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2009 EA-2B
EXAM SOLUTIONS

These solutions were prepared based on the law as in effect at December 31, 2008.

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:

March 7, 2013	Corrected note to solution for problem 44
April 27, 2012	Added note to solution for problem 39
April 7, 2012	Added note to solution for problem 13
May 3, 2011	Corrected solution for problem 25
April 23, 2011	Corrected solutions for problems 8, 41 and 44
	Added clarification to solution for problems 34, 36 and 39
	Corrected heading for problem 21
February 20, 2010	Original solutions

NOTES on 2009 exam

The 2009 exam was much easier than earlier years' exams.

Exam Year	Pass Mark	Percentage Who passed	
2009	68	59.1	(not a typo!)
2008	63	37.2	
2007	59	39.2	
2006	54	37.6	
2005	61	35.5	
2004	56	34.0	
2003	55	36.2	
2002	47	32.6	

Problem 1

TRUE

The participant has two years of service on 01/01/2009. Even though they have less than 3 years of service, they are 100% vested. The reason is that they attain normal retirement age 64 on 01/01/2009.

Answer is A

Problem 2

FALSE

Paragraph (c)(1)(i) of Q&A-13 of the 54.4980F regulation discusses use of email to deliver 204(h) notices:

(i) Either the notice is actually received by the applicable individual or the plan administrator takes appropriate and necessary measures reasonably calculated to ensure that the method for providing section 204(h) notice results in actual receipt of the notice by the applicable individual.

The situation described in this problem does not meet the requirements of the regulation. Since the "participants at one location do not use email as an integral part of their duties", the plan administrator has not taken measures that are expected to result in actual receipt of the notice by each individual prior to the due date.

The deadline for providing the 204(h) notice is 45 days prior to the effective date of the amendment. This time deadline is not met for the participants at this location, since some did not read the message until 10 days later.

Answer is B

Problem 3

FALSE

The point of this problem is the definition of "establishment of the plan". The plan's effective date is 01/01/2009, so the plan can not exclude service earned due to hours worked between 01/01/2009 and 12/09/2009.

Answer is B

Problem 4

TRUE

The only requirement (in ERISA Section 402(a)) is that there is at least one named fiduciary. There is no maximum number.

Answer is A

Problem 5

TRUE

IRC Section 401(a)(9) has the minimum required distribution rules that specify when benefit payments must begin under retirement plans. 401(a)(9)(C) defines the "required beginning date" as the April 1 of the calendar year following the later of

- the calendar year in which the employee attains age 70 1/2, or
- the calendar year in which the employee retires.

Based on IRC Section 401(a)(9)(C)(iii), since Smith is still active (and not receiving benefit payments) in the following year, their benefit must be actuarially increased at their subsequent retirement.

Answer is A

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).

For key employees under 416, the "required beginning date" has a different definition. It is the April 1 of the calendar year following the calendar year in which the employee attains age 70 ½.

Problem 6

TRUE

The safe harbor for unit credit plans at 1.401(a)(4)-3(b)(3) requires the plan to meet the 133 1/3% benefit accrual rule of §411(b)(1)(B). This requires that the rate of benefit accrual for any year can be no greater than 4/3 of any earlier year's rate of benefit accrual.

The ratio of 2.0 to 1.5 is exactly equal to 133 1/3%. Since the problem implies that the plan satisfies any other requirements in the regulation, the plan does meet the safe harbor.

Answer is A

Problem 7

TRUE

IRC Section 411(a)(8) defines normal retirement age as the earlier of

1. Attainment of "normal retirement age" as defined under the plan, or
2. The later of
    - Attainment of age 65 or
    - 5th anniversary of participation date

At 01/01/2014, the participant is age 68. They have six years of service and 5 years of participation. So they do attain normal retirement age on 01/01/2014.

Answer is A

Problem 8 **Revised 04/23/11**

TRUE

At 4006.5(3), there is an exemption from the variable rate premium for plans where the notice of intent to terminate has been issued, and the termination date is on or before the UVB valuation date.

Answer is A

NOTE
You are told that the plan will undergo a standard termination, with distribution of assets on 10/31/09. This can happen even if the assets do not exceed the benefit liabilities at the UVB valuation date (which gives a non-zero UVB). The reason is that the plan sponsor may need to make an additional contribution, or a majority owner my need to give up part of their benefit, in order for the plan to satisfy the definition of a standard termination.

Problem 9

TRUE

Since the AFTAP is less than 60%, the plan normally would be subject to the restrictions in IRC 436(d). But there is an exception for plans that were frozen prior to 09/02/2005.

If the plan was not frozen before that date, then the plan could not make payments that exceed the straight life annuity benefit.

Answer is A

Problem 10

FALSE

The definition of the Qualified Optional Survivor Annuity (QOSA) requires that the death benefit percentage is related to the Qualified Joint and Survivor Annuity (QJSA) death benefit percentage in the following way:

- QOSA percentage must equal 75% when the QJSA percentage is less than 75%
- QOSA percentage must equal 50% when the QJSA percentage is 75% or greater

Answer is B

Problem 11

TRUE

This is one of the infrequent questions on EA-2A material. IRC 432(e) describes the requirement that a multiemployer plan in critical status must adopt a rehabilitation plan.

IRC 432(e)(8) describes which plan benefits may be reduced to meet the requirements of IRC 432. There is a definition of "adjustable benefits" in IRC 432(e)(8)(A)(iv). The definition includes early retirement benefits or retirement-type subsidies.

Based on the exception in IRC 432(e)(8)(A)(ii), the plan is not allowed to reduce benefits that are already in pay status.

Answer is A

Problem 12

FALSE

IRC 4980 requires that at least 95% of participants in terminated plan who remain employed must be participants in the replacement plan.

In addition, the employer must transfer an amount equal to at least 25% of the employer reversion to the replacement plan (less any increase in PVAB due to amendment adopted within 60 days prior to termination date).

Answer is B

Problem 13 **Revised 04/07/12**

TRUE

As the plan trustee, the secretary is a disqualified person, as defined in IRC 4975(e)(2)(B). The fee for service arrangement meets the definition of a prohibited transaction in IRC 4975(c)(1)(D):

"(D) transfer to, or use by or for the benefit of, a disqualified person of the income or assets of a plan"

Answer is A

NOTE
There is an exemption from the prohibited transaction rules in 4975(d)(10) for receipt of any reasonable compensation for services rendered. But this exemption does not apply if they are receiving full-time pay from an employer (or association of employers) whose employees are participants in the plan.

As a result, the payment to Smith's secretary is a prohibited transaction.

Problem 14

FALSE

For small plans (100 or less participants), the deadline for filing under ERISA Section 101(f)(3)(B) is the same as for the Form 5500.

For plans with more than 100 participants, the deadline for filing is not later than 120 days after the end of the plan year.

Answer is B

Problem 15

FALSE

The administrator of a defined benefit plan is required to either

- furnish a benefit statement at least once every three years to each vested participant
- furnish at least annually to each vested participant notice of the availability of a benefit statement

Answer is B

NOTE
The administrator of a defined contribution plan is required to furnish a benefit statement to participants or beneficiaries on either a quarterly or annual basis.

Problem 16

TRUE

The general rule under PGBC regulation section 4010.5(b) defines the information year as the fiscal year of the "person".

If members of a controlled group report financial information on the basis of different fiscal years, the information year is defined as the calendar year. See PGBC regulation section 4010.5(c)(1).

Answer is A

Problem 17

TRUE

This is similar to earlier exam questions on the regulations governing standards of performance of Enrolled Actuaries. At 901.20(c), the regulation states

"**(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."

Answer is A

Problem 18

TRUE

This matches the definition in the regulation at 1.410(b)-6(c) for non-resident aliens.

Answer is A

Problem 19

FALSE

There is a "new plan" exception in IRC 436, but not for all these sections. The accelerated benefit distribution restrictions under IRC Section 436(d) do apply to new plans.

Answer is B

NOTE
IRC 436 subsections (b), (c), and (e) shall not apply to a plan for the first 5 plan years of the plan, or any predecessor plan. These are the restrictions on shutdown benefits, plan amendments, and benefit accruals.

Problem 20

Similar to 2003 #08

FALSE

In ERISA section 4213(a), it allows two choices for assumptions used in calculation of the UVB:

- Regulations prescribed by the PBGC (if any)
- Reasonable assumptions, the description of which sounds like the IRC section 412 “best estimate in the aggregate”

In ERISA section 4213(b), it states that the actuary may rely on the most recent valuation, and reasonable estimates for the interim years.

Answer is B

Problem 21 - Page 1

Similar to 2008 #39

This problem does not clarify the type or the date of the partial withdrawal. It is either a regular partial withdrawal, or one due to a 70% decline in contributions. Based on the data given, you can only determine the date when a partial withdrawal occurred due to a 70% decline in contributions.

<u>Partial Withdrawal Calculations</u>

A 70% contribution decline occurs when 30% of “units in the high base year” exceeds the units in each year of the “three year testing period”. The “three year testing period” includes the year that the 70% decline occurs as the last year. The “units in the high base year” is the average of the two highest years in five years preceding the “three year testing period”.

You must calculate the various items to see when a 70% decline has occurred. If you have worked these problems before, you know that the units during the three year testing period have to be much lower than the prior five years.

If you did not know this, you would use 2007-2009 as a starting point. When you calculate the threshold for the high base year, it is 83,333. By looking at the data given, you can see that the five base years would have to include 2000. That is the most recent year with base units that exceed 83,333.

Assumed year - 70% decline	**2009**	**2008**	**2007**
3 year testing period	2007-2009	2006-2008	2005-2007
Highest units in 3 year testing period	25,000	25,000	26,000
Highest in testing period / .30	83,333	83,333	86,667
Five base years	2002-2006	2001-2005	2000-2004
Any base years exceed the Highest testing/.30?	**NO**	**NO**	**YES**

At this point, it looks like 2007 could be the year of partial withdrawal due to the 70% contribution decline. You need to do a more detailed calculation to confirm this:

Verification of 70% decline	**2007**
High base years	2000, 2002
Units in high base year	.5*(100,000 + 75,000) = 87,500
30% of units in high base year	26,250
70% decline occurred?	**YES**

Problem 21 - Page 2

To calculate the partial withdrawal liability due to a 70% contribution decline,

(1) The initial year of the three year testing period (2005) is considered as the year of withdrawal for calculation of employer share of UVB

(2) The fraction to multiply the "complete withdrawal" liability by is

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

In this problem, you are given values for Employer A's withdrawal liability at the end of each year. The withdrawal liability assuming withdrawal in 2005 is 3,000,000.

$$\text{Fraction} = 1.0 - \frac{\text{2008 units}}{(\text{ Sum of 2000 through 2004 units })\ /\ 5}$$

$$= 1.0 - \frac{25{,}000}{(100{,}000 + 60{,}000 + 75{,}000 + 29{,}000 + 31{,}000)\ /\ 5}$$

$$= 1.0 - (25\ /\ 59)$$
$$= 57.63\%$$

The partial withdrawal liability, equals the complete withdrawal liability of 3,000,000 multiplied by the fraction calculated above:

1,728,814 = 57.63%(3,000,000)

Answer is A

Problem 22 Similar to 2008 #18

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 2000-7, 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 65 at 12/31/2009, with 34 years of benefit accrual service.

Since the benefit accrual rate of \$55 exceeds \$44 per month, the guaranteed benefit is capped.

Guaranteed benefit accrual rate:
11.00 + 75%(33) = 35.75 month

Guaranteed benefit:
1,215.50 = 34(35.75)

Answer is A

NOTE
2002 exam problem #26 was much 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. This concept was tested on the enrollment exams in problems 2002 #26 and 2008 #18.

Problem 23

Similar to 2008 #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 unfunded vested benefits liability (UVB) is calculated as the excess of the premium funding target over the market value of assets. The market value includes the present value of any prior year contributions that are received by the date the premium filing. The contributions are discounted using the prior year's effective interest rate.

Ignoring the cap, you calculate the variable rate premium as .009 times the UVB. The UVB must be rounded up to the next multiple of 1,000:

UVB	=	1,020,000 - 800,000
	=	220,000
VRP	=	220,000 * .009
	=	1,980

The plan is eligible for the cap if there are 25 employees or less on the first day of the plan year. On 01/01/2010, you are told there are 10 active participants, plus 6 employees who are not participants. Since the total employee count is less than 25, the plan is eligible for the VRP cap.

The variable rate premium cap is calculated based on the number of plan participants, and it is equal to \$5*(participant count)^2. You are told there 10 active participants, plus 8 non-active participants, for a total of 18:

VRP cap	$= 5(18)^2$
	= 1,620

The problem asks for the total PBGC premium, which is the sum of the flat rate premium (FRP) and the VRP. The problem states that the 2010 flat rate premium is \$36 per participant:

FRP	= 36(18)
	= 648
FRP+VRP	= 648 + 1,620
	= 2,268

Answer is C

Problem 24

This question tests a tiny detail in the 4062 regulation, which has never been tested before. At 4062.8(a), it defines the amount of the employer liability due to a cessation of operations. This rule applies if more than 20% of the employer's total employees (who are also participants) separate from employment due to the cessation of operations.

The employer liability due to cessation of operations is equal to the total unfunded plan termination liability multiplied by a fraction. The numerator is the number of employees (who are also participants) who separate from employment due to the cessation of operations. The denominator is the total number of employees (who are also participants) determined immediately prior to the cessation of operations.

The problem tells you the plan is underfunded by 30 million on a PBGC basis. 7,000 participants terminate due to the cessation of operations. Prior to the cessation of operations, there are 15,000 active participants.

Since the ratio of 7 to 15 exceeds 20%, the employer is subject to the rule in 4062.8(a). The employer liability is calculated as

ER liability = 30,000,000*(7/15)
= 14,000,000

Answer is B

Problem 25 Similar to 2008 #38 **Revised 05/03/11**

Under the Rolling Five Method, the calculation of withdrawal liability is relatively simple. Since the withdrawal occurred during 2010, you should use the UVB at 12/31/2009. This is the first problem where you are not given the UVB directly - but it is a simple calculation:

12/31/09 UVB = 43,000,000 - 40,000,000
= 3,000,000

The next step is calculation of Company A's share of the 12/31/09 UVB. This is based on the ratio of Company A's contributions to the total contributions in the prior five years:

YEAR:	2005	2006	2007	2008	2009

$$\text{A's share} = 3{,}000{,}000 * \frac{(420 + 420 + 420 + 440 + 460)}{(4{,}200 + 4{,}000 + 4{,}100 + 4{,}200 + 4{,}400)}$$

It is easier to avoid arithmetic errors if you get rid of the extra zeroes in the contribution values.

$$\text{ER share} = 3{,}000{,}000 * \frac{2{,}160}{20{,}900}$$
$$= 310{,}048$$

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 310,048.

Answer is D

NOTES

1. This 5 point question seems extremely short – it feels more like a 3 point question!

2. 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. Once the employer share reaches 150,000, the deductible becomes zero.

Problem 26 - Page 1

2009 was the first year with any questions on IRC 436. The main point of this problem is whether you know the definition of the IRC 436(c) limitation regarding plan amendments. If a plan's adjusted funding target attainment percentage (AFTAP) is less than 80%, then the amendment cannot take effect.

The funding target attainment percentage (FTAP) is defined in IRC 430. Let CB be the value of the carryover balance and PB be the value of the prefunding balance:

$$\text{FTAP} = \frac{\text{AAV} - \text{CB} - \text{PB}}{\text{Funding Target (non At-Risk)}}$$

The IRC 436 limitation is defined based on the AFTAP. The AFTAP has an adjustment for any non-HCE annuity purchases (NHAP) in the prior two years. This produces a slightly higher value than the FTAP calculation:

$$\text{AFTAP} = \frac{\text{NHAP} + \text{AAV} - \text{CB} - \text{PB}}{\text{NHAP} + \text{Funding Target (non At-Risk)}}$$

If the AFTAP was below 80% before reflecting the effect of the plan amendment, the required contribution is the increase in the funding target due to the amendment. If the AFTAP was above 80% before reflecting the effect of the plan amendment, the required contribution is the amount necessary to produce an AFTAP equal to 80% after reflecting the effect of the plan amendment.

In this problem, you are told that there are no annuity purchases, so the NHAP is equal to zero. Both the CB and PB are equal to zero. In the absence of any specific information, you should assume the funding target given is appropriate for calculating the AFTAP:

$$\begin{aligned} \text{AFTAP}_{\text{before}} &= (0 + 800{,}000 - 0 - 0) / (0 + 985{,}000) \\ &= 81.2\% \end{aligned}$$

The AFTAP before the amendment exceeds 80%. You need to calculate the contribution to produce an AFTAP of 80% after reflecting the effect of the plan amendment.

$$\begin{aligned} \text{AFTAP}_{\text{after}} &= (0 + 800{,}000 + Y - 0 - 0) / (0 + 985{,}000 + 20{,}000) \\ &= 80\% \end{aligned}$$

$$\begin{aligned} 80\% &= (800{,}000 + Y) / 1{,}005{,}000 \\ Y &= 4{,}000 \end{aligned}$$

Answer is C

(see notes on next page)

Problem 26 - Page 2

NOTES

1. There is an exception in IRC 436(c)(1) for amendments to plans with benefits that are not based on compensation. This problem states that the plan benefits are salary related.

2. The description of Y as the "minimum contribution" may be confusing - this is not the same as the minimum required contribution under IRC 430. Since the amount Y is determined "to allow the amendment to take effect", you are supposed to interpret this as an additional contribution under IRC 436.

Problem 27 - Page 1

Similar to 2008 #34

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 2009 MGB value, since the termination date is 12/31/09. The 2009 MGB at 65 is 4,500.00 (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.

All three plan amendments were effective on 02/01, but were adopted at other dates. For purposes of measuring the years that each plan was effective, you use the <u>later</u> of the effective date and the adoption date.

The 02/01/03 plan has been in effect for five full years at DOPT. The 02/01/06 plan has been in effect for only three full years at DOPT, from 02/01/06 to 02/01/09. Due to the later adoption date, the 02/01/09 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	01/01/48
Date of retirement	12/31/09
12/31/09 age	62
Date of hire	01/01/72
Past service	38
Majority owner?	NO
Vesting percentage	100%

Problem 27 - Page 2

5 year average compensation	3,750.00 = 45,000/12
MGB at 65 (life annuity)	3,750.00
MGB reduced for age at DOPT	2,962.50 = .79*3,750.00

"02/01/03" Base plan benefit	65(38) = 2,470.00
Early retirement benefit, Unreduced at age 62	2,470.00
Guaranteeable benefit increase	2,470.00
Years plan has been in effect	5
Phase-in	2,470.00

02/01/06 Base plan benefit	80(38) = 3,040.00
Early retirement benefit	~~= 3,040.00~~ = 2,962.50 (hit MGB)
Guaranteeable benefit increase	2,962.50 - 2,470.00 = 492.50
Years plan has been in effect	3
Phase-in: Greater of \$60 or 60%(GBI)	\$60 or 492.50(60%) = 295.50

Total guaranteed benefit	2,470.00 + 295.50 = 2,765.50

Answer is A

Notes re: Guaranteed benefit calculations

1. The MGB does <u>not</u> increase beyond the year of plan termination. See Example 13 in Appendix A of the PBGC study note.

2. You should use the <u>later</u> 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 <u>later</u> 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 27 - 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.

Problem 28 - Page 1

This is a very simple problem on calculating the total PBGC premium. This is the sum of the variable rate premium (VRP) and the flat rate premium. The key point is knowing the definition of the premium funding target.

The VRP is calculated using the premium funding target (PFT). This is similar to the vested portion of the funding target under IRC 430, but the interest rates are different. For the IRC 430 funding target, the segment rates are calculated using a yield curve value based on 24 month averaging. The segment rates for the PFT are calculated using a yield curve value that does not use the 24 month averaging.

You are told that the plan sponsor did not elect to use the alternate premium funding target. This is precisely the same as the vested portion of the funding target under IRC 430. For the alternate premium funding target, the segment rates are calculated using a yield curve value based on 24 month averaging, which is that same as the IRC 430 funding target.

The plan is eligible for the cap if there are 25 employees or less on the first day of the plan year. This plan is not eligible for the VRP cap.

The unfunded vested benefits liability (UVB) is calculated as the excess of the premium funding target over the market value of assets. The market value includes the present value of any prior year contributions that are received by the date the premium filing. The contributions are discounted using the prior year's effective interest rate.

Ignoring the cap, you calculate the variable rate premium as .009 times the UVB. The UVB must be rounded up to the next multiple of 1,000:

PFT = 5,430,000 - 400,000
= 5,030,000

UVB = 5,030,000 - 2,250,000
= 2,780,000

VRP = 2,780,000 * .009
= 25,020

You are told there are 215 active participants, plus three groups of inactives. In the 2009 Comprehensive premium payment instructions, there is a definition of "participant" for premium purposes:

"For premium purposes, “participant” means an individual (whether active, inactive, retired, or deceased) with respect to whom the plan has Benefit Liabilities. Beneficiaries and alternate payees are not counted as participants. However, a deceased participant will continue to be counted as a participant if there are one or more beneficiaries or alternate payees who are receiving or have a right to receive benefits earned by the participant."

Problem 28 - Page 2

The 20 alternate payees of current participants under QDROs should be excluded. If the participant was dead and had an alternate payee, then the deceased participant would still be included.

The problem asks for the total PBGC premium, which is the sum of the flat rate premium (FRP) and the VRP. The problem states that the 2009 flat rate premium is $34 per participant:

FRP = 34(215 + 155 + 170)
= 18,360

FRP+VRP = 18,360 + 25,020
= 43,380

Answer is B

Problem 29 Similar to 2007 #36

This question tests your knowledge of the requirements of the Internal Revenue Code and ERISA regarding prohibited transactions. Many similar items have appeared in True/False questions on prior exams.

I. FALSE

The 10% limitation in ERISA section 407(a) applies to qualified employer securities and qualified employer real property. There is no prohibited transaction, as long as the investment does not exceed 10% at the time of acquisition of the security.

II. TRUE

In ERISA, the definition of "party in interest" is similar to the definition in IRC 4975(e)(2) of "disqualified person". One of the few differences is that IRC 4975(e)(2)(H) only includes HCEs in the definition of "disqualified person". However, ERISA 3(14)(H) includes all employees in the definition of "party in interest".

III. FALSE

This is a quote from IRC 4975(a):

“**(a) Initial taxes on disqualified person**
There is hereby imposed a tax on each prohibited transaction. The rate of tax shall be equal to 15 percent of the amount involved with respect to the prohibited transaction for each year (or part thereof) in the taxable period. The tax imposed by this subsection shall be paid by any disqualified person who participates in the prohibited transaction (other than a fiduciary acting only as such).”

Answer is B

Problem 30 - Page 1

The general test for a defined benefit plan is defined at 1.401(a)(4)-3(c). The regulation states that the general test is satisfied if each rate group satisfies 410(b). It then points to 1.401(a)(4)-2(c)(3) to define how a rate group satisfies 410(b).

A rate group is defined based on all employees with rates greater than or equal to both the normal accrual rate (NAR) and the most valuable accrual rate (MVAR) for an HCE. Since you have three HCEs, there are three rate groups.

1.401(a)(4)-2(c)(3)(i) states that a rate group must be treated as a separate plan. The numerator of the ratio percentage includes employees in the rate group. The denominator must include all non-excludable employees, even if they are not benefiting under the plan.

1.401(a)(4)-2(c)(3)(i) also refers to other rules in subsections (ii) and (iii) for a rate group to satisfy 410(b). This requires the rate group to pass the average benefits test, which has two parts: the nondiscriminatory classification test, and the average benefit percentage test.

If a plan does not satisfy the ratio percentage test of 1.410(b)-2(b)(2), then it must satisfy one of the other tests in 1.410(b)-2(b). The average benefits test in 1.410(b)-2(b)(3) requires that a plan satisfy both the nondiscriminatory classification test, and the average benefit percentage test.

1.401(a)(4)-2(c)(3)(ii) states that a rate group satisfies the nondiscriminatory classification test when the rate group's ratio percentage is ≥ the lesser of

- Midpoint between the Safe and Unsafe harbor percentages for the plan, and
- Ratio percentage for the plan

1.410(b)-4(c)(4) defines the Safe and Unsafe harbor percentages based on the non-highly compensated concentration percentage (NHCCP). The NHCCP is defined under the regulations at §1.410(b)-4(c)(4)(iii) as the ratio of non-excludable NHCEs to total non-excludable employees.

The regulation defines the NHCCP as "for all employees of the employer." For the NHCCP, the regulation states that the excludable employees are the same as under the ABPT, which uses "all plans in the testing group."

The problem states that this plan passes the average benefit percentage test under 410(b). The safe and the unsafe harbor percentages are defined in tables that are given with the exam. You need to calculate the plan's ratio percentage, and the NHCCP. The NHCCP can be calculated using the denominator values for the 410(b) ratio percentage test.

Based on the data given, you should assume the entire testing group consists of three HCEs and eight NHCEs. The plan's 410(b) ratio percentage is 8/8 divided by 3/3, which equals 100%.

Problem 30 - Page 2

The NHCCP is 8 / (8 + 3) = 72.72%. You should truncate this to lookup the safe and unsafe harbor values. The Safe harbor percentage is 41% and the Unsafe harbor percentage is 31%. The midpoint between the values is 36.0%.

The "lowest possible passing percentage under IRC section 401(a)(4)" is the lesser of the midpoint between the safe and unsafe harbor values, and the plan's 410(b) ratio percentage. The result is 36.0%.

RATE GROUPS

Now you need to construct the rate groups. Each HCE's accrual rates define a rate group. You need to count how many of the HCEs and NHCEs have both a NAR and MVAR that fall within the rate group.

HCE 1		**HCE 2**		**HCE 3**	
NAR: 4.00%, MVAR: 4.75%		NAR: 4.75%, MVAR: 5.80%		NAR: 5.00%, MVAR: 5.75%	
HCEs	**NHCEs**	**HCEs**	**NHCEs**	**HCEs**	**NHCEs**
3	6	1	2	1	2
Ratio %		**Ratio %**		**Ratio %**	
(6/8) / (3/3) = 75%		(2/8) / (1/3) = 75%		(2/8) / (1/3) = 75%	

The lowest ratio percentage for any of the rate groups is 75%. The difference between 75% and the "lowest possible passing percentage" of 36% is 39%.

Answer is C

Problem 31

This question tests your knowledge of the requirements regarding 204(h) notices.

I. TRUE

The general rule is that the 204(h) notice must be provided at least 45 days before the effective date of any 204(h) amendment. There is a special 15 day rule for

- "business transactions", which includes acquisitions or dispositions
- Small plans (less than 100 participants)
- Multiemployer plans

II. FALSE

The effective date of an amendment can be different than the adoption date of an amendment. The general rule is that the 204(h) notice must be provided at least 45 days before the <u>effective</u> date of any 204(h) amendment.

III. FALSE

There is no such exception for collectively bargained plans.

Only item I is true.

Answer is E

NOTE

IRC Section 4980F(b)(1) defines the excise tax for failure to file a 204(h) notice. It is equal to $100 per participant per day in the noncompliance period. The details of the excise tax calculation are contained in the 54.4980F regulation.

Prior exam questions 2004 #21 and 2005 #35 tested the calculation of the amount of the excise tax.

Problem 32

This question is similar to other recent exam questions on the 901.20 regulations.

I. FALSE

In 901.20(d), it states that a conflict of interest does not prevent an actuary from performing services. Once they have made full disclosure of the conflict of interest, they can continue to provide actuarial services. The disclosure should be made to the plan trustees, any named fiduciary of the plan, and the plan administrator (and the collective bargaining representative, if applicable).

II. FALSE

This question falls into the "too tricky" category. A simple example of a calculation that actuaries often make is a "realistic" cost projection that allows for future increases in the 415 limit and the 401(a)(17) limit. In general, these cost calculations are invalid for the minimum required contribution calculation, since the definition in IRC 430 does not allow projection of both of these limits.

III. FALSE

In the regulation at 901.20(h), it requires the actuary to report any non-filing of actuarial documents they have signed with the applicable agency. Since the actuary did sign the Schedule SB, they need to notify the IRS of the non-filing.

None of the items are True.

Answer is A

NOTE
The answer sheet for the exam indicates that the correct answer is A. Discussions on the Actuarial Outpost forums indicate that credit was also given for answer C, where item II is true.

Problem 33 Similar to 2007 #20

The key to this problem is knowing what "the minimum qualified pre-retirement death annuity" means. This refers to the qualified pre-retirement spouse annuity (QPSA). This is an annuity type similar to a qualified joint and survivor annuity, which is defined in 417(b)(1) as a joint and survivor annuity of at least 50%. The problem asks for the minimum QPSA, which matches the 50% qualified joint and survivor annuity factors given in the problem.

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. Based on the plan provisions, Smith's earliest retirement age is 55. The calculations below are based on benefit commencement at current age, since Smith is already past age 55.

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

As of 01/01/2010

Age	58
Service	6
Earliest Retirement Age	55

Accrued Benefit	6,000
Vesting percentage	80%
Vested benefit	4,800
Early Retirement reduction	0.8250
	= 4,950 / 6,000
Actuarially reduced benefit,	3,960
payable at age 58	= .8250 * 4,800

50% J&S Reduction	94%
50% J&S Benefit	3,722
50% Death benefit	1,861

Answer is A

NOTE
One potential area for confusion is that you are applying both the vesting percentage and the early retirement reduction at age 58. Based on IRC 411, the participant becomes 100% vested when they reach normal retirement age. Depending on the plan design, they may become 100% vested at early retirement age. But this problem does not say that is true for this plan.

Problem 34 **Revised 04/23/11**

This is the second problem that tested knowledge of how to use the PBGC expected retirement age (XRA) for the valuation of benefits. The first problem was 2001 #27, which required much more work than this question.

The key point of the problem is calculation of the Priority Category 3 (PC3) benefit. The plan termination date (DOPT) is 01/01/09. Participants in PC3 are those who were (or could have been) in pay status at DOPT-3, or 01/01/06.

Priority Category 3 benefits are the lowest amount payable in the three years preceding DOPT, determined based on lowest level of plan benefits in effect for the five years preceding DOPT. The benefits and early retirement reduction factors are based on the plan in effect at 01/01/04.

The early retirement eligibility used for PC3 is based on the plan provisions in effect at DOPT-3, which is the 01/01/06 plan. In this problem, the early retirement eligibility is the same for all three sets of plan provisions.

There are no maximum benefit limits on PC3 benefits. For participants who were not in pay status at DOPT-3, the PC3 benefit is calculated as if they retired at DOPT-3:

	Smith: PC3 benefit
Date of birth	01/01/49
Date of hire	01/01/98
01/01/06 age	57
01/01/06 service	8
01/01/04 plan, accrued benefit at 01/01/06	2,304.00 = (24)(8)(12)
01/01/04 plan Early retirement factor	60% = 1 – (65-57)*5%
01/01/04 plan benefit, 01/01/06 retirement	1,382.40 = 2,304*60%

The problem asks for the priority category 3 liability for Smith at 01/01/09. Smith is age 60 at that date. You are given the present value factor as ${}_{2|}\ddot{a}_{60}^{(12)}$. This factor is at age 60, and assumes benefit commencement at XRA (age 62).

The present value is (8.52)(1,382.40) = 11,778.

Answer is A

NOTE

Unlike similar problems on prior exams, you do not need to calculate the amount of the guaranteed benefit, or the benefit in Priority Category 4. If the problem had asked for the benefit (or liability) allocated to PC4 (or assigned to PC4), then you would need to calculate those values.

Problem 35

This question is the first one on the details of the plan termination premium. This requires knowledge of section 4007.13 of the PBGC regulations, which defines a "DRA 2005 termination", which is subject to the plan termination premium.

I. FALSE

In 4007.13(a)(1)(i), it states that an involuntary termination under ERISA 4042 satisfies the definition of a "DRA 2005 termination".

II. TRUE

In 4007.13(a)(1)(ii), it states that a distress termination under ERISA 4041(c) satisfies the definition of a "DRA 2005 termination" if at least one contributing sponsor (or member of the contributing sponsor's controlled group) meets the requirements of either

- ERISA 4041(c)(2)(B)(ii) (a "bankruptcy reorganization") or
- ERISA 4041(c)(2)(B)(iii) (two other flavors of distress terminations)

But the situation described in the problem is a "bankruptcy liquidation". This matches ERISA 4041(c)(2)(B)(i), so it does not meet the definition of a "DRA 2005 termination".

III. FALSE

In 4007.13(g), it states that each contributing sponsor of the plan on the day before the plan's termination date is jointly and severally liable for the termination premiums.

Only item II is True.

Answer is E

NOTE
In 4007.1(a)(2), it states that certain plan terminations are not subject to the plan termination premium. These terminations are due to bankruptcy proceedings that were filed prior to October 18, 2005.

Problem 36 **Revised 04/23/11**

The key point of the problem is calculation of the Priority Category 3 (PC3) benefit. The plan termination date (DOPT) is 01/01/11. Participants in PC3 are those who were (or could have been) in pay status at DOPT-3, or 01/01/08.

Priority Category 3 benefits are the lowest amount payable in the three years preceding DOPT, determined based on lowest level of plan benefits in effect for the five years preceding DOPT. The benefits and early retirement reduction factors are based on the plan in effect at 01/01/06.

The early retirement eligibility used for PC3 is based on the plan provisions in effect at DOPT-3, which is the 01/01/07 plan. In this problem, the early retirement eligibility is the same for both sets of plan provisions.

There are no maximum benefit limits on PC3 benefits. For participants who were not in pay status at DOPT-3, the PC3 benefit is calculated as if they retired at DOPT-3:

	Smith: PC3 benefit
Date of birth	01/01/50
Date of hire	01/01/80
01/01/08 age	58
01/01/08 service	28
Final average earnings at 01/01/08	(90,000 + 95,000 + 105,000)/3 = 96,666.67
01/01/06 plan, accrued benefit at 01/01/08	2.9%(28)(96,666.67) = 78,493.33
01/01/06 plan Early retirement factor	1 - (65-58)(3%) = .79
01/01/06 plan benefit, 01/01/08 retirement	.79(78,493.33) = 62,009.73

The problem asks for the priority category 3 liability for Smith at 01/01/2011. Smith is age 61 at that date. You are given the present value factor as 13.0 at age 61.

The present value is (13.0)(62.009.73) = 806,127.

Answer is B

NOTE
Unlike similar problems on prior exams, you do not need to calculate the amount of the guaranteed benefit, or the benefit in Priority Category 4. If the problem had asked for the benefit (or liability) allocated to PC4 (or assigned to PC4), then you would need to calculate those values.

Problem 37

Similar to 2005 #16

Based on looking at the years with at least 1000 hours, Smith appears to have 6 years of service. The key point of the problem is that you can ignore the hours earned in 1994 and 1995.

IRC 411(a)(6)(D) allows exclusion of certain years from the calculation of vesting service, but only for non-vested participants. In order to do so, the number of consecutive 1-year breaks in service must equal or exceed the greater of 5, or the aggregate number of years of service before such period (of consecutive 1-year breaks in service).

If a participant works less than 501 hours in a year, there is a 1-year break in service in that year. In the years from 1997-2001, there are five consecutive 1-year breaks in service.

Smith had only two years of vesting service prior to 1997, but they were not yet vested. So the prior years of service in 1994 and 1995 can be ignored.

Smith has four years of vesting service: 2003, 2004, 2008 and 2009.

Answer is C

NOTE

Two other items have been tested in recent similar exam questions.

- IRC 411(a)(4)(A) allows you to ignore the hours earned in years prior to the year an employee attains age 18.
- 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.

Problem 38 - Page 1 Similar to 2007 #18

This could have been a difficult question, but there must be a typographical error in the accrual rates that are given. The problem gives you allocation rates for both the DB and the DC plan, and states that testing is done on a contributions basis.

Since the DC plan is not tested on a benefits basis, it is not subject to the cross testing gateways. The testing for the aggregated plans is not subject to the minimum aggregate allocation gateway.

The additional profit allocation must be zero.

Answer is A

Just in case you are interested, here is the solution assuming that the testing for the DB and DC plans is done on a benefits basis.

There are three DB / DC cross testing gateway rules:

- Broadly available separate plans
- Primarily defined benefit in character
- Minimum aggregate allocation gateway

In this problem, you are told that the aggregated plan is not primarily defined benefit in character. The problem states that you should calculate the additional profit sharing allocation so the plans will satisfy the minimum aggregate allocation gateway. As a result, you should ignore the gateway based on broadly available separate plans.

The minimum aggregate allocation gateway consists of two different rules. The plan only has to satisfy one of the two rules. See the note at the end of the solution for additional information.

This gateway test requires you to calculate an equivalent normal allocation rate under the DB plans. The test uses the aggregate allocation rate for the aggregated DB/DC plan. You are not allowed to impute permitted disparity in determining the allocation rates.

To satisfy this gateway test, if the aggregate HCE allocation rate is 15% or less, the NHCEs must have an aggregate allocation rate equal to at least 1/3 of the highest allocation rate for any HCE in the plan. If the HCE rate is above 15%, but less than or equal to 25%, then the minimum allocation rate for the NHCEs is 5%.

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 aggregate allocation rate is 1/5 of the top end of the range.

Problem 38 - Page 2

The first step is to calculate the equivalent allocation rates for HCE1. This requires cross testing the DB plan accrual on a contributions basis:

	HCE
12/31/2009 age	52
DB Annual accrual	950(12) = 11,400
Lump sum value at 65	11,400(7.95) = 90,630
Discounted value at 8.5%	$90{,}630(1.085)^{-13} = 31{,}382$

DC allocation	25,000
Total allocation	56,382
Pay limited by 401(a)(17)	180,000
Allocation rate	56,382 / 180,000 = 31.32%

The final result is the equivalent allocation rate for 2009. Since this is between 30% and 35%, the minimum aggregate allocation rate for the NHCEs is 7%.

You can skip any calculations for NHCE5, NHCE6 and NHCE7, since their aggregate allocation rate exceeds 7%. Here are the calculations for HCE2, NHCE3 and NHCE4:

	HCE2	NHCE3	NHCE4
Aggregate allocation rate	7.0%	7.0%	7.0%
DB allocation rate	2.0%	2.8%	3.7%
Difference	N/A	4.2%	3.3%

All three of these employees must have the same allocation rate under the DC plan. You must use the 4.2% rate so that both of the NHCEs have an aggregate allocation rate of at least 7.0%.

	HCE2	NHCE3	NHCE4
DC allocation rate	4.2%	4.2%	4.2%
Compensation	110,000	50,000	40,000

The total compensation for the three employees is 200,000, and the resulting DC allocation is 4.2%(200,000) = 8,400.

Answer is D

NOTES:

- The answer sheet for the exam indicates that the correct answer is D, which meets the minimum aggregate allocation gateway, assuming the plans are tested on a benefits basis. Discussions on the Actuarial Outpost forums indicate that credit was also given for answer A.

Problem 38 - Page 3

NOTES (continued)

- A second alternative rule is that each NHCE has an allocation rate of 7.5% or more. In this problem, that would clearly give a much larger value for X. 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.

- One thing to realize is that not all NHCEs would get this minimum allocation. The only ones who must receive the minimum allocation are those participants that also benefit under the profit sharing plan.

- One final wrinkle in this gateway is that you have an alternative to requiring every NHCE to receive the minimum aggregate allocation. Instead of using each participant's equivalent normal allocation rate under the DB plan, you can use the average of the equivalent normal allocation rate under the DB plan for all NHCEs benefiting under the plan.

  In this problem, this alternative technique does not produce a lower additional DC plan allocation. The reason is that the equivalent normal allocation rate under the DB plan for NHCE5, NHCE6, and NHCE7 is lower than the rates for HCE2, NHCE3, and NHCE4. This would produce a lower equivalent normal allocation rate under the DB plan, and would require a higher minimum allocation rate under the DC plan.

Problem 39 **Revised 04/27/12**

This is the first detailed question asked about determining benefit service, where a plan has a "first of the month coincident with or next following" definition for the entry date. You need to count carefully to get the correct answer.

The vesting schedule is 100% after five years of service. Smith is 100% vested at their termination date of 01/31/2009.

The minimum participation requirement under IRC 410(a) is attainment of age 21 with one year of service. Smith attains age 21 on 01/31/2003, and they complete one year of service on 10/21/2002. Smith's participation date is 02/01/2003.

Benefit service is defined under the plan as 1/12 of a year for each full month of participation. In 2003, Smith earns 11/12 of a year. In 2009, Smith earns 1/12 of a year.

Plan year	Benefit service
2003	11/12
2004	1.0
2005	1.0
2006	1.0
2007	1.0
2008	1.0
2009	1/12

Smith has six full years of benefit service at 01/31/2009, which is 72 months.

Answer is B

NOTES:

1. The problem states the plan uses "the most restrictive participation requirements of IRC section 410(a)(1)." Since the problem states that vesting is 100% after 5 years, you know that the plan does <u>not</u> use the 21 and 2 participation requirement under 410(a)(1)(B)(i) – that would require vesting of 100% after 2 years.

2. 401(a)(1) defines the minimum participation requirement as follows:
   "Entry into the plan must be no later than the earlier of <u>6 months</u> after satisfying the eligibility requirements or the first day of the next plan year".

   The solution to this problem does not use the 6 months period. The reason is that the participation date is specified as the first of the month following completion of the age and service conditions.

Problem 40

This question tests your knowledge of section 4007.13 of the PBGC regulations on the plan termination premium.

I. FALSE

It makes sense that an ongoing plan could pay PBGC premiums from the assets of the plan. It does not make sense that a distress termination could pay the termination premium from the assets of the plan. There are not enough assets in the trust to cover the benefit liabilities, and the PBGC would not let the plan sponsor reduce the assets by such a payment.

II. TRUE

See 4007.13(a)(4)

III. 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."

Only items II and III are True.

Answer is D

Problem 41 - Page 1 | Similar to 2002 #31 | **Revised 04/23/11**

This is a typical PBGC guaranteed benefits question. It tests your knowledge of the 5 year phase-in of guaranteed benefits. 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.

When there is 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.

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.

Another key point of the problem is that the maximum guaranteed benefit limit (MGB) must be reduced for benefit commencement ages before 65. The 2009 MGB at 65 is 4,500 (from the tables given with the exam).

A key point to this problem is that you should use the later of age at DOPT and age at benefit commencement for purposes of adjusting the MGB. The MGB should be adjusted based on the age at DOPT (beyond retirement) of 61.

In addition, the MGB must be adjusted to allow for the payment form. Smith retired at 01/01/2006 under a 15 year certain and life payment form. At 01/01/2009, the form of payment is a 12 year certain and life. You need to adjust the guaranteed benefit limit to the same form of payment. Based on page 72 of the PBGC study note, it is correct to age adjust the MGB, even when it is based on the highest five year compensation.

One simplifying aspect of this problem is that you are given the monthly benefit amounts. You typically have to determine the accrued benefit and early retirement reduction factors for PBGC guaranteed benefit problems involving retired participants.

01/01/09 Age	61
2009 MGB at 65 on life annuity	4,500
Age 61 MGB factor	.72
2009 MGB at 61 on life annuity	3,240.00 = .72(4,500)
12 year C&L MGB factor	.925 - 2(.01) = .905
2009 MGB at 61 on 12 year C&L	2,932.20 = .905(3,240)

Problem 41 - Page 2

The change in plan benefits at 01/01/2007 is subject to the 5 year phase-in rules at the DOPT of 01/01/2009. Based on item nine on page 84 of the PBGC study note, use the later of the adoption date and the effective date of the increase for phase-in purposes.

5 year old plan - early ret benefit	2,800.00
3 year old plan - early ret benefit	3,300.00
Maximum Guaranteeable benefit	2,932.20
Guaranteeable benefit increase	2,932.20 - 2,800 = 132.20
Phase-in, 2 year old plan	Lesser of 132.20, or Greater of 40 or 40%(132.20)
Guaranteed benefit	2,800.00 + 52.88 = 2,852.88

Answer is D

Notes re: Guaranteed benefit calculations

1. The MGB does <u>not</u> increase beyond the year of plan termination. See Example 13 in Appendix A of the PBGC study note.

2. You should use the <u>later</u> 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 <u>later</u> 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.

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 is a change in normal form of benefits, you should 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.

Problem 42

Similar to 2007 #35

Code section 401(a)(26) 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.

Company A's plan covers employees in three of the five divisions. The question asks how many employees need in Division V need to benefit under the plan to satisfy 401(a)(26).

Let X be the number of employees in Division V. The total number of employees in Company A is 107 + X = 15 + 42 + 27 + 23 + X.

The number of employees benefiting in Divisions I, IV and V is 38+X = 15 + 23 + X. Under 401(a)(26), at least 40% of the total employees must benefit (or 50, if less).

$$
\begin{aligned}
38 + X &\geq 40\%(107 + X) \\
38 + X &\geq 42.8 + .4X \\
.6X &\geq 4.8 \\
X &\geq 8.0
\end{aligned}
$$

Answer is C

NOTE
The number of employees benefiting is 46 = 15 + 23 + 8. If this total was more than 50, then you could have a lower value for X, and still satisfy 401(a)(26).

Problem 43

Similar to 2008 #37

§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 first step is to calculate the initial reversion (and the excise tax), assuming the employer did not establish a qualified replacement plan:

Initial Reversion	=	850,000 - 500,000
	=	350,000
Tax on reversion	= 50%(350,000)	
	=	175,000

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. The initial amount of the asset transfer must be at least 25% of the initial reversion:

Asset transfer	= 25%(350,000)	
	=	87,500
Actual Reversion	=	850,000 - 500,000 - 87,500 transfer
	=	262,500
Tax on reversion	= 20%(262,500)	
	=	52,500

The difference in the two excise tax values is 122,500 = 175,000 - 52,500.

Answer is E

NOTE
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. This concept was tested on 2008 exam question #37.

Problem 44 – Page 1

The problem states that the market value of assets covers all benefit liabilities, and the plan undergoes a standard termination at 1/1/2009. The key to this problem is knowing that the participants become fully vested upon plan termination.

This is based on IRC 411(d)(3), which says

"(3) Termination or partial termination; discontinuance of contributions

Notwithstanding the provisions of subsection (a), a trust shall not constitute a qualified trust under section 401(a) unless the plan of which such trust is a part provides that--

> *(A) upon its termination or partial termination, or*
> *(B) in the case of a plan to which section 412 does not apply, upon complete discontinuance of contributions under the plan, the rights of all affected employees to benefits accrued to the date of such termination, partial termination, or discontinuance, to the extent funded as of such date, or the amounts credited to the employees' accounts, are nonforfeitable. This paragraph ..."*

Another key to this problem is handling of the break in service rules for participant Smith, who terminated at 01/01/2003 with a vesting percentage of 20%. Smith has experienced five consecutive 1 year breaks in service at 01/01/2009. But they should still become 100% vested at plan termination, since the market value of assets covers all benefit liabilities.

Name	**Smith**	**Jones**
Age	50	50
Service	3	2
Vesting	100%	100%
Compensation	60,000	75,000
Accrued benefit	3(2%)(60,000) = 3,600	2(2%)(75,000) = 3,000
Vested benefit	3,600	3,000
Present value	3,600*7.00 = 25,200	3,000*7.00 = 21,000

Total present value of benefits is 46,200 = 25,200 + 21,000.

Answer is E

(next page)

Problem 44 – Page 2 **Revised 03/07/13**

The official answer range of C appears to be based on the assumption that participant Smith does not become 100% vested at plan termination. See the note below for a possible explanation.

Name	**Smith**	**Jones**
Age	50	50
Service	3	2
Vesting	20%	100%
Compensation	60,000	75,000
Accrued benefit	3(2%)(60,000) = 3,600	2(2%)(75,000) = 3,000
Vested benefit	720	3,000
Present value	720*7.00 = 5,040	3,000*7.00 = 21,000

Total present value of benefits is 26,040 = 5,040 + 21,000

Answer is C

NOTES

- Discussions on the Actuarial Outpost forums indicate that this question was dropped from the scoring of the pass mark. The correct answer is E, based on the Internal Revenue Code and regulations.

- The IRS has not fully vested all employees upon plan termination in all situations. Here is some text from Chapter 4, Section XII of the ERISA Outline Book:

  "2.a. IRS has applied 5-year break in service rule.
  Although the 5-year break in service rule does not apply to a defined benefit plan, the IRS seems to have informally adopted the rule to determine who vests upon plan termination, so that defined contribution plans and defined benefit plans are treated the same. It should be noted, however, that no formal guidance exists and *the IRS' application of this rule in the field has been inconsistent*". (emphasis added)

- Under IRC 411(a)(6)(C), you can disregard service for a vested participant prior to a period of five consecutive 1-year breaks in service. This rule only applies to defined contribution plans and fully insured defined benefit plans.

- Under IRC 411(a)(6)(D), you can disregard service for a nonvested participant in a defined benefit plan. To do this, the period of five consecutive 1-year breaks in service must be greater than or equal to the greater of 5 years, or the number of years of service prior to the period of consecutive 1-year breaks in service.