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2008 EA-2B EXAM SOLUTIONS

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2008 EA-2B Exam Solutions

These solutions were prepared based on the law as in effect at December 31, 2007.

These solutions have been compared with those produced by other technical actuaries, and they represent my best understanding of the correct way to solve these problems. As usual, it seems easy to get an answer in the correct range as long as you are not actually taking the exam!

Revision History:

June 11, 2019	Corrected solution for problem 22
February 25, 2019	Corrected solution for problem 6
February 16, 2016	Corrected solution for problems 37 and 40
February 26, 2015	Corrected solution for problem 20
May 3, 2011	Changed note at end of solution for problem 33
April 26, 2011	Corrected solution for problem 42
April 23, 2011	Corrected solution for problem 14
April 27, 2010	Corrected solutions for problems 6 and 21
April 3, 2010	Corrected solutions for problems 4, 19, 20 and 30
April 25, 2009	Added note to end of solution for problem 33
March 4, 2009	Corrected solutions for problems 4, 17, 23, 25, 26, 36, 38 and 40
March 1, 2009	Original solutions

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Problem 1

FALSE

The minimum aggregate allocation gateway consists of two different rules. The plan only has to satisfy one of the two rules.

If the HCE rate is above 25%, but less than or equal to 30%, then the minimum allocation rate for the NHCEs is 6%. For each higher range of 5 percentage points for the HCE rate, the NHCE minimum allocation rate is 1/5 of the top end of the range.

A second alternative rule is that each NHCE has an allocation rate of 7.5% or more. This calculation must use a 415(c) definition of compensation, which is essentially total compensation. Total compensation is used so the dollar allocation based on the 7.5% rate is as large as possible.

The question is false because it refers to a 414(s) compensation definition.

Answer is B

Problem 2

TRUE

In 411(b)(1), there are three different benefit accrual rules. Each defined benefit plan must satisfy at least one of these rules:

- (A) Three percent rule
- (B) 133 1/3% rule
- (C) Fractional rule

The 133 1/3% rule for benefit accruals requires that the rate of benefit accrual for any later plan year is not more than 133 1/3% of the rate for an earlier plan year. Since the ratio of 4.5% to 3.5% is less than 4/3, this plan design does satisfy 411(b).

Answer is A

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Problem 3

FALSE

This is the first question asked on the Qualified Optional Survivor Annuity (QOSA), which was added by PPA 2006 to IRC 417(g). Under 417(g), if the QJSA percentage is less than 75%, the plan needs to add a 75% QOSA starting in 2008. If the QJSA percentage is 75% or more, the plan needs to add a 50% QOSA starting in 2008.

This plan does not need to add a 75% QOSA, since it currently satisfies the requirements of 417(g).

Answer is B

Problem 4

Similar to 2006 #22

Revised 04/03/10

In IRC Section 411(a)(4), certain periods can be disregarded in determining vesting service. IRC Section 411(a)(4)(C) allows you to ignore years of service when the employer did not maintain the plan, or a predecessor plan.

The key point of the problem is that Plan A is not a predecessor plan. The plan was frozen, but it has not been terminated.

You can exclude the period of time that the employee was covered under Plan A.

Answer is B

NOTE:

The definition of a predecessor plan is in the 1.411(a) regulation, which is NOT on the EA-2B reading list:

“1.411(a)-5(b)(3)(v)(B) Definition of predecessor plan. --For purposes of this section, if --

(1) An employer establishes a retirement plan (within the meaning of section 7476(d)) qualified under subchapter D of chapter 1 of the Code within the 5-year period immediately preceding or following the date another such plan terminates, and

(2) The other plan is terminated during a plan year to which this section applies, the terminated plan is a predecessor plan with respect to such other plan.”

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Problem 5

TRUE

This is basically a direct quote from IRC 411(c)(2)(B).

Answer is A

Problem 6

Revised 02/25/19

FALSE

There are numerous options described in the 1.411(b)-2 regulation regarding benefit commencement after NRA. The most commonly used options are:

- Commence benefit at NRA, with no post-NRA benefit accruals (no suspension of benefits notice is required)
- Continued accrual of benefits after NRA, and provide suspension of benefits notice
- Actuarial increase of the normal retirement benefit (no suspension of benefits notice is required)
- Give greater of Continued accrual of benefits after NRA and an actuarial increase of the normal retirement benefit (no suspension of benefits notice is required)

What is described in the question is the first option listed above. As noted in the regulation, this is not the only allowable definition of the actuarial increase.

The statement is false because the benefit does not have to “be reduced by the actuarial equivalent of prior distributions”. The plan can provide a more generous benefit when the participant eventually retires.

Answer is B

NOTES

- In Q&A-9 of the 1.401(a)(9)-6 regulation, it states that any required actuarial increase due to benefit commencement after NRA is generally the same as (not in addition to), the actuarial increase required for the same period under IRC section 411.
- Unlike the actuarial increase required under IRC section 411, the actuarial increase required under IRC section 401(a)(9)(C)(iii) must be provided for any period during which an employee's benefit has been suspended in accordance with ERISA section 203(a)(3)(B).

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Problem 7

FALSE

The plan is eligible for the cap if there are 25 employees or less on the first day of the plan year. The variable rate premium cap is calculated based on the number of plan participants, and it is equal to $\$5 \times (\text{participant count})^2$.

Answer is B

Problem 8

TRUE

Here is the description from the PBGC premium package:

"Late Payment Penalty Charges

The late payment penalty charge is established by us, subject to ERISA's restriction that the penalty not exceed 100 percent of the unpaid premium amount. Subject to this cap, the penalty is a percentage of the unpaid amount for each month (or portion of a month) it remains unpaid with a minimum penalty of \$25."

Answer is A

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Problem 9

TRUE

This is virtually a direct quote from ERISA Section 4042:

"ERISA Section 4042. (a) The corporation may institute proceedings under this section to terminate a plan whenever it determines that--

...

(4) the possible long-run loss of the corporation with respect to the plan may reasonably be expected to increase unreasonably if the plan is not terminated."

Answer is A

Problem 10

TRUE

The Notice of Plan Benefits is mentioned in ERISA Section 4041(b)(2)(B). It is described in great detail in the PBGC regulations at 4041.24(a)

Answer is A

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Problem 11

TRUE

In general, calculations of age adjustments for guaranteed benefits use the later of the age at benefit commencement date, or the age at plan termination date. Here is a quote from the PBGC regulations

"4022.23(c) *Annuitant's age factor*.

If a participant or the beneficiary of a deceased participant is entitled to and chooses to receive his benefit at an age younger than 65, the monthly amount computed under § 4022.22 shall be reduced by the following amounts for each month up to the number of whole months below age 65 that corresponds to the later of the participant's age at the termination date or his age at the time he begins to receive the benefit."

Answer is A

Problem 12

TRUE

After determining the employer's share of the UVB, the de minimis amount must be calculated. Then a deductible is calculated based on the amount of the de minimis and the employer's share of the plan's unfunded vested benefits liability (UVB). The final withdrawal liability is calculated as the employer's share less the deductible.

The mandatory de minimis is the lesser of 50,000 or 3/4% of the plan's total UVB. The deductible is the de minimis amount reduced by the excess of the allocated UVB over 100,000.

Assume the plan has a large amount of UVB, so the de minimis amount would be 50,000. If the employer share is 50,000 or less, then the deductible amount is also 50,000. The employer withdrawal liability would be zero.

Answer is A

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Problem 13

TRUE

This is virtually a direct quote from IRC 4980(d)(2)(A).

Answer is A

Problem 14

Revised 04/23/11

FALSE

§4980(a) of the Internal Revenue Code states that the excise tax upon reversion is 20%.

§4980(d) states that the excise tax increases to 50% unless either

- The employer establishes (or maintains) a “qualified replacement plan”, or
- The employer grants certain benefit increases prior to plan termination.

The general definition of a qualified replacement plan includes 95% participation by continuing employees from the terminating plan, plus an asset transfer of at least 25% of the excess assets. You can reduce the 25% asset transfer by the value of benefit improvements made in the 60 days ending on the date of plan termination.

The amount of the taxable reversion to the employer will be reduced by the asset transfer to the qualified replacement plan. You are given the reversion after the plan amendment as 500,000. Prior to the plan amendment, the initial reversion is $550,000 = 500,000 + 50,000$.

$$\begin{aligned} 25\% \text{ asset transfer} &= 25\%(550,000) \\ &= 137,500 \end{aligned}$$

The asset transfer of 100,000 is less than 25% of the reversion. But you can take credit for the 50,000 in benefit increases:

$$\begin{aligned} \text{Required transfer} &= 137,500 \text{ asset transfer} - 50,000 \text{ benefit increases} \\ &= 87,500 \end{aligned}$$

The asset transfer of 100,000 exceeds the required transfer of 87,500. As a result, the excise tax will be 20% of the final reversion of 400,000.

Answer is B

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Problem 15

Similar to 2004 #41

FALSE

Not choosing the safest annuity goes against the basic concept of fiduciary responsibility. But there does seem to be allowance for a choice between annuities that have nearly the same level of safety, but a large difference in cost.

In section (d) of DOL Interpretive Bulletin 95-1, it states:

"The Department recognizes that there are situations where it may be in the interest of the participants and beneficiaries to purchase other than the safest available annuity. Such situations may occur where the safest available annuity is only marginally safer, but disproportionately more expensive than competing annuities, and the participants and beneficiaries are likely to bear a significant portion of that increased cost."

Answer is B

Problem 16

TRUE

Jones satisfies the definition of "disqualified person" under IRC 4975(e)(2):

"(2) Disqualified person

For purposes of this section, the term "disqualified person" means a person who is--

(A) a fiduciary;

(B) a person providing services to the plan;"

In general, any loan between the plan and a disqualified person is a prohibited transaction under 4975(C)(1)(B).

Answer is A

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Problem 17

Similar to 2006 #17

Revised 03/04/09

There is a reportable event when the active participant count is less than 80% of the prior year's active count, or less than 75% of the active count two years ago.

Let X represent the participant count at 12/31/07. If X satisfies either of these equations, then there is a reportable event:

$$\begin{array}{lll} 80\%(2,950) > X & \rightarrow & X < 2,360 \\ 75\%(3,050) > X & \rightarrow & X < 2,288 \end{array}$$

To avoid having a reportable event, X must be at least 2,360.

Answer is D

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Problem 18

Similar to 2007 #28

This is a multiemployer PBGC guaranteed benefits question. In general, benefit increases within the 60 months preceding the date of plan termination (DOPT) are not guaranteed. This problem does not state the DOPT, but you are only given one set of plan provisions.

In PBGC Technical Update 00-7, it states that the guarantee for multiemployer plans is \$11 per month of benefit accrual plus 75% of the next \$33 per month of benefit accrual.

Smith is age 50 at 01/01/2008, with 20 years of benefit accrual service.

Accrued benefit

$$12,250 = 20(1.75\%)(35,000)$$

Average monthly rate of benefit accrual:

$$51.04 = (12,250 / 20) / 12$$

Since this benefit accrual rate exceeds \$44 per month, the guaranteed benefit is capped.

Guaranteed benefit accrual rate:

$$11.00 + 75\%(33) = 35.75 \text{ month}$$

Guaranteed benefit:

$$715.00 = 20(35.75)$$

Answer is C

NOTE

2002 exam problem #26 was a bit trickier than this one. It gave you three sets of prior plan provisions with dollar per month formulas.

The key point of that problem was how you interpret the guarantee based on the varying rates of benefit accrual over time. At ERISA Section 4022A(c)(2), it defines the accrual rate as the participant's monthly accrued benefit divided by benefit accrual service. 2002 #26 was the only time this concept has been tested on the enrollment exams.

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Problem 19 - Page 1

Similar to 2006 #30

This problem asks for the aggregate most valuable accrual rate (MVAR). First you should calculate the MVAR for the defined benefit plan. Then you determine the normal accrual rate (NAR) for the DC plan, cross tested on a benefits basis. The aggregate MVAR is the sum of the DB plan MVAR and the DC plan NAR.

DB PLAN

Based on the measurement period, the method to calculate accrual rates is the "Annual method". You should use the given increase in the accrued benefit for 2008. You must determine the most valuable form of payment at each benefit commencement age up to testing age (65). The Qualified J&S form is always the most valuable form of benefit payment (as defined in the 1.401(a)(4) regulation).

You calculate the most valuable accrual rate (MVAR) by dividing the greatest normalized change in the accrued benefit by (testing service)*(average annual compensation). In this problem, you should use the "testing compensation" given.

Smith is age 60 at 12/31/2008, and is not eligible for early retirement until age 62. To calculate the most valuable accrual rate, you need to allow for payment at ages 62 to 65, converted to a QJ&S form. The normalized benefit reflects a life annuity payment form at testing age 65:

Δ							
Accrued		Early ret		100% J&S		Normalized	
<u>Age</u>	<u>Benefit</u>	<u>ERF</u>	<u>J&S</u>	<u>J&S benefit</u>	<u>Annuity</u>	<u>Interest</u>	<u>Δ Benefit</u>
	(1)	(2)	(3)	(4)=(1)(2)(3)	(5)	(6)	(4)(5)(6) / 8.38
62	5,000	.88	.90	3,960	10.60	$(1.085)^3$	6,398
63	5,000	.94	.90	4,230	10.48	$(1.085)^2$	6,228
64	5,000	.98	.90	4,410	10.35	$(1.085)^1$	5,910
65	5,000	1.00	.90	4,500	10.22	1.00	5,488

In most problems of this type, the most valuable benefit is at the earliest retirement age. The wrinkle here is the unusual pattern of early retirement factors. If the early retirement factor was linear (e.g. X% per year prior to age 65), then you would not need to do any calculations after age 62.

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Problem 19 - Page 2

Revised 04/03/10

Now use the greatest normalized benefit, and divide by both testing service and testing compensation to determine the accrual rate:

$$\begin{aligned}\text{MVAR} &= \frac{6,398}{(1) \cdot (50,000)} \\ &= 12.80\%\end{aligned}$$

DC PLAN

The problem states that the DB and DC plans are aggregated for nondiscrimination testing. In addition, the plans are tested on a benefits basis.

You need to convert the Profit sharing plan allocation to an equivalent annual benefit. One minor trick to the problem is that you do not include the 401(k) deferral. Those would be tested for nondiscrimination using the ADP / ACP test.

Age 60 alloc	4,000
Accum to 65	$6,015 = 4,000(1.085)^5$
Annual benefit	$718 = 6,015/8.38$
NAR	$1.44\% = 718 / 50,000$

The aggregate MVAR is the sum of the DB plan MVAR and the DC plan NAR:

$$\text{AGG MVAR } 14.24\% = 1.44\% \text{ NAR} + 12.80\% \text{ MVAR}$$

Answer is D

NOTE

You should think about the cross-testing gateways, and whether any additional assumptions need to be made for Smith. You don't really have enough information in this problem to do anything. For example, you need detailed information on the HCEs to determine the cross-testing gateway for the aggregated DB/DC plan.

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Problem 20

Similar to 2006 #30

Revised 02/26/15

Based on the measurement period, the method to calculate accrual rates is the "Annual method". You should use the given increase in the accrued benefit for 2008. You must determine the most valuable form of payment at each benefit commencement age up to testing age (65). The Qualified J&S form is always the most valuable form of benefit payment (as defined in the 1.401(a)(4) regulation).

You calculate the most valuable accrual rate (MVAR) by dividing the greatest normalized change in the accrued benefit by (testing service)*(average annual compensation). In this problem, you should use the "testing compensation" given.

Smith is age 63 at 12/31/2008, and is eligible for the early retirement window during 2008. To calculate the most valuable accrual rate, you need to allow for early retirement from ages 63 to 65, converted to a QJ&S form. The normalized benefit reflects a life annuity payment form at testing age 65:

Δ							
Accrued		Early ret		50% J&S		Normalized	
Age	Benefit	ERF	J&S	J&S benefit	Annuity	Interest	Δ Benefit
	(1)	(2)	(3)	(4)=(1)(2)(3)	(5)	(6)	(4)(5)(6) / 8.38
63	625	.94	.98	575.75	9.44	(1.085) ²	764
64	625	1.00	.98	612.50	9.27	(1.085) ¹	735
65	625	1.00	.98	612.50	9.09	1.00	664

The only effect of the retirement window is that there is no reduction in the benefit payable at ages 64 and above. The benefit shown for age 64 assumes the participant retires during the window period (at age 63), but defers receipt of their benefit until age 64.

Now use the greatest normalized benefit, and divide by both testing service and testing compensation to determine the accrual rate:

$$\begin{aligned}\text{MVAR} &= \frac{764}{(1)*(50,000)} \\ &= 1.527\%\end{aligned}$$

Answer is C

NOTE

This result is surprising to me. You get exactly the same numerical answer if you completely ignore the early retirement window.

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Problem 21 - Page 1

Similar to 2007 #18

Revised 04/27/10

At first glance, it looks like you can NOT do the actual calculation of the average benefit percentage test (ABPT) result. The reason is that you are only given data for "selected employees." If this question is not about the calculation of the ABPT result, then it is not clear what else they want here. Apparently you ARE supposed to calculate the ABPT for these "selected employees."

Another potential area of confusion is the DB / DC cross testing gateway rules. You are not told that the plans are permissively aggregated for testing under 401(a)(4). The problem states that the testing method is "benefits basis".

This problem asks about the ABPT result, which requires you to aggregate the DB and DC plans. Since you have no choice about aggregating the plans for the ABPT, you do not have to satisfy the DB/DC gateways. See the note at the end of the solution for more about the DB/DC gateways.

You need to cross test the DC plan on a benefits basis and determine the equivalent accrual rate. When you add the DB plan accrual rate, you have the aggregate accrual rate for the ABPT.

The problem states that the 401(k) plan uses ADP testing. The 401(k) deferrals would be disaggregated for testing under 401(a)(4). For purposes of the ABPT, the 410(b) regulation requires that you ignore the mandatory disaggregation rule. You include the 401(k) deferrals with the profit sharing allocation to calculate the ABPT result.

This problem does not define the testing age. The 401(k) plan and the DB plan have different normal retirement ages. This means that there is no uniform normal retirement age, so the testing age is 65 by default. This is the first exam question that touched on the relationship between uniform normal retirement age and the testing age.

	NHCE1	HCE1	HCE2
12/31/2008 age	25	55	65
Profit sharing allocation	X	35,000	35,000
401(k) deferral	1,000	5,000	5,000
Lump sum value at testing age 65	$(X+1,000)(1.085)^{40}$ $= 26.133(X+1,000)$	$40,000(1.085)^{10}$ $= 90,439$	$40,000(1.085)^0$ $= 40,000$
Equivalent benefit accrual at testing age 65	$26.133(X+1,000)/9.03$ $= 2.894(X+1,000)$	$90,439/9.03$ $= 10,015$	$40,000/9.03$ $= 4,430$
DB Annual accrual	600	12,000	12,000
Total Annual accrual at testing age 65	$600 +$ $2.894(X+1,000)$	22,015	16,430

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Problem 21 - Page 2

Revised 04/27/10

	NHCE1	HCE1	HCE2
Total Annual accrual	$600 + 2.894(X+1,000)$	22,015	16,430
Pay limited by 401(a)(17)	50,000	100,000	100,000
Aggregate equivalent accrual rate	$(2.894X+3,494)/50,000$	$22,015 / 100,000$ $= 22.02\%$	$16,430 / 100,000$ $= 16.43\%$

The average benefit percentage test result is the ratio of the average benefit percentage for the NHCEs divided by the average benefit percentage for the HCEs:

$$70.0\% = \frac{[(2.894X+3,494) / 50,000] / 1}{[(22.02\% + 16.43\%) / 2]}$$

$$70.0\%(19.22\%) = (2.894X+3,494) / 50,000$$

$$13.46\%(50,000) = 2.894X+3,494$$

$$1,117 = X$$

Answer is B

NOTES

At first glance, it appears this problem involves the DB / DC cross testing gateway rules. But that is not correct. My understanding is that you are not subject to the cross testing gateway rules, since the only reason you are cross testing is due to the requirement to do so for the ABPT calculation.

Assume you don't believe what I said - that the ABPT calculations allow you to ignore the cross-testing gateways. You actually can't do anything with the cross-testing gateway rules, since the problem did not tell you how the plans are tested under 401(a)(4):

- You don't know if the plans are aggregated for 401(a)(4) testing
- You don't know which gateway (DC only or DB/DC) would be required
- You don't know if the DC plan is tested on a benefits basis for 401(a)(4)

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Problem 22 - Page 1

This problem gives you information about two plans. Plan A covers salaried employees, and has an eligibility requirement of age 21 and 1 year of service. Plan B covers hourly employees, and has an eligibility requirement of age 18 and 6 months of service.

This problem tests your ability to calculate the Ratio Percentage test for two plans with differing eligibility requirements. The ratio percentage is defined under the regulations at §1.410(b)-9 as the percentage of non-highly compensated employees (NHCEs) who benefit under the plan divided by the percentage of highly compensated employees (HCEs) who benefit under the plan:

$$\text{Ratio \% test: } \frac{\left(\frac{\text{Non HCEs who benefit}}{\text{Total Non-excludable non HCEs}} \right)}{\left(\frac{\text{HCEs who benefit}}{\text{Total Non-excludable HCEs}} \right)}$$

The percentage of NHCEs who benefit under the plan equals the number of NHCEs in the plan divided by the total number of non-excludable NHCEs. The percentage of HCEs who benefit under the plan equals the number of HCEs in the plan divided by the total number of non-excludable HCEs.

If the employer elects not to aggregate plans, you would use only the employees benefiting under a single plan for the numerator in the ratio percentage test. There are some complicated rules in the 1.410(b)-7 regulation that govern when you can voluntarily aggregate plans, as well as when you must mandatorily disaggregate plans.

The ratio denominators should be based on counts for the entire controlled group, not just for the single plan being tested. In general, the excludable employees include those who do not meet the minimum participation requirements, collectively bargained employees, and nonresident aliens.

In this problem, you are told that the plan sponsor elects to aggregate the two plans for nondiscrimination testing. There are several key points to this problem:

- (1) The number of employees benefiting in each plan is based on each plan's eligibility requirements
- (2) The number of employees who are excludable based on age and service is based on those employees who do not satisfy either plan's eligibility requirements
- (3) The employees who are excluded based on classification do not satisfy one of the definitions of "excludable employee" in the regulation. Those employees are treated as non-excludable for the ratio test.

Problem 22 - Page 2**Revised 06/11/19****Non-excludable Employees**

The non-excludable employees are those who satisfy the eligibility requirements for either plan:

	Salaried – Plan A		Hourly – Plan B	
	HCEs	Non-HCEs	HCEs	Non-HCEs
Total employees	40	200	10	800
Less excludable:				
Age 18 + 6 months	-3	-25	-1	-350
Non-excludable	37	175	9	450

The total non-excludable employees are 46 HCEs and 625 non-HCEs.

Benefiting Employees

These are the employees who meet the eligibility requirements, separately for each plan:

	Salaried – Plan A		Hourly – Plan B	
	HCEs	Non-HCEs	HCEs	Non-HCEs
Total employees	40	200	10	800
Less excluded based on classification	0	-25	0	-50
Less excludable:				
Age 18 + 6 months			-1	-350
Age 21 + 1 year	-6	-85		
Benefiting employees	34	90	9	400

The total benefiting employees are 43 HCEs and 490 non-HCEs.

$$\begin{aligned}\text{Total ratio \%} &= \frac{490}{625} \\ &= \frac{43}{46} \\ &= 83.87\%\end{aligned}$$

Answer is A**NOTE**

In this problem, you are told that the otherwise excludable employees are not tested separately. Otherwise, you would treat as a separate plan all employees who do not satisfy the 410(a)(1) minimum participation requirements (age 21 and 1 year of service). Then you would have to meet the requirements in 1.410(b)-6(b)(3).

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Problem 23 - Page 1

This is the first fairly detailed question on IRC section 401(a)(26). This section contains additional participation requirements beyond those in 410(b). In general, a trust is not qualified unless the plan, on each day of the plan year, benefits the lesser of 50 employees, or 40% or more of the employees of the employer. SBJPA added a floor to the 40%, which is 2 employees - unless there is only one employee, in which case the one employee must be covered.

The key point of this problem is that 1.401(a)(26)-6 allows you to ignore various excludable employees. These include employees who do not satisfy the plan's minimum age and service requirements for eligibility, as well as most other definitions of excludable employees in the 1.410(b) regulation.

The key point of this problem is that 1.401(a)(26)-7 has the same tricky definitions for a terminating employees as the 410(b) regulation. The rules in 1.410(b)-6(f)(1) specify that a terminating employee may be excludable if they satisfy six criteria:

1. Employee does not benefit under the plan for the year
2. Employee is eligible to participate
3. The plan has a minimum period of service, or a requirement of being employed on the last day to receive an allocation
4. Employee fails to receive an allocation due to failure to satisfy item 3
5. Employee terminates with no more than 500 hours, and is not an employee on last day of the plan year
6. If this paragraph is applied to any employee, it is applied to all employees for the year

The plan benefit definition in this problem is unusual, since you accrue a benefit after only one hour of service. None of the participants who terminated are excludable, since they all accrued a benefit during the plan year.

There is another potential trick to this problem. The plan covers both employees who are covered under a collective bargaining agreement (CBA), and those who are not. As under 410(b), you typically disaggregate such a plan into two parts. The portion that covers the CBA employees can be tested separately from the portion that covers the non-CBA employees.

The question asks how many of the 80 hourly employees need to benefit under the plan to satisfy 401(a)(26). If you disaggregate the 12 CBA employees, then there are 21 salaried employees who benefit under the plan.

(next page)

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Problem 23 - Page 2

Revised 03/04/09

12/31/07				
Number	Hired	Status	Group	Benefiting?
7	01/01/06	Active	Salaried	Yes
4	01/01/06	Terminated	Salaried	Yes
10	01/01/06	Terminated	Salaried	Yes
5	01/01/07	Active	Salaried	NO
X	01/01/06	Active	Hourly	Yes
80-X	01/01/06	Active	Hourly	NO

The total number of employees is $101 = 7+4+10+80$ (non-excludable)
Total benefiting employees is $21+X = 7+4+10+X$

40% of the 101 employees gives 40.4 employees who must benefit under the plan. After rounding that up to 41, then you can solve for X:

$$41 = 21+X$$
$$X = 20$$

Answer is D

NOTE

Answer D was the original "official" answer to this question. But the answer sheet for the exam was revised in 2009, and it now shows answer range A.

This plan covers both employees who are covered under a collective bargaining agreement (CBA), and those who are not. 1.410(b)-6(d) requires you to disaggregate the CBA employees for testing under 410(b). But 1.401(a)(26)-2(d)(2)(i) has a permissive disaggregation rule for the handling of this plan. You can choose whether or not to disaggregate the CBA employees.

The question asks for "the minimum number of hourly employees." If you don't disaggregate the CBA employees for testing 401(a)(26), then you get a much lower value for X.

12/31/07				
Number	Hired	Status	Group	Benefiting?
12	01/01/06	Active	Salaried/CBA	Yes
7	01/01/06	Active	Salaried	Yes
4	01/01/06	Terminated	Salaried	Yes
10	01/01/06	Terminated	Salaried	Yes
5	01/01/07	Active	Salaried	NO
X	01/01/06	Active	Hourly	Yes
80-X	01/01/06	Active	Hourly	NO

The total number of employees is $113 = 12+7+4+10+80$ (non-excludable)

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Problem 23 - Page 3

Total benefiting employees is $33+X = 12+7+4+10+X$

40% of the 113 employees gives 45.2 employees who must benefit under the plan. After rounding that up to 46, you can solve for X:

$$46 = 33+X$$

$$X = 13$$

Answer is A

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Problem 24

This is the first problem on the new vesting requirements for applicable defined benefit plans (a.k.a. cash balance plans) under IRC 411(a)(13). These plans must provide for 100% vesting after 3 years of service.

The problem gives you the vesting schedule in the plan document. You need to give each participant the better of the plan vesting schedule, and the mandated minimum vesting schedule under 411(a)(13).

	Smith	Jones	Brown
Vesting service	1	2	3
Account balance	10,000	20,000	30,000
Vested percentage	0%	40%	100%
Vested account balance	0	8,000	30,000

The sum of the vested account balances for all three participants is 38,000.

Answer is D

2008 EA-2B Exam Solutions

Problem 25

Similar to 2005 #16

Revised 03/04/09

This is the first problem in many years on vesting requirements for defined contribution plans. Under the statutory graded vesting schedules, DC plans have vesting that is one year faster than DB plans:

<u>Years of service</u>	<u>DB plan minimum Vesting %</u>	<u>DC plan minimum Vesting %</u>
1	0%	0%
2	0%	20%
3	20%	40%
4	40%	60%
5	60%	80%
6	80%	100%
7	100%	100%

Based on looking at the years with at least 1000 hours, Smith appears to have 5 years of service. The key point of the problem is that you can ignore the hours earned in 2002, since Smith does not attain age 18 until 01/01/2003. See IRC 411(a)(4)(A).

Smith has four years of vesting service: 2003 through 2006. Now you can calculate the vested account balances:

	<u>DB plan</u>	<u>DC plan</u>
Vesting service	4	4
Lump sum / account balance	3,000	10,000
Vested percentage	40%	60%
Vested amount	1,200	6,000

The sum of the vested lump sum and vested account balance is 7,200.

Answer is B

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Problem 26

Similar to 2004 #29

Revised 03/04/09

The key to this problem is knowing when a participant can first elect to waive the qualified pre-retirement spouse annuity (QPSA). In 417(a)(6)(B), it defines the applicable election period for the QPSA as starting on the earlier of

- (1) first day of the plan year in which the participant attains age 35, or
- (2) date of exit.

The period ends on the date of death.

In 417(c)(1)(A)(ii), if the participant dies prior to their earliest retirement age, the annuity should commence at that earliest retirement age. In this plan, there is no service requirement for eligibility for early requirement. Their spouse's benefit will commence at the date Smith would have attained age 60.

Since the participant has been married for more than one year, it is necessary to provide the QPSA (see 417(d)). The majority of the problem solution is a benefit calculation:

Age	58
Earliest Retirement Age	60

Accrued Benefit	20,000
Early Retirement reduction	80.0%
	$= 1 - .04*(65-60)$
Early Retirement benefit	16,000

100% J&S Reduction	97.5%
	$= 95\% + .50\%*(65-60)$
100% J&S Benefit	15,600

Election period starts	Age 35
Election period ends	Age 58
QPSA coverage period	23

QPSA reduction	2.76%
	$= .12\%(23)$
Death benefit to spouse	15,169
	$= (1-.0276)(15,600)$

Answer is C

2008 EA-2B Exam Solutions

Problem 27

I. FALSE

Once spousal consent has been obtained, the participant can not change the optional form of payment without getting spousal consent for that change.

See IRC 417(a)(2)(A)(ii)

II. TRUE

This is the second question asked on the Qualified Optional Survivor Annuity (QOSA), which was added by PPA 2006. When the QJSA continuation is 75% or more, the QOSA must be 50%. When the QJSA continuation is less than 75%, the QOSA must be 75%.

See IRC 417(g)(2)(A)

III.FALSE

The election period to waive the QJSA starts 180 days prior to the annuity starting date. This was changed by PPA 2006.

See IRC 417(a)(6)

Only Item II is True.

Answer is C

2008 EA-2B Exam Solutions

Problem 28

Similar to 2006 #30

Based on the measurement period, the method to calculate accrual rates is the “Annual method”. You must determine the most valuable form of payment at each benefit commencement age up to testing age (65). The Qualified J&S form is always the most valuable form of benefit payment (as defined in the 1.401(a)(4) regulation).

You calculate the most valuable accrual rate (MVAR) by dividing the greatest normalized change in the accrued benefit by (testing service)*(average annual compensation). This problem gives you the value of the normal accrual rate (NAR) instead of the change in the accrued benefit, or any compensation values.

Smith is age 61 at 12/31/2008, and has 28 years of service. Smith becomes eligible for early retirement at age 63. To calculate the most valuable accrual rate, you need to allow for payment at ages 63 to 65, converted to a QJ&S form. The normalized benefit reflects a life annuity payment form at testing age 65:

Δ							
Accrued		Early ret		50% J&S		Normalized	
Age	Benefit	ERF	J&S	J&S benefit	Annuity	Interest	Δ Benefit
	(1)	(2)	(3)	(4)=(1)(2)(3)	(5)	(6)	(4)(5)(6) / 98.350
63	X	1.00	.95	0.95	112.533	$(1.08)^2$	1.2679X
64	X	1.00	.95	0.95	110.385	$(1.08)^1$	1.1516X
65	X	1.00	.95	0.95	108.182	1	1.0450X

It should be clear that you don't need to do calculations after age 63, since the factors for annuity form and interest accumulation are lower at age 65. The MVAR equals the greatest normalized benefit divided by both testing service and testing compensation:

$$\text{MVAR} = \frac{1.2679X}{(1)*(\text{Testing Comp})}$$

The NAR is determined solely based on the calculation at testing age 65. You can use the given value of the NAR to calculate the value of the MVAR:

$$\text{NAR} = \frac{X}{(1)*(\text{Testing Comp})} = 5\%$$

$$\text{MVAR} = 1.2679 * 5\%$$

$$\text{MVAR} = 6.34\%$$

Answer is C

2008 EA-2B Exam Solutions

Problem 29 - Page 1

Similar to 2006 #41

This problem tests knowledge of several rules related to PBGC premiums.

I. FALSE

This is the second question asked on professional service employers and PBGC coverage. ERISA Section 4021 identifies plans covered by the PBGC:

“Act Sec. 4021

(b) This section does not apply to any plan--

(1) which is an individual account plan, as defined in paragraph (34) of section 3 of this Act

....

(13) established and maintained by a professional service employer which does not at any time after the date of enactment of this Act have more than 25 active participants in the plan.”

The idea is that the plan was previously covered by the PBGC. Even though the professional service employer now sponsors the plan, it remains covered by the PBGC. The reason is that the professional service employer did not establish the plan.

II. FALSE

The variable rate premium cap is calculated based on the number of plan participants. The trick to this item is that the plan is eligible for the cap if there are 25 employees or less on the first day of the plan year.

You need to carefully determine the number of employees each year:

<u>Date</u>	<u>Employees</u>
12/31/05	15
01/01/07	21
07/01/07	21
01/01/08	26

The plan has 26 employees at 01/01/08, and is not eligible for the variable rate premium cap.

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Problem 29 - Page 2

III. TRUE

The flat-rate premium is calculated based on the number of participants on the last day of the prior plan year.

You need to carefully determine the number of employees and the number of participants each year. Employees are eligible to participate on the 01/01 or 07/01 following completion of a year of service.

<u>Date</u>	<u>Employees</u>	<u>Participants</u>
12/31/05	15	15
01/01/07	21	15
07/01/07	21	19
01/01/08	26	21

The plan has 19 participants at 12/31/07.

Only item III is True.

Answer is D

Problem 30

Similar to 2006 #41

Revised 04/03/10

This problem tests knowledge of several rules related to PBGC premiums.

I. FALSE

This is the third question asked on professional service employers and PBGC coverage. ERISA Section 4021 identifies plans covered by the PBGC:

“Act Sec. 4021

(b) This section does not apply to any plan--

(1) which is an individual account plan, as defined in paragraph (34) of section 3 of this Act

....

(13) established and maintained by a professional service employer which does not at any time after the date of enactment of this Act have more than 25 active participants in the plan.”

General exam condition 9 states that there are no age or service requirements for participation. The plan had more than 25 active participants prior to Smith's retirement. As a result, it is covered by the PBGC, and a PBGC premium must be paid for 2008.

II. FALSE

The variable rate premium cap is calculated based on the number of plan participants. The plan is eligible for the cap if there are 25 employees or less on the first day of the plan year.

The key point is that the count is based on employees of all employers in the controlled group. Since there are 28 employees in Divisions A, B and C, the plan is not eligible for the variable rate premium cap.

III. FALSE

Prior to 08/01/07, the plan was not covered by the PBGC. It satisfied the exemption in ERISA 4021(b)(9) for plans maintained exclusively for substantial owners.

When Green becomes covered by the plan, it no longer satisfies the exemption. The reason is that Green's ownership is only 5%, since they are not related to Brown. If Green's ownership exceeded 10%, then they would be a substantial owner, and the plan would still satisfy the exemption.

None of the items are True.

Answer is A

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Problem 31

This is the second fairly detailed question on IRC section 401(a)(26). This section contains additional participation requirements beyond those in 410(b). In general, a trust is not qualified unless the plan, on each day of the plan year, benefits the lesser of 50 employees, or 40% or more of the employees of the employer. SBJPA added a floor to the 40%, which is 2 employees - unless there is only one employee, in which case the one employee must be covered.

The key point of this problem is that 1.401(a)(26)-6 allows you to ignore various excludable employees. These include employees who do not satisfy the plan's minimum age and service requirements for eligibility, as well as most other definitions of excludable employees in the 1.410(b) regulation.

The employees who are excluded based on classification do not satisfy one of the definitions of "excludable employee" in either regulation. Those employees are treated as non-excludable for determining the total number of employees.

The question asks how many of the 45 employees excluded based on classification need to benefit under the plan to satisfy 401(a)(26). The first step is to figure out the number of employees benefiting, as well as the total number of employees:

	Total Number	Benefiting	Excludable	Non-excludable
Group				
Active				
1000 hours or more	36	36		36
501-999 hours	20			20
500 or fewer hours	5			5
Terminated				
1000 hours or more	4	4		4
501-999 hours	5			5
500 or fewer hours	3		3	
Other				
Exclude – Age and service	10		10	
Exclude – CBA	20		20	
Exclude – Classification	45			45
Totals		Benefiting 40		Non-excludable 115

40% of the 115 employees gives 46 employees who must benefit under the plan. There must be six more employees benefiting under the plan ($6 = 46 - 40$).

Answer is C

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Problem 32

This is a very simple problem on calculating the variable rate premium (VRP). The key point is knowing the definition of the variable rate premium cap.

The plan is eligible for the cap if there are 25 employees or less on the first day of the plan year. The variable rate premium cap is calculated based on the number of plan participants, and it is equal to $\$5 \times (\text{participant count})^2$.

$$\begin{aligned}\text{VRP} &= 5(20)^2 \\ &= 2,000\end{aligned}$$

One minor trick to the problem is that it asks for the total PBGC premium, which is the sum of the flat rate premium (FRP) and the VRP. For 2008, the fixed rate premium is \$33 per participant:

$$\begin{aligned}\text{FRP} &= 33(20) \\ &= 660\end{aligned}$$

$$\begin{aligned}\text{FRP} + \text{VRP} &= 660 + 2,000 \\ &= 2,660\end{aligned}$$

Answer is B

NOTE

It is theoretically possible that the variable rate premium for a plan could be less than the VRP cap. That is not the case in this problem:

$$\begin{aligned}\text{VRP} &= 9(400) && (\text{ignoring the VRP cap}) \\ &= 3,600\end{aligned}$$

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Problem 33

Revised 05/03/11

This problem tests knowledge of several rules related to PBGC premiums. This is the fourth question asked on professional service employers and PBGC coverage. ERISA Section 4021 identifies plans covered by the PBGC:

“Act Sec. 4021

(b) This section does not apply to any plan--

(1) which is an individual account plan, as defined in paragraph (34) of section 3 of this Act

....

(13) established and maintained by a professional service employer which does not at any time after the date of enactment of this Act have more than 25 active participants in the plan.”

You need to determine the number of active participants and total participants each year. You start counting based on 01/01/05, since there was no plan prior to that date.

Once the plan has more than 25 active participants, then they are covered and have to pay PBGC premiums. The flat rate premium is calculated based on the total number of participants on the last day of the prior plan year.

<u>Date</u>	<u>Active Participants</u>	<u>Vested Participants</u>	<u>Total Participants</u>	<u>Plan Covered?</u>
01/01/05	24	0	24	
12/31/05	13	11	24	
01/01/06	23	11	34	
12/31/06	20	7	27	
01/01/07	29	7	36	YES
12/31/07	15	0	15	YES

The plan has more than 25 active participants at 01/01/07. From that point forward, it is covered by the PBGC.

The 12/31/06 total participant count is used for the 2007 PBGC premium, and the 12/31/07 total participant count is used for the 2008 PBGC premium. The sum of the total participant counts is $42 = 27 + 15$.

Answer is B

NOTE:

The participant counting rules for newly covered plans changed with the release by the PBGC of the 2008 Comprehensive premium package. The 2008 exam syllabus covered the old participant counting rules.

Under the revised rules, the answer to this question is based on the participant count at the beginning of the 2007 plan year. The sum of the total participant counts is $51 = 36 + 15$.

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Problem 34 - Page 1

Similar to 2005 #30

This is a typical PBGC guaranteed benefits question. This question tests your knowledge of the five year phase-in calculations.

Guaranteed benefits are based on the vested accrued benefits of the plan participants. In calculating the guaranteed benefit, remember that changes in vesting schedule, normal retirement age, and normal form of annuity payment are all considered as changes in benefit amount that are subject to the phase in rules.

The PBGC maximum monthly guaranteed benefit (MGB) is defined as the lesser of the adjusted ERISA §4022(b) value, or the highest five year consecutive compensation. The MGB is defined assuming payment on a life annuity basis at age 65.

One key point of the problem is that you use the 2008 MGB value, since the termination date is 12/31/08. The 2008 MGB at 65 is 4,312.50 (from the tables given with the exam).

Another key point of the problem is that you must reduce the MGB for benefit commencement ages before 65. The MGB should be adjusted based on the later of the age at DOPT, or the age at benefit commencement. Based on the PBGC study note, it is correct to age adjust the MGB, even when it is based on the highest five year compensation. The MGB also must be reduced for the 10 year certain and life form.

All three plan amendments were effective on 01/01, but were adopted at later dates. For purposes of measuring the years that each plan was effective, you use the later of the effective date and the adoption date (03/01 in all three cases).

The 01/01/02 plan has been in effect for five full years at DOPT. Due to the later adoption date, the 01/01/05 plan has been in effect for only three full years at DOPT, from 03/01/05 to 03/01/08. Similarly, the 01/01/08 plan has not been in effect for a full year at DOPT, and it is ignored for the phase-in calculations.

Smith: 5 year phase-ins

Date of birth	12/31/49
Date of retirement	12/31/08
12/31/08 age	59
Date of hire	12/31/74
Past service	34
Majority owner?	NO
Vesting percentage	100%

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Problem 34 - Page 2

5 year average compensation	$3,500.00 = 42,000/12$
MGB at 65 (life annuity)	3,500.00
MGB at 65 (10 yr C&L)	$3,237.50 = .925 * 3,500.00$
MGB reduced for age at DOPT	$1,974.88 = .610 * 3,237.50$
“03/01/02” Base plan benefit	$55(34)$ $= 1,870.00$
Early retirement reduction	$85\% = 1 - (62-59)(5\%)$
Early retirement benefit	$1,870.00 * (85\%)$ $= 1,589.50$
Guaranteeable benefit increase	1,589.50
Years plan has been in effect	5
Phase-in	1,589.50
“03/01/05” Base plan benefit	$70(34)$ $= 2,380.00$
Early retirement benefit	$2,380.00 * (85\%)$ $= 2,023.00$ $= 1,974.88$ (hit MGB)
Guaranteeable benefit increase	$1,974.88 - 1,589.50$ $= 385.38$
Years plan has been in effect	3
Phase-in: Greater of \$60 or 60%(GBI)	$\$60 \text{ or } 385.38(60\%)$ $= 231.23$
Total guaranteed benefit	$1,589.50 + 231.23$
10 yr C&L payment form	$= 1,820.73$

Answer is B

Notes re: Guaranteed benefit calculations

1. The MGB does not increase beyond the year of plan termination. See Example 13 in Appendix A of the PBGC study note.
2. You should use the later of age at DOPT and age at benefit commencement for purposes of adjusting the MGB for age. See Example 16 in Appendix A of the PBGC study note.
3. You should use the form of payment in effect at the later of age at DOPT and age at benefit commencement for purposes of adjusting the MGB for form of payment. See Example 18 in Appendix A of the PBGC study note.

Problem 34 - Page 3

Notes re: Guaranteed benefit calculations

4. For retirements after DOPT, all benefit service accruals ceased at DOPT.
5. When calculating the phase-ins, the percent is more valuable when the amount of the Guaranteeable benefit increase exceeds 100. If it is less than 100, then the fixed dollar amount is more valuable. At 100, they both produce the same result.
6. If there were a change in normal form of benefits, you would have to normalize the benefits. Normalization is the process of converting benefits available under earlier sets of plan provisions to equivalent benefit amounts based on the plan provisions in effect at date of plan termination (DOPT). This is a necessary step; otherwise you would be comparing apples and oranges.

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Problem 35 - Page 1

This is the first PBGC guaranteed benefits question on the phase-in calculations for majority owners. Under PPA 2006, these rules replaced the thirty year phase-in for substantial owners.

Guaranteed benefits are based on the vested accrued benefits of the plan participants. In calculating the guaranteed benefit, remember that changes in vesting schedule, normal retirement age, and normal form of annuity payment are all considered as changes in benefit amount that are subject to the phase in rules.

The PBGC maximum monthly guaranteed benefit (MGB) is defined as the lesser of the adjusted ERISA §4022(b) value, or the highest five year consecutive compensation. The MGB is defined assuming payment on a life annuity basis at age 65.

One key point of the problem is that you use the 2008 MGB value, since the termination date is 12/31/08. The 2008 MGB at 65 is 4,312.50 (from the tables given with the exam).

Another key point of the problem is that you must reduce the MGB for benefit commencement ages before 65. The MGB should be adjusted based on the later of the age at DOPT, or the age at benefit commencement. Based on the PBGC study note, it is correct to age adjust the MGB, even when it is based on the highest five year compensation.

Smith is a majority owner, since they had 50% or more ownership within the 5 year period ending on the plan termination date. The rules for majority owners require calculation of the guaranteed benefit under the five year phase-in.

Then a final adjustment is applied, which is to multiply the five year phase-in benefit by a ratio. The denominator is 10, and the numerator is the number of full years the plan has been in effect (not to exceed 10). This is based on the later of the date of plan adoption, or the plan effective date.

The initial plan was established at 01/01/2000. The five year phase-in benefit will be multiplied by 9/10, which produces the guaranteed benefit for Smith.

This problem is simplified by having no prior plan amendments. The initial benefit under the five year phase-in calculation will be phased in at 100%.

You must be careful when determining the highest five year consecutive compensation. If you look carefully, it is based on the five years from 2001 through 2005:

2001	2002	2003	2004	2005
51,000	37,000	57,000	52,000	47,000

The five year average is 48,800.

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Problem 35 - Page 2

For the plan benefit, you need to calculate the highest three year consecutive compensation:

2003	2004	2005
57,000	52,000	47,000

The three year average is 52,000.

	Smith: 5 year phase-ins
Date of birth	12/31/43
Date of retirement	12/31/08
12/31/08 age	65
Date of hire	12/31/96
Past service	12
Majority owner?	YES
Vesting percentage	100%
5 year average compensation	$4,066.67 = 48,800/12$
MGB at 65 (life annuity)	4,066.67
3 year average compensation	$4,333.33 = 52,000/12$
01/01/2000 Base plan benefit	$4,333.33(8.0\%)(12)$ $= 4,160.00$
Normal retirement benefit	4,160.00 $= 4,066.67$ (hit MGB)
Guaranteeable benefit increase	4,066.67
Years plan has been in effect	5
Phase-in	4,066.67
Five year phase-in benefit	4,066.67
Years since plan inception	9
Majority owner benefit	$4,066.67(9/10)$ $= 3,660.00$

Answer is A

NOTE

Be sure to review the notes on Guaranteed benefit calculations at the end of the solution for problem 34.

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Problem 36 - Page 1

This is the second PBGC guaranteed benefits question on the phase-in calculations for majority owners. Under PPA 2006, these rules replaced the thirty year phase-in for substantial owners.

Guaranteed benefits are based on the vested accrued benefits of the plan participants. In calculating the guaranteed benefit, remember that changes in vesting schedule, normal retirement age, and normal form of annuity payment are all considered as changes in benefit amount that are subject to the phase in rules.

The PBGC maximum monthly guaranteed benefit (MGB) is defined as the lesser of the adjusted ERISA §4022(b) value, or the highest five year consecutive compensation. The MGB is defined assuming payment on a life annuity basis at age 65.

One key point of the problem is that you use the 2008 MGB value, since the termination date is 12/31/08. The 2008 MGB at 65 is 4,312.50 (from the tables given with the exam).

Another key point of the problem is that you must reduce the MGB for benefit commencement ages before 65. The MGB should be adjusted based on the later of the age at DOPT, or the age at benefit commencement. Based on the PBGC study note, it is correct to age adjust the MGB, even when it is based on the highest five year compensation.

The definition of majority owner is based on 50% or more ownership within the 5 year period ending on the plan termination date. The rules for majority owners require calculation of the guaranteed benefit under the five year phase-in.

Then a final adjustment is applied, which is to multiply the five year phase-in benefit by a ratio. The denominator is 10, and the numerator is the number of full years the plan has been in effect (not to exceed 10). This is based on the later of the date of plan adoption, or the plan effective date.

Both Mr. Jones and Mrs. Jones are majority owners, due to the constructive ownership rules in IRC 1563. Since they are married, they each are attributed ownership of 90% of the company ($90\% = 70\% + 20\%$).

The initial plan was established at 01/01/2000. The five year phase-in benefit will be multiplied by 9/10, which produces the guaranteed benefit for both Mr. Jones and Mrs. Jones.

The 01/01/00 plan has been in effect for five full years at DOPT. All three plan amendments were effective on 01/01, but the 2007 amendment was adopted at 12/31/07. For purposes of measuring the years that each plan was effective, you use the later of the effective date and the adoption date. The 2006 plan has been in effect for three full years at DOPT. The 2007 plan has been in effect for one full year at DOPT.

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Problem 36 - Page 2

Revised 03/04/09

	Smith	Mr. Jones	Mrs. Jones
12/31/08 age	65	65	65
Date of hire	01/01/03	01/01/00	01/01/04
Past service	6	9	5
Vesting percentage	100%	100%	100%
Majority owner?	NO	YES	YES

MGB at 65 (life annuity)	4,312.50	4,312.50	4,312.50
01/01/00 Base plan benefit	100(6)= 600	100(9)= 900	100(5)= 500
Guaranteeable benefit increase	600	900	500
Years plan has been in effect	5	5	5
Phase-in at 100%	600	900	500

01/01/06 Base plan benefit	110(6)= 660	110(9)= 990	110(5)= 550
Guaranteeable benefit increase	660 - 600 = 60	990 - 900 = 90	550 - 500 = 50
Years plan has been in effect	3	3	3
Phase-in: Greater of \$60 or 60%(GBI)	\$60 or 60(60%) = 60	\$60 or 90(60%) = 60	\$60 or 50(60%) = 50

12/31/07 Base plan benefit	150(6)= 900	150(9)= 1,350	150(5)= 750
Guaranteeable benefit increase	900 - 660 = 240	1,350 - 990 = 360	750 - 550 = 200
Years plan has been in effect	1	1	1
Phase-in: Greater of \$20 or 20%(GBI)	\$20 or 240(20%) = 48	\$20 or 360(20%) = 72	\$20 or 200(20%) = 40
Five year phase-in benefit	600 + 60 + 48 = 708	900 + 60 + 72 = 1,032	500 + 50 + 40 = 590

Years since plan inception	9	9
Majority owner	1,032(9/10)	590(9/10)
Guaranteed benefit	= 928.80	= 531.00

The total guaranteed benefit is $2,167.80 = 708.00 + 928.80 + 531.00$.

Answer is A

NOTES

1. For Mrs. Jones, the phase-in of the 01/01/06 GBI can not exceed the total GBI of \$50
2. Be sure to review the notes on Guaranteed benefit calculations at the end of the solution for problem 34.

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Problem 37

Similar to 2006 #38

Revised 02/16/16

§4980(a) of the Internal Revenue Code states that the excise tax upon reversion is 20%.

§4980(d) states that the excise tax increases to 50% unless either

- The employer establishes a “qualified replacement plan”, or
- The employer grants certain benefit increases prior to plan termination.

The general definition of a qualified replacement plan includes 95% participation by continuing employees from the terminating plan, plus an asset transfer of at least 25% of the excess assets. You can reduce the 25% asset transfer by the value of benefit improvements made within the 60 days ending on the date of plan termination.

Instead of establishing a “qualified replacement plan”, the plan can grant benefit increases at plan termination. The benefit improvements must meet three criteria:

- Present value \geq 20% of the reversion (prior to the benefit changes)
- Uniform for all participants
- Benefit increases for non-active participants can not exceed 40% times [20% of the reversion (prior to the benefit changes)]

In this problem, the employer has elected to establish a qualified replacement plan, and also to increase benefits at plan termination. The amount of the taxable reversion to the employer will be reduced by both the asset transfer to the qualified replacement plan, and the value of the benefit improvements.

Calculate the initial reversion amount as the difference between the market value of assets and the plan termination liability:

$$\begin{aligned}\text{Initial Reversion} &= 5,500,000 - 5,000,000 \\ &= 500,000\end{aligned}$$

The initial amount of the asset transfer must be at least $125,000 = 25\%(500,000)$. After reflecting the increase in benefits at plan termination of 80,000, an asset transfer of only 45,000 would be sufficient to reduce the excise tax of 20%.

$$\begin{aligned}\text{Actual Reversion} &= 500,000 - (80,000 \text{ benefit increase} + 110,000 \text{ transfer}) \\ &= 310,000\end{aligned}$$

$$\begin{aligned}\text{Tax on reversion} &= 20\%(310,000) \\ &= 62,000\end{aligned}$$

Answer is B

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Problem 38

Similar to 2004 #40

Revised 03/04/09

Withdrawal occurred in 2007

Under the Rolling Five Method, the calculation of withdrawal liability is relatively simple. Assuming the withdrawal occurred on 12/01/2007, you should use the UVB at 12/31/2006. Employer A's share of the 12/31/2006 UVB is based on the ratio of employer A's contributions to the total contributions in the prior five years.

YEAR:	2002	2003	2004	2005	2006
-------	------	------	------	------	------

$$\text{ER share} = 20,000,000 * \left(\frac{200,000 + 220,000 + 240,000 + 250,000 + 180,000}{1,800,000 + 2,200,000 + 1,800,000 + 2,420,000 + 1,980,000} \right)$$
$$\text{ER share} = 20,000,000 * \frac{1,090,000}{10,200,000}$$
$$= 2,137,255$$

You do not need to calculate the de minimis amount. Since the employer share exceeds 150,000, the deductible is zero. The employer withdrawal liability is 2,137,255 = X.

Withdrawal occurred in 2008

Assuming the withdrawal occurred on 12/01/2008, you should use the UVB at 12/31/2007. Employer A's share of the 12/31/2007 UVB is based on the ratio of employer A's contributions to the total contributions in the prior five years.

YEAR:	2003	2004	2005	2006	2007
-------	------	------	------	------	------

$$\text{ER share} = 20,000,000 * \left(\frac{220,000 + 240,000 + 250,000 + 180,000 + 240,000}{2,200,000 + 1,800,000 + 2,420,000 + 1,980,000 + 2,100,000} \right)$$
$$\text{ER share} = 20,000,000 * \frac{1,090,000 - 200,000 + 240,000}{10,200,000 - 1,800,000 + 2,100,000}$$
$$= 2,152,381$$

You do not need to calculate the de minimis amount. Since the employer share exceeds 150,000, the deductible is zero. The employer withdrawal liability is 2,152,381 = Y.

$$X - Y = -15,126$$

Answer is A

2008 EA-2B Exam Solutions

Problem 39

Similar to 2001 #26

In this problem, you are given the value of the "complete withdrawal" liability as 950,000. You are told that a partial withdrawal due to a 70% contribution decline occurred in 2007.

For this type of partial withdrawal, the fraction to multiply the "complete withdrawal" liability by is

$$1.0 - \frac{\text{Base units for plan year following last year of three year testing period}}{\text{Average base units during 5 yr. period preceding three year testing period}}$$

The three year testing period is the years 2005 through 2007. The last year of the three year testing period is 2007. The five years preceding the testing period are 2000 through 2004:

$$\begin{aligned}\text{Fraction} &= 1.0 - \frac{2008 \text{ units}}{20\% * (\text{Sum of 2000 through 2004 units})} \\ &= 1.0 - \frac{250,000}{20\% * (885,000 + 815,000 + 825,000 + 905,000 + 785,000)} \\ &= 1.0 - 250/843 \\ &= 70.344\%\end{aligned}$$

The partial withdrawal liability is $668,268 = 70.344\%(950,000)$.

Answer is D

NOTE

This 4 point question seems extremely short – it feels more like a 3 point question! For more complicated exam questions on partial withdrawal liabilities, see 2001 problem 26, 2002 problem 38, and 2003 problem 36.

§4980(a) of the Internal Revenue Code states that the excise tax upon reversion is 20%.

§4980(d) states that the excise tax increases to 50% unless either

- The employer establishes a “qualified replacement plan”, or
- The employer grants certain benefit increases prior to plan termination.

The general definition of a qualified replacement plan includes 95% participation by continuing employees from the terminating plan, plus an asset transfer of at least 25% of the excess assets. You can reduce the 25% asset transfer by the value of benefit improvements made within the 60 days ending on the date of plan termination.

Instead of establishing a “qualified replacement plan”, the plan can grant benefit increases at plan termination. The benefit improvements must meet three criteria:

- Present value \geq 20% of the reversion (prior to the benefit changes)
- Uniform for all participants
- Benefit increases for non-active participants can not exceed 40% times [20% of the reversion (prior to the benefit changes)]

In this problem, the employer has elected not to establish a qualified replacement plan. Instead, the employer will increase benefits at plan termination. The amount of the taxable reversion to the employer will be reduced by the value of the benefit improvements.

Calculate the initial reversion amount as the difference between the market value of assets and the plan termination liability:

$$\begin{aligned}\text{Plan term liability} &= 3,700,000 = 1,300,000 + 800,000 + 1,200,000 + 400,000 \\ \text{Initial Reversion} &= 900,000 = 4,600,000 - 3,700,000 \\ \text{20\% of reversion} &= 180,000 = 20\%(900,000)\end{aligned}$$

The present value of the benefit improvements must be at least 180,000. This would be an increase of 4.865% ($=180,000/3,700,000$) for everyone in the plan.

But there are two tricks to this problem. You can’t simply give everyone the same pro-rata increase. Smith has a lump sum that is fairly close to the maximum allowed under IRC Section 415, which is given as 1,330,000. The pro-rata increase of 4.865% would force their lump sum at termination to exceed the 415 limit:

$$\begin{aligned}1.04865(1,300,000) &= 1,363,243 \\ 1,363,243 - 1,330,000 &= 33,243\end{aligned}$$

In addition, Green is a non-active participant. IRC 4980(d)(3) says the increases to non-active participants can not exceed 40% times [20% of the reversion (prior to the benefit changes)], which is $72,000 = 8\%(900,000)$.

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Problem 40 - Page 2

Based on IRC 4980(d)(5)(C), it appears that the difference of 33,243 is simply re-allocated to the remaining participants. The reversion to the employer is unaffected by this provision.

Now you should allow for the 4.865% increase for Jones and Brown. The increase for Smith and must be limited. This is a messy calculation!

Name	Original Lump Sum	104.865% *L.S.	Limited Lump Sum	Excess Lump Sum	Reallocated Excess	Final Lump Sum
Smith	1,300,000	1,363,243	1,330,000	33,243	0	1,330,000
Jones	800,000	838,919	1,200,000	0	33,243*8/24	850,000
Brown	1,200,000	1,258,378	1,350,000	0	33,243*12/24	1,275,000
Green	400,000	419,459	650,000	0	33,243*4/24	425,000
Total	3,700,000	3,880,000	4,530,000	33,243	33,243	3,880,000

The allocation of the excess lump sum is based on the original lump sum values for Jones, Brown and Green. Green's increase of 25,000 did not exceed the limit of 8% of the initial reversion.

The difference in the lump sum for Brown is 75,000 = 1,275,000 - 1,200,000.

Answer is C

NOTE

There is one more potential wrinkle to this solution. IRC 4980(d)(3)(A) states that an amendment at plan termination should result in pro-rata increases in the accrued benefit of all "qualified participants." IRC 4980(d)(5)(A) defines the term "qualified participant."

Subsection (iii) states that terminated vested employees are not considered qualified participants unless their service "terminated during the period beginning 3 years before the termination date and ending with the date on which the final distribution of assets occurs."

This problem did not give the date of Green's termination from service. It is unclear if Green should be included in the calculations. Here are the calculations if Green is excluded:

$$\begin{aligned}\text{Plan term liability} &= 3,700,000 = 1,300,000 + 800,000 + 1,200,000 + 400,000 \\ \text{Initial Reversion} &= 900,000 = 4,600,000 - 3,700,000 \\ \text{20\% of reversion} &= 180,000 = 20\%(900,000)\end{aligned}$$

The present value of the benefit improvements must be at least 180,000. This would be an increase of $5.455\% = 180,000 / (3,700,000 - 400,000)$ for everyone except Green.

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Revised 03/04/09

Alternative solution - calculations if Green is excluded from the reallocation:

Name	Original Lump Sum	105.455% *L.S.	Limited Lump Sum	Excess Lump Sum	Reallocated Excess	Final Lump Sum
Smith	1,300,000	1,370,909	1,330,000	40,909	0	1,330,000
Jones	800,000	843,636	1,200,000	0	40,909*8/20	860,000
Brown	1,200,000	1,265,455	1,350,000	0	40,909*12/20	1,290,000
Total	3,300,000	3,480,000	3,880,000	40,909	40,909	3,480,000

The difference in the lump sum for Brown is $90,000 = 1,290,000 - 1,200,000$.

Answer is D

The answer sheet for the exam was revised in 2009, and credit was given for both answer C and answer D.

2008 EA-2B Exam Solutions

Problem 41

I. TRUE

In the instructions for the Form 5330, the due date for payment of the excise tax under IRC Section 4975 is the last day of the seventh month after the end of the tax year of the person who must file the form. You can file Form 5558 to request an extension of up to 6 months for filing the Form 5330.

II. FALSE

You can file Form 5558 to request an extension of up to 6 months for filing the Form 5330. But that does not extend the date for payment of the excise tax.

As noted in the instructions for Form 5330:

"Caution:

Form 5558 does not extend the time to pay your taxes. See the instructions for Form 5558."

III. TRUE

This is a question on modifications to IRC 4975 which were added by PPA 2006.

IRC 4975(d)(23) states that there is an exemption from the excise tax for certain transactions "if the transaction is corrected before the end of the correction period."

IRC 4975(f)(11) defines the correction period as "the 14-day period beginning on the date on which the disqualified person discovers, or reasonably should have discovered, that the transaction would (without regard to this paragraph and subsection (d)(23)) constitute a prohibited transaction."

Items I and III are True.

Answer is C

Problem 42

Revised 04/26/11

I. TRUE

This item is virtually a direct quote from the regulation at 901.20(c):

"(c) Advice or explanations.

An enrolled actuary shall provide to the plan administrator upon appropriate request, supplemental advice or explanation relative to any report signed or certified by such enrolled actuary."

II. FALSE

In the regulation at 901.31(c), it reads as follows:

"(c) Disreputable conduct.

The enrollment of an actuary may be suspended or terminated if it is found that the actuary has, at any time after he/she applied for enrollment, engaged in any conduct set forth in § 901.13(e)(1)(i)–(vi) or other conduct evidencing fraud, dishonesty, or breach of trust. Such other conduct includes, but is not limited to, the following:

(1) Conviction of any criminal offense under the laws of the United States (including section 411 of ERISA, 29 U.S.C. 1111), any State thereof, the District of Columbia, or any territory or possession of the United States, which evidences fraud, dishonesty, or breach of trust."

This item is false due to one word - it says "indictment" instead of "conviction"

III. TRUE

This item is virtually a direct quote from the regulation at 901.31(c):

"(c) Disreputable conduct.

...

(2) Knowingly filing false or altered documents, affidavits, financial statements or other papers on matters relating to employee benefit plans or actuarial services."

Items I and III are True.

Answer is B