0
Gateway percentage	77%

No unpredictable contingent events have occurred.

The plan had 130 participants on every day in 1998 and 140 participants on every day in 1999.

The employer did not elect the optional rule in 1995 and the transition rule does not apply.

Question 37

In what range is the additional funding charge in 1999 as of 12/31/1999?

(A) Less than $12,070

(B) $12,070 but less than $13,070

(C) $13,070 but less than $14,070

(D) $14,070 but less than $15,070

(E) $15,070 or more

1999

Data for Question 38 (4 points)

Date of plan termination: 1/1/1999.

Date of birth of missing participant Smith: 1/1/1949.

Normal form of annuity: Single life annuity.

Amount of monthly pension at age 65 in normal form: $1,200.

Possible early retirement ages for Smith: 60, 61, 62, 63, 64.

Benefits are reduced by 6% for each year benefit commencement precedes age 65.

Smith is assumed to be married as of the deemed distribution date.

The qualified joint and 50% survivor annuity payable to Smith requires a 20% reduction in the benefit otherwise payable as a single life annuity.

The plan does not provide for elective lump sums.

PBGC present value factors for a monthly joint and 50% survivor annuity of $1 as of the deemed distribution date:

Age at Distribution Date	Factor
65	64.7
64	70.2
63	76.0
62	82.1
61	88.6
60	95.4

Question 38

What is the value of the designated benefit for missing participant Smith as of the deemed distribution date?

(A) Less than $44,500

(B) $44,500 but less than $54,500

(C) $54,500 but less than $64,500

(D) $64,500 but less than $74,500

(E) $74,500 or more

1999

Data for Question 39 (4 points)

The employer sponsors a defined benefit plan and a money purchase plan. Both plans cover the same 50 employees.

Money purchase plan provisions:

Contributions: 10% of eligible compensation.

Forfeitures: Reduce plan costs.

Defined benefit plan information:

Plan effective date: 1/1/1996.

Actuarial cost method: Entry age normal.

Valuation interest rate: 7% per year.

Intitial accrued liability	$300,000
Experience loss in 1996	50,000
Experience loss in 1997	35,000
Experience loss in 1998	50,000
Credit balance in funding standard account as of 12/31/1998	0
Normal cost for 1999 as of 1/1/1999	90,000

Eligible compensation for 1999: $1,000,000.

The money purchase plan will apply forfeitures in 1999 in the amount of $10,000.

Question 39

What is the total maximum deductible contribution to the defined benefit plan and money purchase plan for the 1999 year?

(A) Less than $245,000

(B) $245,000 but less than $250,000

(C) $250,000 but less than $255,000

(D) $255,000 but less than $260,000

(E) $260,000 or more

1999

Data for Question 40 (4 points)

Plan effective date: 1/1/1998.

Actuarial cost method: Entry age normal.

Valuation interest rate:

Before 1999: 7% per year.
After 1998: 8% per year.

Selected valuation results:

	1/1/1998 (7%)	1/1/1999 (7%)	1/1/1999 (8%)
Normal cost as of 1/1	$30,000	$34,000	$31,500
Accrued liability	297,000	320,000	295,000
Actuarial (market) value of assets	0	77,500	77,500

The contribution for the 1998 plan year was paid on 6/30/1998 in an amount equal to the deductible limit for that year.

Question 40

In what range is the minimum required contribution for 1999 payable 12/31/1999?

(A) Less than $24,000

(B) $24,000 but less than $26,000

(C) $26,000 but less than $28,000

(D) $28,000 but less than $30,000

(E) $30,000 or more

1999

Data for Question 41 (4 points)

Plan effective date: 1/1/1995.

Actuarial cost method: Frozen initial liability.

Valuation interest rate: 8% per year.

Current liability interest rate: 6% per year.

Initial unfunded accrued liability: $1,000,000.

Credit balance in the funding standard account as of 12/31/1998: $0.

Selected valuation results as of 1/1/1999:

Normal cost as of 1/1	$45,000
Actuarial (market) value of assets	750,000
Current liability as of 1/1	1,300,000
Expected increase in current liability as of 1/1	40,000
Outstanding balance of unfunded old liability	0

There were 125 employees as of 1/1/1998. 30 participants terminated employment and ceased participation in the plan on 7/1/1998. 50 additional employees were hired on 8/1/1998.

There have been no changes to the plan or actuarial assumptions since the inception of the plan.

The gateway percentage for 1999 is 62%.

Question 41

In what range is the additional funding charge for 1999 payable 12/31/1999?

(A) $0

(B) $1 but less than $70,000

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

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

(E) $80,000 or more

1999

Data for Question 42 (4 points)

Plan year: 7/1 – 6/30.

Valuation date: 6/30.

Data for all active participants:

		6/30/1998 values		6/30/1999 values	
Participant	Key Employee	Present value of accrued benefit	Profit sharing account balance	Present value of accrued benefit	Profit sharing account balance
Smith	Yes	$310,000	$375,000	$375,000	$400,000
Brown	No	200,000	100,000	235,000	180,000
Green	Yes	80,000	20,000	85,000	23,000

Data for all terminated participants:

					6/30/1998	6/30/1999
Participant	Key Employee	Termination Date	Benefit Commencement Date	Monthly annuity	Present value of accrued benefit	Present value of accrued benefit
Jones	No	6/30/1996	7/1/1996	$1,000	$120,000	$110,000

Jones was not covered by the profit sharing plan.

Smith and Green are key employees.

Question 42

In what range is the top-heavy percentage of the plan year beginning 7/1/1998?

(A) Less than 63%

(B) 63% but less than 65%

(C) 65% but less than 67%

(D) 67% but less than 69%

(E) 69% or more

1999

Data for Question 43 (4 points)

Plan effective date: 1/1/1989.

Actuarial cost method: Frozen initial liability.

Asset valuation method:

Prior to 1999: Smoothed value.
After 1998: Market value.

Valuation interest rate: 7% per year.

Initial accrued liability: $600,000.

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

Selected valuation results and funding standard account items as of 1/1/1999:

Present value of future benefits	$1,750,000
Present value of future compensation	2,000,000
Annual compensation	200,000
Actuarial (market) value of assets	800,000
Actuarial (smoothed) value of assets	755,000

Question 43

In what range is the minimum required contribution for 1999 payable 12/31/1999?

(A) Less than $91,000

(B) $91,000 but less than $93,000

(C) $93,000 but less than $95,000

(D) $95,000 but less than $97,000

(E) $97,000 or more

1999

Data for Question 44 (4 points)

Plan effective date: 1/1/1989.

Valuation interest rate: 7% per year.

1997 funded current liability percentage: 100%

1998 funded current liability percentage: 91%

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

1998 minimum required contribution as of 12/31/1998: $430,000.

Contribution for 1998: $435,000 paid on 7/14/1999.

Minimum required contribution for 1999 payable on 12/31/1999 (before reflecting the credit balance): $510,000.

Liquidity shortfall as of 3/31/1999: $109,400.

Liquidity shortfall as of 6/30/1999: $0.

The plan has always had more than 100 participants.

Contributions are made on the first and second quarterly due date for the 1999 plan year in the smallest amounts required to avoid an additional interest charge with respect to each such contribution.

Question 44

In what range is the contribution paid on 7/15/1999?

(A) Less than $90,000

(B) $90,000 but less than $95,000

(C) $95,000 but less than $100,000

(D) $100,000 but less than $105,000

(E) $105,000 or more

1999

Data for Question 45 (4 points)

Valuation interest rate: 7% per year.

Current liability interest rate: 6.5% per year.

Actuarial cost method: Unit credit.

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

Experience loss for 1998 plan year: $20,000.

Selected valuation results as of 1/1/1999:

Normal cost as of 1/1	$25,000
Actuarial accrued liability	500,000
Market value of assets	450,000
Actuarial value of assets	475,000
Current liability (including expected increase in current liability as of 1/1)	325,000
Benefits expected to be paid during plan year 1999	0

Net amortization amounts as of 1/1/1999 not including amortization of 1998 loss:

IRC section 412	$25,000
IRC section 404	40,000

Question 45

In what range is the deductible limit for 1999?

(A) Less than $34,000

(B) $34,000 but less than $44,000

(C) $44,000 but less than $54,000

(D) $54,000 but less than $64,000

(E) $64,000 or more

1999

Data for Question 46 (4 points)

Valuation date: 12/31.

Actuarial cost method: Aggregate.

Valuation interest rate: 7% per year.

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

Minimum required contribution for 1998 payable 12/31/1998: $100,000.

Funded current liability percentage as of 1/1/1998: 90%.

Funded current liability percentage as of 1/1/1999: 105%.

Contribution for 1998: $160,000 paid on 3/15/1999.

Normal cost for 1999 as of 12/31/1999: $120,000.

175% of the applicable Federal Mid-Term Rate for January, 1999: 8.19%.

Number of participants, 1/1/1999: 75.

The contribution for 1999 will be made on 9/15/2000.

Question 46

In what range is the additional interest charge due to late quarterly contributions for 1999?

(A) Less than $400

(B) $400 but less than $1,100

(C) $1,100 but less than $1,800

(D) $1,800 but less than $2,500

(E) $2,500 or more

1999

Data for Question 47 (4 points)

The only plan sponsored by Employer XYZ is a profit sharing plan with a 401(k) feature that permits salary deferrals and has a discretionary employer contribution for employees of Division A. No plan is sponsored for employees of Division B.

Profit sharing plan (with 401(k) provision) contribution formula:

> 15% of gross compensation for the highly compensated employees of Division A. 4% of gross compensation for the nonhighly compensated employees of Division A. Participants must be employed on the last day of the plan year and have worked 1,000 hours to receive an allocation.

Testing date: 12/31/1999.

Testing age: 65.

Testing compensation: Gross compensation.

Standard interest rate: 8.50%.

Present value of an annual life annuity commencing at age 65 using the standard interest rate and the standard mortality table (UP84): 7.9486

Maximum compensation under IRC section 401(a)(17): $160,000.

Consider the following information regarding the only employees of XYZ as of the valuation date:

Division		Age	Salary Deferral	Gross Compensation	Hours Worked	Date of Termination
A	HCE 1	46	$6,000	$200,000	2,080	
A	NHCE 1	41	0	15,000	2,080	
A	NHCE 2	36	3,000	50,000	2,080	
A	NHCE 3	30	200	17,000	475	8/15/1999
B	NHCE 4	32	0	30,000	2,080	

The plan is tested on a benefits basis. Permitted disparity is not imputed. Snapshot testing is not used.

Question 47

In what range is the IRC section 410(b) average benefit percentage?

(A) Less than 25%

(B) 25% but less than 35%

(C) 35% but less than 45%

(D) 45% but less than 55%

(E) 55% or more

1999

Data for Question 48 (4 points)

As of 12/31/1999, Plan A is split into Plans B and C. The sponsors of Plans B and C are members of the same controlled group of corporations.

Liability component of full funding limitation for Plan A as of 12/31/1999:

Attributable to Plan B participants	$250,000
Attributable to Plan C participants	350,000

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

Present value of accrued benefits on termination basis as of 12/31/1999:

Plan B	$150,000
Plan C	300,000

Allocation of assets reduced for credit balance as of 12/31/1999:

Plan B	$128,333
Plan C	256,667

Actuarial (market) value of assets in Plan A as of 12/31/1999: $485,000.

Question 48

In what range is the credit balance in the funding standard account for Plan B as of 1/1/2000?

(A) Less than $34,000

(B) $34,000 but less than $44,000

(C) $44,000 but less than $54,000

(D) $54,000 but less than $64,000

(E) $64,000 or more

1999

Data for Question 49 (4 points)

Plan effective date: 1/1/1990.

Actuarial cost method: Frozen initial liability.

Valuation interest rate: 7% per year.

Current liability interest rate: 6.5% per year.

Initial unfunded accrued liability: $500,000.

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

Selected valuation results as of 1/1/1999:

Normal cost as of 1/1	$37,000
Actuarial (market) value of assets	590,000
Normal cost under entry age normal cost method	30,000
Accrued liability under entry age normal cost method	750,000
Current liability as of 1/1	410,000
Expected increase in current liability as of 1/1	35,000
Expected benefit payments	0

There have been no changes in actuarial assumptions or plan amendments since the effective date of the plan.

OBRA '87 full funding credit for 1994: $45,000.

OBRA '87 full funding credit for 1998: $32,000.

Question 49

In what range is the minimum required contribution for 1999 payable 12/31/1999?

(A) Less than $79,000

(B) $79,000 but less than $84,000

(C) $84,000 but less than $89,000

(D) $89,000 but less than $94,000

(E) $94,000 or more

1999

Data for Question 50 (4 points)

Type of plan: Defined benefit plan for sole proprietor.

Plan effective date: 1/1/1998.

Valuation date: 12/31.

Normal retirement benefit: 85% of highest 5-year average of earned income while a participant.

Actuarial cost method: Individual aggregate.

Actuarial (market) value of assets as of 12/31/1999: $65,000.

Actuarial assumptions:

Valuation interest rate:	7% per year.
Compensation increases:	None.
Preretirement decrements:	None.
Retirement age:	65.

Data for sole participant Smith (owner employee):

Date of birth	1/1/1942
Date of hire	1/1/1995

1998 earned income (after all deductions including plan contributions): $85,000.

1999 earned income (after all deductions other than plan contributions): $100,000.

Selected annuity value:

$$\ddot{a}_{65}^{(12)} = 9.87$$

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

Question 50

In what range is the minimum required contribution for 1999 payable 12/31/1999?

(A) Less than $38,000

(B) $38,000 but less than $40,000

(C) $40,000 but less than $42,000

(D) $42,000 but less than $44,000

(E) $44,000 or more

1999

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ANSWER KEY

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

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