SOCIETY OF ACTUARIES

AMERICAN SOCIETY OF PENSION ACTUARIES

JOINT BOARD FOR THE ENROLLMENT OF ACTUARIES

ENROLLED ACTUARIES PENSION EXAMINATION, SEGMENT B

MAY 2001 EA-2, SEGMENT B, EXAMINATION

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Conditions Generally Applicable to All EA-2 Segment B Examination Questions

If applicable, 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 a taxable entity and 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 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.

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

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

(21) 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.

(22) 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.

(23) The full funding limitation has never applied.

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

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

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

Miscellaneous General Condition

(27) All plan provisions and funding comply with all temporary and final regulations under the Internal Revenue Code and ERISA, as amended through December 31, 2000.

(28) 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.

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

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

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

(32) References to law and regulation section numbers are for clarity and can be assumed to be correct.

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

LIMITS, TABLES AND FORMULAS

Compensation Limit IRC section 401(a)(17)	
Year	Limit
1989	200,000
1990	209,200
1991	222,220
1992	228,860
1993	235,840
1994-1996	150,000
1997-1999	160,000
2000-2001	170,000

Maximum Benefit Limit IRC section 415(b)	
Year	Limit
1983-1987	90,000
1988	94,023
1989	98,064
1990	102,582
1991	108,963
1992	112,221
1993	115,641
1994	118,800
1995-1996	120,000
1997	125,000
1998-1999	130,000
2000	135,000
2001	140,000

Highly Compensated Employee Compensation IRC section 414(q)	
Year	Limit
1997-1999	80,000
2000-2001	85,000

Nondiscriminatory Classification Test IRC section 410(b)		
Nonhighly compensated employee concentration percentage	Safe harbor percentage	Unsafe harbor percentage
0-60	50.00	40.00
61	49.25	39.25
62	48.50	38.50
63	47.75	37.75
64	47.00	37.00
65	46.25	36.25
66	45.50	35.50
67	44.75	34.75
68	44.00	34.00
69	43.25	33.25
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
76	38.00	28.00
77	37.25	27.25
78	36.50	26.50
79	35.75	25.75
80	35.00	25.00
81	34.25	24.25
82	33.50	23.50
83	32.75	22.75
84	32.00	22.00
85	31.25	21.25
86	30.50	20.50
87	29.75	20.00
88	29.00	20.00
89	28.25	20.00
90	27.50	20.00
91	26.75	20.00
92	26.00	20.00
93	25.25	20.00
94	24.50	20.00
95	23.75	20.00
96	23.00	20.00
97	22.25	20.00
98	21.50	20.00
99	20.75	20.00

LIMITS, TABLES AND FORMULAS

Permitted Disparity Tables IRC section 401(*l*)				
	Annual factor in maximum excess allowance and maximum offset allowance percent			
Age at benefit Commencement	SSRA 65	SSRA 66	SSRA 67	Simplified Table
70	1.209	1.101	1.002	1.048
69	1.096	0.998	0.908	0.950
68	0.996	0.907	0.825	0.863
67	0.905	0.824	0.750	0.784
66	0.824	0.750	0.700	0.714
65	0.750	0.700	0.650	0.650
64	0.700	0.650	0.600	0.607
63	0.650	0.600	0.550	0.563
62	0.600	0.550	0.500	0.520
61	0.550	0.500	0.475	0.477
60	0.500	0.475	0.450	0.433
59	0.475	0.450	0.425	0.412
58	0.450	0.425	0.400	0.390
57	0.425	0.400	0.375	0.368
56	0.400	0.375	0.344	0.347
55	0.375	0.344	0.316	0.325

FICA Taxable Wage Base	
Year	Limit
1992	55,500
1993	57,600
1994	60,600
1995	61,200
1996	62,700
1997	65,400
1998	68,400
1999	72,600
2000	76,200
2001	80,400

Key Employee Compensation IRC section 416		
Year	2000	2001
Officer	67,500	70,000
10 largest owners	30,000	35,000
1% owner	150,000	150,000

LIMITS, TABLES AND FORMULAS

FACTORS USED TO REDUCE MAXIMUM PBGC GUARANTEED BENEFITS FOR PAYMENTS OTHER THAN AS A SINGLE LIFE ANNUITY AT AGE 65

Commencement Age	
Age	Factor
65 & over	1.00
64	.93
63	.86
62	.79
61	.72
60	.65
59	.61
58	.57
57	.53
56	.49
55	.45
54	.43
53	.41
52	.39
51	.37
50	.35
49	.33
48	.31
47	.29
46	.27
45	.25

Form of Payment Certain & Life*	
Years	Factor
1	.995
2	.990
3	.985
4	.980
5	.975
6	.965
7	.955
8	.945
9	.935
10	.925

*Reduction decreases by 0.01 per year in excess of 10.

Form of Payment Joint & Contingent		
		with 10 yr
Percent	Factor	Certain
50%	.900	× .960
66 2/3 %	.867	× .970
75%	.850	× .975
100%	.800	× .990

Form of Payment Joint & Survivor	
Percent	Factor
50%	1.00
66 2/3 %	.93
75%	.90
100%	.80

Age Difference for J&S Beneficiary		
Difference	Younger	Older
1	.99	1.005
2	.98	1.010
3	.97	1.015
4	.96	1.020
5	.95	1.025
6	.94	1.030
7	.93	1.035
8	.92	1.040
9	.91	1.045
10	.90	1.050

LIMITS, TABLES AND FORMULAS

PBGC ADJUSTMENTS TO VESTED BENEFITS TO DETERMINE VARIABLE PREMIUM

$$VB_{adj} = VB_{Pay} \times 0.94^{(RIR-BIR)} + \left[VB_{Nonpay} \times 0.94^{(RIR-BIR)} \times ((100 + \text{BIR}) / (100 + \text{RIR}))^{(ARA-50)} \right]$$

ARA = Assumed retirememt age
RIR = Required interest rate
BIR = Current Liability interest rate
VB_{adj} = Adjusted vested benefits
VB_{pay} = Retiree vested benefits
VB_{nonpay} = All other vested benefits

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2001

Data for Question 1 (1 point)

Consider the following statement:

When the maximum benefit limitation of IRC section 415(b) is adjusted for cost of living increases, the adjusted figure is effective as of January 1st of each calendar year and applicable to limitation years beginning during that calendar year.

Question 1

Is the above statement true or false?

(A) True

(B) False

2001

Data for Question 2 (1 point)

A defined benefit plan provides a qualified pre-retirement survivor benefit.

Consider the following statement:

When a participant gets married, under the law, the plan is required to provide that the spouse immediately becomes the beneficiary for this benefit, unless the spouse consents otherwise in writing.

Question 2

Is the above statement true or false?

(A) True

(B) False

2001

Data for Question 3 (1 point)

Plan year: Calendar year

An employer offers an early retirement window to certain plan participants who retire between October 1, 2000 and March 31, 2001. The employer performs a discrimination test for the plan in both 2000 and 2001.

Consider the following statement:

Each participant's additional accrual of benefits resulting from the acceptance of this early retirement window will be recognized for the purpose of discrimination testing in the year in which the participant retires.

Question 3

Is the above statement true or false?

(A) True

(B) False

2001

Data for Question 4   (1 point)

Consider the following statement:

When determining the value of current liabilities for purposes of the pre-termination restriction on distributions under regulation 1.401(a)(4)-5(b), any reasonable and consistent method may be used.

Question 4

Is the above statement true or false?

(A) True

(B) False

2001

Data for Question 5   (1 point)

Consider the following statement:

In a plan that does not credit vesting service on elapsed time, the plan may give less than a full year vesting credit to an employee who works over 1,500 hours during a plan year.

Question 5

Is the above statement true or false?

(A) True

(B) False

2001

Data for Question 6 (1 point)

Consider the following statement:

A former employee shall be treated as a highly compensated employee if the former employee was either:

(1) a highly compensated employee when such employee separated from service; or

(2) a highly compensated employee at any time after attaining age 55.

Question 6

Is the above statement true or false?

(A) True

(B) False

2001

Data for Question 7   (1 point)

Consider the following statement:

The $10,000 limitation in IRC section 415(b)(4) is not adjusted for the commencement of payments prior to the Social Security Retirement Age.

Question 7

Is the above statement true or false?

(A) True

(B) False

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

Participant Smith terminated employment on December 31, 1997, and received a lump sum distribution on December 31, 1998. This benefit was less than the benefit otherwise computed under the plan formula due to the application of IRC section 415(e) then in effect.

Consider the following statement:

Solely due to the repeal of IRC section 415(e), additional benefits may be paid to Smith in 2000.

<u>Question 8</u>

Is the above statement true or false?

(A) True

(B) False

2001

Data for Question 9   (1 point)

Consider the following statement:

For plan years beginning after December 31, 1999, a plan must determine lump sums solely on the "applicable interest rate" and "applicable mortality table" defined in IRC section 417(e).

Question 9

Is the above statement true or false?

(A) True

(B) False

2001

Data for Question 10   (1 point)

Consider the following statement:

An excise tax of 20% on plan reversions applies if a portion of the excess assets is transferred to a qualified replacement plan and allocated no more rapidly than ratably over the 7-year period beginning with the year of transfer.

Question 10

Is the above statement true or false?

(A) True

(B) False

2001

Data for Question 11 (1 point)

Consider the following statement:

The sponsor of a defined benefit plan subject to Title IV of ERISA must notify the PBGC when a required quarterly contribution is missed.

Question 11

Is the above statement true or false?

(A) True

(B) False

2001

Data for Question 12 (1 point)

Consider the following statement regarding multiemployer withdrawal liability:

In determining the withdrawal liability for an employer in a multiemployer plan, the actuary must use the PBGC actuarial assumptions as set forth in the regulations.

Question 12

Is the above statement true or false?

(A) True

(B) False

2001

Data for Question 13   (1 point)

Consider the following statement regarding multiemployer withdrawal liability:

The de minimis rule under ERISA section 4209 does not apply to an employer who withdraws in a plan year in which substantially all employers withdraw from the plan.

Question 13

Is the above statement true or false?

(A) True

(B) False

2001

Data for Question 14 (1 point)

Consider the following statement:

A defined benefit plan may never have more than 10% of plan assets invested in qualified securities of the plan sponsor.

Question 14

Is the above statement true or false?

(A) True

(B) False

2001

Data for Question 15 (4 points)

Date of plan termination: 1/1/2001

Optional forms of payment: Lump sum for distributions less than $10,000.

Conversion to Qualified Joint and 50% Survivor Annuity (QJ&50%S): 7% reduction to life annuity.

Data for missing participant Smith:

Date of birth:	1/1/1936
Monthly benefit payable at 65 for life:	$75.00
Assumed marital status:	Single.

Lump sum factors under PBGC missing participant assumptions and plan assumptions for monthly benefit of $1.

Age at Deemed Distribution Date	PBGC Factor	Plan Factor
65	125.0	120.7

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

Age at Distribution Date	Life Annuity Factor	QJ&50%S Factor
65	116.8	126.3

Question 15

In what range is the value of the designated benefit for missing participant Smith as of the deemed distribution date?

(A) Less than $8,900

(B) $8,900 but less than $9,100

(C) $9,100 but less than $9,300

(D) $9,300 but less than $9,500

(E) $9,500 or more

2001

Data for Question 16 (2 points)

Consider the following benefit formulas:

I. $300 for each year of participation, not to exceed 25 years. Amended effective 1/1/2001 to increase the $300 to $600 for each year of participation after 1/1/2001.

II. $300 for each year of participation up to 25 years, then $400 for each year thereafter.

III. $300 for each year of participation up to 20 years, then $100 for each of the next 15 years of participation.

Question 16

Which, if any, of the above benefit formulas comply with the 133 1/3 % rule for benefit accruals?

(A) I and II only

(B) I and III only

(C) II and III only

(D) I, II, and III

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

2001

<u>Data for Question 17</u> (3 points)

Plan effective date:	1/1/1976.
Normal retirement benefit:	1% of final average compensation times years of service.
Early retirement eligibility:	Age 55 and 10 years of service.
Early retirement reduction:	5% for each year prior to age 65.

Data for participant Smith:

Date of birth:	1/1/1954
Date of hire:	1/1/1976
Date of death:	12/31/2000
Spouse's date of birth:	1/1/1964
Date of marriage:	1/1/1999
Final average compensation:	$40,500

The minimum qualified pre-retirement spouse annuity under IRC section 417 is paid beginning at the latest date allowed under the law.

The plan specifies the following factors to convert the normal form of benefit to a joint and survivor annuity:

Joint and 33 1/3% survivor	0.90
Joint and 50% survivor	0.85
Joint and 100% survivor	0.72

<u>Question 17</u>

In what range is the monthly benefit payable to Smith's spouse at the earliest commencement date allowed under the plan?

(A) Less than $150

(B) $150 but less than $250

(C) $250 but less than $350

(D) $350 but less than $450

(E) $450 or more

2001

Data for Question 18 (3 points)

Plan effective date: 1/1/1970

Plan termination date: 12/31/2000

Normal retirement benefit: 4% of 3-year final average compensation times service.

Normal form of benefit: Joint & 100% survivor annuity

Early retirement benefit: None

Data for participant Smith (not a substantial owner):

Date of birth:	1/1/1955
Date of hire:	1/1/1976
Spouse's date of birth:	1/1/1955

	Compensation
1996	$32,000
1997	34,000
1998	36,000
1999	38,000
2000	40,000

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

Question 18

In what range is Smith's PBGC guaranteed benefit payable monthly?

(A) Less than $2,200

(B) $2,200 but less than $2,500

(C) $2,500 but less than $2,800

(D) $2,800 but less than $3,100

(E) $3,100 or more

Data for Question 19 (4 points)

Normal form: Life annuity with 60 payments guaranteed (5 C&C).

Early retirement eligibility: Age 60 and 10 years of service.

Early retirement benefit: Normal retirement benefit reduced by 6% for each year by which the benefit commencement date precedes age 62.

Plan conversion factor to Joint and 50% Survivor: 0.95

Testing assumptions:

Date:	12/31/2001.
Measurement period:	Current and prior years.
Interest:	8% per year.
Pre-retirement mortality:	None.
Testing age:	65.

Data for participant Smith:

Date of birth	12/31/1940	Accrued annual benefit	$ 18,640
Date of hire	12/31/1993	Testing compensation	$130,000

Annuity factors for normalization:

Age	Life Annuity	5 C&C	Joint and 50% Survivor
60			10.4982
61			10.3475
62			10.1894
63			10.0239
64			9.8514
65	8.6468	8.8125	9.6723

Question 19

In what range is the difference between Smith’s most valuable accrual rate and normal accrual rate?

(A) Less than 0.40%

(B) 0.40% but less than 0.50%

(C) 0.50% but less than 0.60%

(D) 0.60% but less than 0.70%

(E) 0.70% or more

Data for Question 20 (2 points)

Consider the following statements regarding PBGC reportable events:

I. A reportable event occurs for a plan when any member of the controlled group commences a bankruptcy case (under the Bankruptcy Code).

II. A reportable event occurs when the number of active participants in a plan during a plan year is reduced to less than 80 percent of the number of active participants at the beginning of the plan year.

III. A reportable event occurs when an amendment to a plan is adopted that reduces the rate of future benefit accruals.

Question 20

Which, if any, of these statements are true?

(A) I and II only

(B) I and III only

(C) II and III only

(D) I, II, and III

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

2001

Data for Question 21 (4 points)

Data for all participants and beneficiaries as of 1/1/2001:

Participant	417(e) Value of Accrued Benefits	Value of Current Liabilities
HCE 1	$1,100,000	$ 900,000
HCE 2	275,000	240,000
HCE 3	80,000	60,000
HCE 4	60,000	15,000
All NHCEs	5,000,000	4,225,000
Total	$6,515,000	$5,440,000

Market (actuarial) value of plan assets as of 1/1/2001: $6,000,000.

All four highly compensated employees terminate employment on 12/31/2000.

Question 21

Which HCE or HCEs can be paid a lump sum on 1/1/2001 equal to the value of accrued benefits without violating the restrictions on distributions?

(A) HCE 1 only

(B) Either HCE 2 or HCE 3

(C) HCE 4 only

(D) Both HCE 3 and HCE 4

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

Data for Question 22 (3 points)

Plan effective date: 1/1/1990.

Plan termination date: 12/31/2001.

Benefit formula:

Effective 1/1/1990:	$15 per month times all years of service.
Effective 1/1/1999:	$20 per month times all years of service.
Effective 4/1/2001:	$25 per month times all years of service.

Vesting: 100% after 3 years of service

Data for selected participants as of 12/31/2001:

	Smith	Brown
Date of birth	1/1/1950	1/1/1950
Date of hire	1/1/1993	1/1/1998
Ownership	50%	5%

Question 22

In what range is the sum of the monthly benefits guaranteed by the PBGC for Smith and Brown as of 12/31/2001?

(A) Less than $70

(B) $70 but less than $95

(C) $95 but less than $120

(D) $120 but less than $145

(E) $145 or more

2001

Data for Question 23 (5 points)

Plan effective date:	1/1/1995.
Normal retirement benefit:	2% of highest 3-year average compensation for each year of service.
Mandatory employee contributions:	3.5% of compensation, paid on 12/31 each year.
Vesting eligibility:	Statutory 3 to 7 year graded vesting.
Lump sum actuarial equivalence:	Applicable interest rate for the second full month preceding the plan year and applicable mortality table.

Data for participant Smith:

Date of birth:	1/1/1950
Date of hire:	1/1/1996

Selected values:

Year	Compensation	120% of Jan. Federal Mid-Term Rate	November Average 30-year Treasury Rate
1996	$32,000	6.89%	6.48%
1997	34,000	7.34	6.11
1998	36,000	7.13	5.25
1999	38,000	5.59	6.15
2000	40,000	7.47	6.50 assumed

Interest Rate	Lump Sum Actuarial Equivalence at Age 65
5.25	11.30
6.11	10.56
6.15	10.52
6.48	10.26
6.50	10.25

Life annuity values are based on lump sum actuarial equivalence.

Question 23

In what range is Smith's annual vested accrued benefit as of 1/1/2001?

(A) Less than $2,350

(B) $2,350 but less than $2,650

(C) $2,650 but less than $2,950

(D) $2,950 but less than $3,250

(E) $3,250 or more

2001

Data for Question 24 (5 points)

Plans A and B are merged effective 1/1/2001. Each plan covers only 2 employees.

Plan A employee data as of 1/1/2001:

Priority category of sec. 4044 of ERISA	Annual Accrued Benefits		Present Value of Accrued Benefits	
	Smith	Brown	Smith	Brown
3	$20,000		$200,000	
4	5,000	$8,000	50,000	$64,000
5		6,000		48,000

Plan A actuarial (market) value of plan assets as of 1/1/2001: $320,000.

Plan B employee data as of 1/1/2001:

Priority category of Section 4044 of ERISA	Annual Accrued Benefits		Present Value of Accrued Benefits	
	Green	Jones	Green	Jones
3	$30,000		$270,000	
4		$10,000		$70,000
5		12,000		84,000

Plan B actuarial (market) value of plan assets as of 1/1/2001: $400,000.

Question 24

In what range is the additional annual benefit included in the special schedule of benefits for Jones as required by regulation 1.414(*l*)?

(A) Less than $8,000

(B) $8,000 but less than $11,000

(C) $11,000 but less than $14,000

(D) $14,000 but less than $17,000

(E) $17,000 or more

2001

Data for Question 25 (5 points)

Plan A 2001 plan year data:

	Plan A Benefiting Employees	Controlled Group Non-excludable Employees
HCEs	20	200
NHCEs	40	1,800

Data for the four employees with normal accrual rates of 1.80% or greater:

	Normal Accrual Rate	Most Valuable Accrual Rate
HCE	2.00%	4.00%
NHCE1	1.95%	4.00%
NHCE2	2.00%	3.50%
NHCE3	1.80%	3.50%

The rate groups for all other HCEs comply with a general nondiscrimination test on the basis of the ratio percentage test.

The employees benefiting under Plan A can be shown to fall within a qualified separate line of business (QSLOB) separate from all other employees in the controlled group.

The average benefit percentage test yields a result of 80%.

Consider the following methodologies that could be used in the application of the general nondiscrimination test:

I. Grouping of accrual rates around a central rate.

II. Demonstration that Plan A employees are in a QSLOB.

III. Use of an average benefit percentage test.

Question 25

Which of the above methodologies will demonstrate that Plan A satisfies the general nondiscrimination test?

(A) None

(B) I and II combined

(C) I and III combined

(D) II and III combined

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

Data for Question 26 (5 points)

Type of plan: Multiemployer

History of contribution base units for Employer A:

1988	350,000
1989	265,000
1990	280,000
1991	180,000
1992	275,000
1993	170,000
1994	150,000
1995	80,000
1996	70,000
1997	60,000
1998	80,000
1999	90,000
2000	70,000
2001	45,000

Question 26

In what range is the fraction used to prorate the liability Employer A would have incurred upon a complete withdrawal in 2001?

(A) Less than 40%

(B) 40% but less than 50%

(C) 50% but less than 60%

(D) 60% but less than 70%

(E) 70% or more

2001

Data for Question 27 (5 points)

Plan effective date: 1/1/1991

Plan termination date: 1/1/2001

Date of provisions (adopted and effective)	1/1/1991	1/1/1996	1/1/1999
Early retirement eligibility age	55	55	55
Early retirement eligibility service	15	10	10
Early retirement reduction per year prior to normal retirement age 65	5%	5%	3%
Accrued benefit per year of service	$24	$28	$38

Data for active non-owner participant Smith:

Date of birth	1/1/1941
Date of hire	1/1/1987

Smith's expected retirement age pursuant to PBGC regulations: 62.

Selected annuity values:

$${}_{2|}\ddot{a}_{60}^{(12)} = 8.52$$
$${}_{5|}\ddot{a}_{60}^{(12)} = 6.07$$

Question 27

In what range is the PBGC category 4 liability for participant Smith as of 1/1/2001?

(A) Less than $10,000

(B) $10,000 but less than $20,000

(C) $20,000 but less than $30,000

(D) $30,000 but less than $40,000

(E) $40,000 or more

2001

Data for Question 28 (2 points)

Asset value on 12/31/2000 for the purpose of providing health benefits: $0.

Health benefits paid for retirees of the plan and their spouses in the year 2001:

Retirees	$575,000
Spouses	475,000

Selected pension valuation results as of 1/1/2001:

Accrued liability plus normal cost	$27,200,000
Actuarial (market) value of assets	28,150,000
Current liability	22,000,000

Question 28

In what range is the maximum amount the plan sponsor could transfer to the IRC section 401(h) account for 2001?

(A) Less than $400,000

(B) $400,000 but less than $600,000

(C) $600,000 but less than $800,000

(D) $800,000 but less than $1,000,000

(E) $1,000,000 or more

2001

Data for Question 29 (4 points)

Normal retirement benefit:	1.5% of final 3-year average compensation for each year of service.
Normal form of benefit:	Life annuity with 120 months guaranteed (10 C&C).
Early retirement eligibility:	Age 55.
Early retirement benefit:	Normal retirement benefit reduced by 3% for each year by which the benefit commencement date precedes age 65.

Plan conversion factor to a Qualified Joint and 50% Survivor Annuity (QJ&50%S):   0.97

Selected annuity factors using normalization assumptions of 7.5% and a standard mortality table:

	Age 55	Age 65
Life annuity	11.30	9.50
10 C&C	11.40	9.95
QJ&50%S	11.95	10.40

Testing assumptions:

Date:	12/31/2001.
Measurement period:	Current and prior years.
Interest:	7.5% per year.
Pre-retirement mortality	None
Testing age:	65.

Data for participant Smith:

Date of birth:	12/31/1946

Question 29

What are Smith's normal accrual rate and most valuable accrual rate respectively, each rounded to the nearest 0.05%?

(A) 1.50% and 2.60%

(B) 1.50% and 2.65%

(C) 1.55% and 2.60%

(D) 1.55% and 2.65%

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

<u>Data for Question 30</u> (3 points)

Benefit formula: [1.30% times average annual compensation, less 0.65% times average annual compensation up to covered compensation], multiplied by the lesser of years of service or 35.

There are no social security supplemental benefits.

Data for plan participant Smith:

Date of birth	12/31/1939
Date of hire	12/31/1981
Date of retirement	12/31/2001
Average annual compensation	$74,000
Covered compensation	$45,000

The plan complies with the safe harbor rules under IRC section 401(*l*).

<u>Question 30</u>

In what range is the largest early retirement benefit that can be paid to Smith at age 62?

(A) Less than $12,250

(B) $12,250 but less than $12,650

(C) $12,650 but less than $13,050

(D) $13,050 but less than $13,450

(E) $13,450 or more

2001

Data for Question 31 (3 points)

Testing assumptions:

Date	12/31/2000.
Measurement period	Current and prior years.
Testing age	65.
Permitted disparity	Imputed.

Data for participant Smith:

Date of birth	12/31/1939
Date of hire	12/31/1960
Average annual compensation	$100,000
Covered compensation	45,000
Annual accrued benefit	57,600

Question 31

In what range is the greatest permissible value for the normal accrual rate, after imputing disparity?

(A) Less than 1.70%

(B) 1.70% but less than 1.73%

(C) 1.73% but less than 1.76%

(D) 1.76% but less than 1.79%

(E) 1.79% or more

Data for Question 32 (3 points)

Data for sponsor of two defined benefit plans:

	Highly Compensated Employees	Non-Highly Compensated Employees	Employee Benefit Accrual Rate
Total employees	600	6,000	
Excludable employees	100	1,500	
Non-excludable employees benefiting under Plan A	150	1,500	2.00%
Non-excludable employees benefiting under Plan B	250		1.75%

Each plan satisfies the reasonable classification test.

The two plans have no employers in common.

Question 32

In what range is the minimum number of non-highly compensated employees who must benefit under Plan B in order to meet minimum coverage requirements under IRC section 410(b) and the regulations thereunder?

(A) Less than 800

(B) 800 but less than 1,000

(C) 1,000 but less than 1,200

(D) 1,200 but less than 1,400

(E) 1,400 or more

Data for Question 33 (4 points)

Plan year for which the PBGC premium payment is due: 2001.

Participant count as of 1/1/2001: 750.

Valuation interest rate: 8.0% per year.

PBGC required interest rate as of 1/1/2001: 4.67%

The following values of adjusted vested benefits have been determined as of 1/1/2000 using the Alternative Calculation Method formula:

Retirees/beneficiaries receiving payments	$ 750,000
Terminated participant	250,000
Participants not receiving payments	5,000,000

Value of plan assets, (including 1999 receivable contribution), as of 12/31/1999: $5,250,000.

Value of plan assets, (including 2000 receivable contribution), as of 12/31/2000: $5,800,000.

Contribution for 1999 plan year paid 7/1/2000: $250,000.

Contribution for 2000 plan year paid 7/1/2001: $250,000.

Contribution for 2001 plan year paid 7/1/2001: $250,000.

Question 33

In what range is the total 2001 PBGC premium?

(A) Less than $18,900

(B) $18,900 but less than $19,100

(C) $19,100 but less than $19,300

(D) $19,300 but less than $19,500

(E) $19,500 or more

<u>Data for Question 34</u> (3 points)

Eligibility: One year of service.

Employee data as of 12/31/2000:

Employee	Age on 12/31/2000	Date of hire	Hours worked in 2000	Scheduled hours per week	Months worked in normal work year
Smith	20	01/01/1999	2080	40	12
Brown	21	02/01/2000	800	20	9
Green	22	01/01/1999	800	16	12
Jones	23	08/01/2000	1000	40	12
Black	24	01/01/1999	1000	40	5

<u>Question 34</u>

Which employees, if any, could be excluded in determining the number of employees in the top-paid group during 2000 for the purpose of determining highly compensated employees for 2001?

(A) All but Black

(B) All but Jones

(C) All but Green

(D) All but Brown

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

2001

Data for Question 35 (5 points)

Plan effective date: 1/1/1993.

Normal retirement age: Age 61.

Benefit formula: 14% of final 5-year average compensation for each year of participation up to 25 years.

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Late retirement benefit: Greater of accrued benefit or actuarially increased normal retirement benefit.

Pre-retirement death benefit: Present value of accrued benefit.

Actuarial equivalence:

Pre-retirement interest:	6% per year.
Pre-retirement mortality:	None.
Post-retirement mortality:	1983 Individual Annuity Mortality (IAM) (male)

Applicable interest rate for the 2001 plan year is assumed to be 6.5%.

Data for sole participant Smith:

			Annual Compensation
Date of birth:	1/1/1940	1990 through 1997	$50,000
Date of hire:	1/1/1990	1998	70,000
Date of retirement:	1/1/2001	1999	80,000
		2000	90,000

Selected annuity values:

	$\ddot{a}_{61}^{(12)}$	$\ddot{a}_{62}^{(12)}$
6.5% applicable mortality	11.185	10.961
6.0% 1983 IAM (male)	11.552	11.319
5.0% applicable mortality	12.750	12.456

Question 35

In what range is the lump sum benefit payable to Smith as of 1/1/2001?

(A) Less than $847,000

(B) $847,000 but less than $856,000

(C) $856,000 but less than $865,000

(D) $865,000 but less than $874,000

(E) $874,000 or more

2001

Data for Question 36 (3 points)

The employer sponsors two defined benefit plans, Plan A and Plan B.

Plan A:
- Valuation date: February 1st
- Plan year ends: January 31st

Plan B:
- Valuation date: November 30th
- Plan year ends: November 30th

The plans are a required aggregation group for top-heavy determination.

Present value of accrued benefits:

	Plan A as of 2/1/1999	Plan A as of 2/1/2000	Plan A as of 2/1/2001	Plan B As of 11/30/2000	Plan B as of 11/30/2001
Key employees	$200,000	$250,000	$275,000	$225,000	$275,000
Non-key employees	160,000	180,000	190,000	125,000	150,000

Question 36

In what range is the top-heavy percentage of Plan B for the plan year ending November 30, 2001?

(A) Less than 59%

(B) 59% but less than 60%

(C) 60% but less than 61%

(D) 61% but less than 62%

(E) 62% or more

2001

Data for Question 37 (3 points)

Plan effective date: 1/1/1989.

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

Plan amendment 1/1/2000: Repeal of IRC section 415(e) limitation. Post-retirement cost of living increases consistent with increases in the IRC Section 415(b) limit are provided.

Actuarial equivalence: Interest rate: Applicable rate.
Mortality: Applicable table.

Assumed applicable interest rate for the month of December 2000: 6.5%.

Data for participant Smith:

Date of birth	1/1/1934
Date of hire	1/1/1990
Retirement date	1/1/1999
Final 3-year average compensation as of 1/1/99	$160,000
Defined benefit fraction as of 1/1/99	0.90

Selected annuity factors:

	5% Applicable Mortality	6.5% Applicable Mortality
$\ddot{a}_{65}^{(12)}$	11.53	10.25
$\ddot{a}_{66}^{(12)}$	11.22	10.00
$\ddot{a}_{67}^{(12)}$	10.89	9.74

Question 37

In what range is the sum of all of Smith's benefit payments through 12/31/2001?

(A) Less than $355,000

(B) $355,000 but less than $365,000

(C) $365,000 but less than $375,000

(D) $375,000 but less than $385,000

(E) $385,000 or more

2001

<u>Data for Question 38</u> (3 points)

Early retirement age: Age 60.

Early retirement benefit: Normal retirement benefit reduced by 8% for each year by which the benefit commencement date precedes the normal retirement date.

Surviving spouse benefit: Qualified Joint and 50% Survivor Annuity (QJ&50%S)

Actuarial equivalence:

Interest:	5.0% per year.
Pre-retirement mortality:	None.
Post-retirement mortality:	Applicable table.

Assumed applicable interest rate: 6.5% per year.

Data for participant Smith:

Date of birth	1/1/1941
Spouse's date of birth	1/1/1941
Date of hire	1/1/1991
Date of death	1/1/2001
Annual accrued retirement benefit as of 1/1/2001 payable at 65	$50,000

Selected annuity factors:

Age	Form of Benefit	Plan Rate	417(e) Rate
60	Life	13.04	11.40
65	Life	11.53	10.45
60:60	QJ&50%S	14.03	12.17
65:65	QJ&50%S	12.60	11.11

Smith's surviving spouse elects to receive benefits commencing on 1/1/2001.

<u>Question 38</u>

In what range is the annual benefit paid to Smith's surviving spouse?

(A) Less than $14,000

(B) $14,000 but less than $15,000

(C) $15,000 but less than $16,000

(D) $16,000 but less than $17,000

(E) $17,000 or more

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MAY 2001 EA-2, SEGMENT B

ANSWER KEY

1. B
2. B
3. B
4. A
5. B

6. A
7. A
8. B
9. B
10. B

11. B
12. B
13. A
14. B
15. C

16. D
17. B
18. B
19. B
20. A

21. B
22. D
23. D
24. A
25. B

26. D
27. C
28. C
29. D
30. C

31. B
32. B
33. C
34. D
35. D

36. B
37. B
38. A