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2015 EA-2L EXAM SOLUTIONS

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2015 EA-2L Exam Solutions

These solutions were prepared based on the law as in effect at November 30, 2014.

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:

April 29, 2019	Corrected solution for problem 42
January 26, 2019	Corrected solution for problem 28
April 23, 2017	Corrected solution for problems 10 and 39
April 14, 2017	Corrected solution for problem 10
April 2, 2017	Corrected solutions for problems 7 and 10
February 23, 2017	Corrected solution for problems 8, 10 and 22
April 26, 2016	Corrected solution for problem 41
March 18, 2016	Corrected solution for problem 10
January 28, 2016	Original solutions

NOTES on 2015 exam

Based on the percentage of students who passed, the 2015 exam was close to normal. Both the 2011 and 2012 exams were more difficult than other years' exams. I think the 2011 exam was much trickier than earlier years' exams.

<u>Exam Year</u>	<u>Pass Mark</u>	<u>Percentage Who passed</u>	
2015	70	45.5	
2014	70	47.2	
2013	72	58.7	(not a typo!)
2012	65	40.0	
2011	63	39.2	
2010	69	43.7	
2009	68	59.1	(not a typo!)
2008	63	37.2	

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Problem 1

FALSE

The actuarial value of assets for valuation purposes uses a smoothed average of the market values. This can not be used for calculating the PBGC variable rate premium. Those calculations must use the market value with no averaging.

See the regulation at 4006.4(c).

Answer is B

NOTE

You can also rely on the “must rule” here – it works correctly most of the time:

“If a true / false question uses the word “must”, it must be false!”

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Problem 2

FALSE

Q-15 of the 54.4980F regulation discusses the excise taxes for late filing of 204(h) notices. In paragraph (b), there is an allowance for situations where no excise tax will be applied:

“(b) Excise tax inapplicable in certain cases.

...

Under section 4980F(c)(2) of the Internal Revenue Code, no excise tax applies to a failure to provide section 204(h) notice if the employer (or other person responsible for the tax) exercised reasonable diligence and corrects the failure within 30 days after the employer (or other person responsible for the tax) first knew, or exercising reasonable diligence would have known, that such failure existed.”

Answer is B

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Problem 3

Similar to 2012 #09

FALSE

In general, the Top Heavy (T-H) determination date is the last day of the preceding plan year. An exception to this is the first plan year, when the determination date is the last day of the first plan year.

Answer is B

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Problem 4

Similar to 2012 #24

This is a simplified question on the details of 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 “Location C is treated as being in a qualified separate line of business” for 401(a)(26). As under 410(b), you must disaggregate the QSLOB from any other plans.

For testing Plan C, the total number of employees is $105 = 5 + 100$. 40% of the total is 42. Since the plan only covers 40 employees, it does not pass 401(a)(26).

You need to sum up the total numbers of employees for the other three locations to test each plan for 401(a)(26):

	Total employees		Benefiting employees	
	HCE	NHCE	HCE	NHCE
Plan A	5	110	5	60
Plan B	10	60	10	35
Plan D	50	90	0	40
Total	65	260	15	135

The total number of employees is $325 = 65 + 260$. 40% of the total is 130. Each plan must benefit at least 50 employees.

Plan A is the only one that passes 401(a)(26) based on the number of employees covered. But the point of the question is that Plan D also passes, since it does not cover any HCEs.

Answer is C

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Problem 5

This is a simplified question on the PBGC financial reporting under the 4010 regulation. In general, the Funding target attainment percentage (FTAP) is defined under IRC 430(d)(2), at the valuation date for the plan year:

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

MAP-21 changes the segment rates under IRC 430, starting in 2012. For 4010 reporting, calculations must ignore the MAP-21 changes to the segment rates for calculating the funding target and the Funding target attainment percentage (FTAP). You must use the higher Funding target, which does not use the stabilized segment rates.

$$\begin{aligned}\text{FTAP} &= \frac{4,620,000 - 90,000 - 620,000}{7,300,000} \\ &= 53.56\%\end{aligned}$$

Answer is D

NOTE

The prefunding balance (PB) and carryover balance (CB) must reflect any elections or deemed elections that affect the value of the balances at the beginning of the plan year. The actual date the elections are made does not matter.

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Problem 6

Similar to 2012 #34

Missing participant calculations have rarely been tested on recent exams. This is so old, it is almost a “trick question”.

Section 4050 of ERISA contains rules regarding missing participants. In the regulation at 4050.5(a), it describes the amount of the “designated benefit” for four different cases:

- 4050.5(a)(1) Mandatory lump sum - Present value under plan assumptions
- 4050.5(a)(2) De minimis lump sum - Present value < 5,000 under missing participant lump sum assumptions
- 4050.5(a)(3) No elective lump sum - Present value at deemed distribution date under missing participant annuity assumptions
- 4050.5(a)(4) Elective lump sum - greater of values under (a)(1) and (a)(3)

I. FALSE

If the only available form of payment is an annuity, a missing participant could still fall into the 1st or 2nd cases above. In either case, the missing participant benefit would be a lump sum payment (not an annuity).

II. FALSE

A missing participant could fall into the 2nd case above. In that case, the missing participant benefit would be a lump sum payment determined using the missing participant lump sum assumptions.

III. FALSE

This is a tiny detail, which is not mentioned in the 4050 regulations. This is barely referenced in the Form MP instructions. Based on the Q&A for Schedule MP at the PBGC web site, there is no 20% withholding:

“The Internal Revenue Service confirmed to PBGC in an information letter (dated February, 26, 1997) that 20% tax withholding does not apply to a transfer from a terminating plan to the PBGC, or to the purchase of an annuity, under the Missing Participants Program.

...

The PBGC, or the insurer that provides an annuity, will withhold taxes when benefits are paid to the participant.”

None of the statements are true.

Answer is A

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Problem 7 – Page 1

Similar to 2012 #38

This is a relatively straightforward 415 problem. The key point of the problem is knowing that the §415 limits are reduced for service (and participation) less than 10 years.

01/01/2015

Age	60
Service	8 years
Participation	7 years

PLAN BENEFIT

This is a simplified problem, which gives no information on the plan benefit.

415 COMP LIMIT

The §415(b)(1)(B) compensation limit is reduced when service is less than ten years. This limit is based on the highest three consecutive years of pay. Based on the 415 regulation that became final in 2007, earnings under §415 are subject to the §401(a)(17) limit. In this problem, the pay never exceeds the 401(a)(17) limit.

2011 pay	155,000
2012 pay	160,000
2013 pay	165,000
2014 pay	100,000
Three year average pay	160,000
§415 compensation limit	$(8/10) * 160,000$ $= 128,000$

415 DOLLAR LIMIT

The next step is calculation of the §415 dollar limit under §415(b)(1)(A). The dollar limit is reduced when participation is less than ten years. Smith has 7 years of participation service:

$$\begin{aligned}\text{§415 dollar limit during 2015} &= 210,000 * (7/10) && \text{for ages 62-65} \\ &= 147,000\end{aligned}$$

§415(b)(2)(E)(i) says to use the greater of 5% and the interest rate specified in the plan to reduce the §415 dollar limit prior to age 62, but here the code is misleading. The examples in the 1.415 regulation clarify the reductions in the §415 dollar limit.

Mandated basis reduction factor

Here is the short version of what you need to know. If you want to see the long version, check out the notes at the end of the solution to this problem.

Actuarial decrease factor for 415 dollar limit, based on mandated 5%, applicable mortality

Death benefit definition	Factor
Waived QPSA, or NO death benefit (complete forfeiture on death)	$N_{62}^{(12)} / N_X^{(12)}$
QPSA death benefit, and plan charges participants for cost of QPSA (default per 2015 exam condition 10)	$N_{62}^{(12)} / N_X^{(12)}$
100% of PV of accrued benefit (no forfeiture on death)	$v^{62-X} (\ddot{a}_{62}^{(12)} / \ddot{a}_X^{(12)})$
QPSA death benefit, and plan does NOT charge for cost of QPSA (treat as no forfeiture on death)	$v^{62-X} (\ddot{a}_{62}^{(12)} / \ddot{a}_X^{(12)})$

You are told nothing about the plan's death benefit. Based on the default exam conditions, you assume the participant is covered by the QPSA death benefit, and the plan charges participants for the cost of the QPSA. As shown above, you should reflect pre-retirement mortality in the actuarial reduction prior to age 62.

But the problem does not give you any commutation functions to calculate the factor. Instead, you are given two actuarial equivalence reduction factors. One of them is the factor that you want:

$$\begin{aligned} \text{Actuarial reduction from 62 to 60} &= (N_{62}^{(12)} / N_{60}^{(12)}) \\ &= .86 \end{aligned}$$

Plan basis reduction factor

The 415 dollar limit must be actuarially reduced from age 62 down to age 60. The plan basis reduction factor is defined as the ratio of the life annuity benefit at the early retirement age divided by the life annuity benefit at age 62 (both ignoring the 415 limits). The problem states that there are no early retirement reductions under the plan, so the factor is 1.0:

$$\begin{aligned} \text{Actuarial reduction from 62 to 60} &= (\text{ER benefit at 60}) / (\text{ER benefit at 62}) \\ &= 1.00 \end{aligned}$$

Final 415 limit

$$\begin{aligned} \$415 \text{ dollar limit at age 60} &= 147,000 * \text{lesser of } [.86 \text{ or } 1.00] \\ &= 126,420 \end{aligned}$$

Problem 7 – Page 3**Revised 04/02/17****Final 415 limit**

Life annuity §415 limit at 60

= lesser of 3 year comp limit and dollar limit
= lesser of 128,000 and 126,420
= 126,420

Answer is C**NOTES****Actuarial reduction of 415 dollar limit below age 62 (LONG version)**

If the plan document does not define a life annuity at both age 62 and the early retirement age, then the §415 dollar limit is reduced using a single factor calculated based on the mandated mortality and interest rate. If the plan does define a life annuity benefit at both ages, then the §415 dollar limit is reduced using the lower of two factors:

1. Actuarial reduction factor based on the mandated mortality and interest rate, and
2. The ratio of the plan's life annuity benefit at the early retirement age divided by the plan's life annuity benefit at age 62, both ignoring the 415 limits

The definition of the actuarial equivalent reduction factor (on the mandated mortality and interest rate) will vary depending on the definition of the death benefit. If there is no forfeiture on death, then you can ignore pre-retirement mortality:

$$v^{62-x} (\ddot{a}_{62}^{(12)} / \ddot{a}_x^{(12)})$$

If the death benefit is defined as 100% of the present value of the accrued benefit, then there is no forfeiture upon death. In 1.415(b)-1(e)(3), it states that you may treat a typical Qualified Pre-retirement Survivor Annuity (QPSA) death benefit as resulting in no forfeiture on death. This treatment is only allowed if the plan does not charge for the cost of the QPSA, and if the plan applies the same treatment for all retirement ages (both before age 62 and after age 65).

If there is a forfeiture on death, then you must reflect pre-retirement mortality:

$$(N_{62}^{(12)} / N_x^{(12)}) = v^{62-x} p_x (\ddot{a}_{62}^{(12)} / \ddot{a}_x^{(12)})$$

If there is no death benefit, then there is a full forfeiture upon death. This can happen if the participant is single, or if they are married, and they elect out of the Qualified Pre-retirement Survivor Annuity (QPSA). With a typical QPSA death benefit, there will be a forfeiture on death. Based on exam condition 12, in the absence of any other information, you should assume that the plan does charge the participants for the cost of the QPSA.

Actuarial reduction of 415 dollar limit below age 62 - continued

Actuarial decrease factor for 415 dollar limit, based on mandated 5%, applicable mortality

Death benefit definition	Factor
Waived QPSA, or NO death benefit (complete forfeiture on death)	$N_{62}^{(12)} / N_X^{(12)}$
QPSA death benefit, and plan charges participants for cost of QPSA (default per exam condition 12)	$N_{62}^{(12)} / N_X^{(12)}$
100% of PV of accrued benefit (no forfeiture on death)	$v^{62-x} (\ddot{a}_{62}^{(12)} / \ddot{a}_X^{(12)})$
QPSA death benefit, and plan does NOT charge for cost of QPSA (treat as no forfeiture on death)	$v^{62-x} (\ddot{a}_{62}^{(12)} / \ddot{a}_X^{(12)})$

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Problem 8

Similar to 2004 #41

Revised 02/23/17

FALSE

The key to this problem is whether you are familiar with DOL Interpretive Bulletin 95-1, which corresponds to 29 CFR 2509.95-1. This bulletin explains the fiduciary standards outlined in Act Section 404 of ERISA. It is discussed in connection with plan terminations on pages 42 and 43 of the PBGC study note.

The point of the question is that you can't rely solely on the ratings of the annuity providers. If you do rely on the ratings, then you would simply pick the safest annuity – too easy!

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 9

FALSE

The key point of this question is the definition of the segment rates used to determine the funding target for purposes of the PBGC variable rate premium. Under MAP-21 and HATFA, the funding target is calculated using the “stabilized” segment rates, which are based on a 25 year average. These segment rates are used for the Funding target used to calculate the minimum required contribution for funding purposes.

In general, the Premium funding target is calculated using segment rates that are different than those used for funding purposes. These segment rates are not averaged over any period, but reflect the calendar month prior to the start of the plan year.

The Alternative Premium funding target is calculated using segment rates that are similar to those used for funding purposes. As noted in 4006.4, the Alternative Premium funding target is calculated using segment rates that are averaged over 24 months. These segment rates are different than the “stabilized” segment rates.

Answer is B

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Problem 10 – Page 1

Similar to 2014 #29

Revised 04/23/17

Plans are exempt from 4010 reporting if they satisfy the exemption at 4010.11. All the plans in the controlled group must satisfy these conditions:

- The aggregate 4010 funding shortfall for all plans maintained by the controlled group is less than \$15 million, and
- Plan sponsor has made their quarterly contributions timely, and
- No minimum funding waivers that exceed \$1 million

The first value of X is based on the 4010 funding shortfall:

4010 Funding

$$\text{Shortfall} = \text{FT} - (\text{AAV} - 0)$$

$$15,000,000 = 142,000,000 - (X - 0)$$

$$\begin{aligned} X &= 142,000,000 - 15,000,000 \\ &= 127,000,000 \end{aligned}$$

For 4010 reporting in 2015, the funding shortfall calculation used the smaller funding target based on the MAP-21 stabilized segment rates. The 4010 funding shortfall definition does not reduce the assets by the funding balances. Based on the answer ranges, this could be the correct answer ...

Another way for a plan to be exempt from reporting is if all controlled group members do not satisfy the definition of a filer at 4010.4:

- The plan has a funding target attainment percentage (FTAP) greater than 80%, and
- Plan sponsor has made their quarterly contributions timely, and
- No minimum funding waivers that exceed \$1 million

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

$$.80 = (X - 0 - 1,000,000) / 155,000,000$$

$$\begin{aligned} X &= .80(155,000,000) + 1,000,000 \\ &= 125,000,000 \end{aligned}$$

The FTAP calculation must not reflect the MAP-21 stabilized segment rates. The UVB calculations for PBGC premiums also must not use the smaller funding target based on the MAP-21 stabilized segment rates.

The question asks for the “minimum value of assets”, so the final answer is 125,000,000.

Answer is B

(see notes on next page)

NOTES

1. The 4010 regulation was changed subsequent to the 2015 exam. Starting in 2016, the funding shortfall calculation no longer uses the funding target based on the MAP-21 stabilized segment rates. See 4010.11(a)(1)(i). Now all the PBGC calculations use the same (higher) value of the funding target.
2. Plans are exempt from reporting the actuarial information under 4010.8 if they meet all three of the following conditions. Note that the plans are not exempt from a 4010 filing, since they have to report information under 4010.7 and 4010.9.
 - The plan either
 - Has less than 500 participants, and has a 4010 funding shortfall (defined in 4010.11) less than \$15 million, or
 - Has benefit liabilities less than or equal to the market value of assets, and
 - Plan sponsor has made their quarterly contributions timely, and
 - No minimum funding waivers

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Problem 11

Similar to 2014 #03

This problem gives you information about three plans. Plan A covers employees in Division A, and has no eligibility requirements. Plan B covers employees in Division B, and has an eligibility requirement of age 18 and 1 year of service. Plan C covers employees in Division C, and has an eligibility requirement of age 21 and 6 months of service.

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 it is mandatory that you 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
- nonresident aliens

In this problem, you are told that the plan sponsor elects to aggregate all three plans for nondiscrimination testing. The number of employees who are excludable based on age and service is based on those employees who do not satisfy any plan's eligibility requirements.

Since Plan A has no eligibility requirements, all of the employees are non-excludable. There are 155 non-excludable employees – this is the sum of (60+0) for Plan A, plus (35+3) for Plan B, plus (50+7) for Plan C.

Answer is E

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Problem 12

Similar to 2013 #12

FALSE

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

According to ERISA, a fiduciary is any person so named in the plan document or any person who exercises any discretionary authority or control with respect to the management or administration of the plan or its assets. See IRC Section 4975(e)(3).

Since the TPA firm only calculates the amount of the benefits, they do not satisfy the definition of a fiduciary.

Answer is B

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Problem 13

TRUE

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 a single HCE. Since you have zero HCEs ... maybe you only have one rate group. The same number of participants would be in the numerator and the denominator, so the ratio percentage is 100% - and the plan passes the general test.

If you feel uncomfortable with the definition of the rate group based on zero HCEs, you could also rely on 1.410(b)-2(b)(6). This allows a plan to pass automatically if there are no HCEs.

Answer is A

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Problem 14

Similar to 2014 #11

FALSE

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.

It is pretty clear that you should use 2013-2015 as your first guess for the three year testing period. But the problem is trying to trick you – it asks if the 70% decline occurred for 2013.

In that case, the three year testing period is 2011-2013, and the five base years are 2006-2010. Since you have no data for 2006 and 2007, you can not verify that a 70% decline occurred for 2013.

Answer is B

NOTE

You can verify that a 70% decline occurred for 2015:

Assumed year - 70% decline

3 year testing period

Highest units in 3 year testing period

Highest in testing period / .30

Five base years

Any base years exceed the Highest testing/.30?

2015

2013-2015

24,000

80,000

2008-2012

YES

At this point, it looks like 2015 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

Units in high base year

30%*(Units in high base year)

70% decline occurred?

2015

82,500

24,750

YES

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Problem 15

Similar to 2013 #34

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 .024 times the UVB. The UVB must be rounded up to the next higher multiple of 1,000:

$$\begin{aligned}\text{UVB} &= 540,000 - 415,000 \\ &= 125,000\end{aligned}$$

$$\begin{aligned}\text{VRP} &= 125,000 * .024 \\ &= 3,000\end{aligned}$$

The plan is eligible for the small plan VRP cap if there are 25 or less employees on the first day of the plan year. On 12/31/2014, you are told there are 15 active vested participants, plus 4 active non-vested participants, plus 5 non-active participants. In addition, there is one employee who is not a participant.

The total employee count is 20 (which equals $15 + 4 + 1$). Since the total employee count is not more 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 $\$5 * (\text{participant count})^2$. The total participant count is 24 (which equals $15 + 4 + 5$).

$$\begin{aligned}\text{VRP cap} &= 5(24)^2 \\ &= 2,880\end{aligned}$$

The VRP cap of 2,880 is less than the previously calculated value of 3,000. The problem asks for the total PBGC premium, which is the sum of the flat rate premium (FRP) and the VRP. The JBEA tables given with the exam stated that the 2015 flat rate premium is \$57 per participant:

$$\begin{aligned}\text{FRP} &= \$57(24) \\ &= 1,368\end{aligned}$$

$$\begin{aligned}\text{FRP+VRP} &= 1,368 + 2,880 \\ &= 4,248\end{aligned}$$

Answer is D

The alternate cap of \$418 per participant does not apply.

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Problem 16

Similar to 2011 #23

§411(c)(2) of the IRC defines the calculation of the employee provided accrued benefit. After the passage of OBRA '89, the §417(e) interest rate is used to accumulate the employee contributions plus interest (EECWI) from the determination date to normal retirement age. The resulting EECWI is converted to an annual annuity by dividing by an annuity at the §417(e) interest rate. For a normal form other than a life annuity, factors in Revenue Ruling 76-47 were used to adjust the resulting benefit.

Prior exam problems essentially tested the definitions as they existed prior to PPA 2006, or gave you all the factors that you needed. After the passage of PPA 2006, the §417(e) segment rates are used to accumulate the employee contributions.

This problem has been simplified compared to prior problems on EECWI calculations. Smith was hired 01/01/2011, and reaches age 65 at 01/01/2014. The next step is to calculate each year's employee contributions with interest, and then the amount of the employee provided accrued benefit.

Year	Pay	12/31 contrib	120% AFR	12/31 EECWI	EECWI Calculation
2011	30,000	1,500	2.34%	1,500	
2012	35,000	1,750	1.40%	3,271	$= 1.0140(1,500) + 1,750$
2013	40,000	2,000	1.04%	5,305	$= 1.0104(3,271) + 2,000$

You must convert the mandatory contribution balance to a benefit at normal retirement age. Smith reaches age 65 at 01/01/2014, so there is no “future projection” of the EECWI. In this problem, you are given a single annuity factor at age 65 – which appears to reflect the segment rates. Now you can calculate the accrued benefit attributable to employee contributions:

EECWI at 65	5,305.02
Annuity at NRA	12.14
EE provided benefit	436.99

The monthly employee-provided benefit is 36.42, which equals 436.99/12.

Answer is C

NOTE

This problem is less confusing than 2011 #23. In that problem, the employee terminated at age 47, and you had to adjust the EECWI for the 18 years until NRA 65.

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Problem 17

Similar to 2014 #25

This is a straightforward problem on calculating the Top Heavy (T-H) minimum. The first step in the problem is calculating the accrued benefit under the plan formula. Then you calculate the T-H minimum to see if it is larger.

01/01/2015 data

Age	65
Past service	17

The plan benefit is calculated using the final three year average earnings:

$$\begin{aligned}\text{FAE3} &= (65,000 + 70,000 + 75,000) / 3 \\ &= 70,000\end{aligned}$$

$$\begin{aligned}\text{Plan benefit} &= 70,000 * (1.0\%) * (17) \\ &= 11,900\end{aligned}$$

The problem does not tell you the T-H averaging period. Based on IRC 416(c)(1)(D)(1), the T-H averaging period can not exceed five consecutive years. In the absence of any specific data in the problem, you should assume the plan uses a T-H averaging period of five years.

The T-H minimum benefit is calculated using the highest five year average earnings from hire date up through the end of the last year that the plan was Top Heavy. The T-H pay is based on the five years from 2010 through 2014:

2010-2014

$$\begin{aligned}\text{FAE5} &= (55,000 + 60,000 + 65,000 + 70,000 + 75,000) / 5 \\ &= 65,000\end{aligned}$$

The T-H minimum is based on years the plan has been T-H. The problem says the plan has been T-H in every year since 2003. The plan has been T-H for 12 years, but the years of service for the T-H minimum is limited to 10 years.

$$\begin{aligned}\text{T-H min} &= 65,000 * (2.0\%) * (10) \\ &= 13,000\end{aligned}$$

Smith's final accrued benefit is the greater of the plan benefit and the T-H minimum, or 13,000.

Answer is B

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Problem 18

Similar to 2014 #02

TRUE

The regulation has a detailed description of the reportable event:

“4043.30(a) **Liquidation.** A reportable event occurs for a plan when a member of the plan's controlled group --

- (1) Is involved in any transaction to implement its complete liquidation (including liquidation into another controlled group member);
- (2) Institutes or has instituted against it a proceeding to be dissolved or is dissolved, whichever occurs first; or
- (3) Liquidates in a case under the Bankruptcy Code, or under any similar law.

Answer is A

There are also two waivers for this reportable event at 4043.30(c), but neither one is satisfied.

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Problem 19 – Page 1

Similar to 2010 #41

There are several safe harbor plan designs under 401(a)(4) for defined benefit plans. The very complex safe harbor for 401(l) plans using permitted disparity requires an entire regulation to describe it. There have been no detailed 401(l) exam questions since 2005.

There are other less complicated alternatives described at 1.401(a)(4)-3. A defined benefit plan must meet the uniformity requirements at 1.401(a)(4)-3(b)(2), as well as one of three alternative plan designs:

- The safe harbor for unit credit plans at 1.401(a)(4)-3(b)(3)
- The safe harbor for fractional accrual rule plans at 1.401(a)(4)-3(b)(4)
- The safe harbor for insurance contract plans at 1.401(a)(4)-3(b)(5)

Safe harbor for unit credit plans

This 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.

Safe harbor for fractional accrual rule plans

The accrued benefit must satisfy the fractional rule under 411(b)(1)(C). The safe harbor has two additional requirements.

1. One requirement states that the employee's accrued benefit for any plan year before NRA must equal the product of the employee's fractional rule benefit (under 1.411(b)-(b)(3)(ii)(A)) and the ratio:

$$\frac{\text{"years of service"}}{\text{total projected "years of service"}}$$

2. In addition, the plan must meet one of three requirements at 1.401(a)(4)-3(b)(4)(i)(C)

See the notes at the end of the solution for more details on the safe harbor for fractional accrual rule plans.

PLAN I

This benefit accrual formula satisfies the fractional accrual rule. The accrued benefit is almost defined as described above, except that the plan specifies use of participation service. This plan does satisfy the safe harbor because there is no entry requirement. As a result, participation service is the same as all years of service.

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Problem 19 – Page 2

PLAN II

This benefit accrual formula fails both the 133 1/3% benefit accrual rule and the fractional accrual rule. The reason it fails the fractional rule is that the accrued benefit is not defined as a (service / service) ratio times a projected benefit. The reason it fails the 133 1/3% rule is that 2.00% / 1.40% is equal to 143%, which is too large.

PLAN III

This description of the normal retirement age appears to satisfy the requirements of 411(a)(8). But that is not sufficient to satisfy any of the safe harbors under IRC 401(a)(4).

Only Plan I satisfies the 401(a)(4) safe harbor rules.

Answer is A

NOTE

For a plan to satisfy the safe harbor for fractional accrual rule plans, the plan must meet one of three requirements at 1.401(a)(4)-3(b)(4)(i)(C). Here is the detailed description of the requirements:

1. It must be impossible for any employee to accrue a benefit for a year of service that is more than 33 1/3% greater than that accrued in any year by any other employee. This is based on actual and potential employees, but none with more than 33 years at NRA.
2. The benefit at NRA must be defined under the plan as a flat benefit. The participant's accrued benefit must be reduced on a pro-rata basis with less than 25 years of service.
3. Average Normal accrual rate for non-excludable non-HCEs is $\geq 70\%$ * (Average Normal accrual rate for non-excludable HCEs). This test is based on all non-excludable employees, even if NOT benefiting under the plan. All other plans are excluded for this test.

2015 EA-2L Exam Solutions

Problem 20

Similar to 2013 #31

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

IRC Section 4975(c) defines “prohibited transaction” in several ways, including several transactions that can occur between a plan and a “disqualified person”. IRC Section 4975(e)(2) defines “disqualified person” to include

“(A) a fiduciary;

(B) a person providing services to the plan;

(C) an employer any of whose employees are covered by the plan;

(D) an employee organization any of whose members are covered by the plan;

(E) an owner, direct or indirect, of 50 percent or more of ...

(F) a member of the family (as defined in paragraph (6)) of any individual described in subparagraph (A), (B), (C), or (E)”

All four items are true.

Answer is E

2015 EA-2L Exam Solutions

Problem 21 – Page 1

Similar to 2011 #42

This is the third problem on the Presumptive method since 1988. Under the Presumptive Method, you must set up numerous pools of unfunded vested liability. The first pool is set up at the end of the plan year preceding enactment of MEPPAA in 1980.

In this problem you are told there are no unfunded vested benefit liability (UVB) values prior to 12/31/2012. This simplification significantly reduces the number of calculations required in the solution.

There is a new twist in this year's problem - it gives you values of the "initial reallocated liability pool" at 12/31/2013 and 12/31/2014. It is not 100% clear what these are, but the problem gives you a hint. It states that the contributions given in the problem are "excluding any prior withdrawn employers". One of the key ideas of the Presumptive method is that you must separately write down any UVB pools attributed to previously withdrawn employers.

Employer A withdraws at 05/01/2015. The employer share of the withdrawal liability is based on the UVB value at the end of the plan year preceding the year of withdrawal, or 12/31/2014.

Under the Presumptive method, the pools of liability are assumed to decrease on a straight line basis, at 5% of the original amount per year. The difference between the actual UVB at any date and the expected amount for all prior pools of UVB creates a new pool of UVB.

At 12/31/2012 the UVB is given as 50,000,000. At 12/31/2013 the UVB is given as 75,000,000. At 12/31/2013, the expected amount for the first pool is 95% of 50,000,000 or 47,500,000. The amount of the second UVB pool is the difference between 47,500,000 and the actual UVB at 12/31/2013:

$$\begin{aligned} 12/31/2012 \text{ UVB pool: } 47,500,000 &= 50,000,000 * 95\% \\ 12/31/2013 \text{ UVB pool: } 27,500,000 &= 75,000,000 - 47,500,000 \end{aligned}$$

At 12/31/2014, the UVB is given as 60,000,000. The amount of the third UVB pool is the difference between the expected amounts from the first two pools and the actual UVB at 12/31/2014:

$$\begin{aligned} 12/31/2012 \text{ UVB pool: } 45,000,000 &= 50,000,000 * 90\% \\ 12/31/2013 \text{ UVB pool: } 26,125,000 &= 27,500,000 * 95\% \\ 12/31/2014 \text{ UVB pool: } -11,125,000 &= 60,000,000 - (45,000,000 + 26,125,000) \end{aligned}$$

The 12/31/2014 UVB is separated into three pools: $60,000,000 = 45,000,000 + 26,125,000 - 11,125,000$. Employer A's share of these pools of UVB is based on the ratio of employer A's contributions to the total contributions in the five years preceding the date of establishment of each pool.

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Problem 21 – Page 2

One simplification in this problem is that you are given the sum of contributions over the five year periods ending at 12/31/2013, 12/31/2014, and 12/31/2015. This eliminates some ugly arithmetic, and the possibility of calculation errors.

If you start doing the employer share now, you'll get the wrong answer! You also must handle the new UVB pools for the previously withdrawn employers:

2013 Uncollectible employers

12/31/2013 UVB pool: 1,000,000

12/31/2014 UVB pool: 950,000 = 1,000,000 * 95%

2014 Uncollectible employers

12/31/2014 UVB pool: 500,000

Employer A

Share of 12/31/2012 pool:

3,461,538 = $45,000,000 * (1,000,000 / 13,000,000)$

Share of 12/31/2013 pool:

2,127,321 = $(26,125,000 + 950,000 \text{ uncollectible}) * (1,100,000 / 14,000,000)$

Share of 12/31/2014 pool:

-850,000 = $(-11,125,000 + 500,000 \text{ uncollectible}) * (1,200,000 / 15,000,000)$

The total employer share is $4,738,860 = 3,461,538 + 2,127,321 - 850,000$. Since the employer share exceeds 150,000, you do not need to calculate the de minimis amount or the deductible. The final employer withdrawal liability is 4,738,860.

Answer is D

NOTE

In case you are not clear on why you can skip the deductible, here are the details. After determining Employer A's share of the UVB, you must calculate the de minimis amount. Then the deductible is calculated based on the amount of the de minimis and the amount of allocated UVB. The final withdrawal liability is calculated as the employer's share of the UVB less the deductible.

The mandatory de minimis is the lesser of 50,000 or 3/4% of the plan's total UVB:

De minimis = Lesser of 50,000 and $.0075 * 60,000,000$
= 50,000

The deductible is the de minimis amount reduced by the excess of the employer share of the UVB over 100,000:

Deductible = $50,000 - (4,738,860 - 100,000)$
= zero

2015 EA-2L Exam Solutions

Problem 22 – Page 1

Similar to 2014 #21

The key point of this question is knowing the definition of a rate group. You must know how to do calculations involving imputed permitted disparity and the accrual rate definitions under 401(a)(4). The problem asks for the “rate group percentage” for HCE3, which is a bit confusing - “rate group ratio percentage” is definitely better wording.

Many students were confused by this question, since it does not explicitly state that you should use imputed permitted disparity. Exam condition 19 implies that you should not assume testing is done using imputed permitted disparity. But this 5 point question would be very easy if you do not impute permitted disparity. In addition, the problem gives you a “permitted disparity factor” for all employees, and also gives you the unadjusted accrual rates. To me, this strongly implies that you should impute permitted disparity.

The “permitted disparity factor” is defined in the regulation at 1.401(a)(4)-7(c). It is based on the values from the lookup tables for IRC 401(l) given with the exam. For all participants born after 1954, the Social Security retirement age is age 67, and the permitted disparity factor is .65%.

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. You are told that the most valuable accrual rate (MVAR) is equal to the normal accrual rate (NAR). In general, this would be true if the plan has no early retirement benefits.

You must calculate the NAR / MVAR for each group of employees, reflecting imputed permitted disparity. The point of the problem is that you actually define the rate groups using the NAR and MVAR after imputing permitted disparity. There are different calculations for the imputed permitted disparity based on whether the average annual compensation exceeds the covered compensation.

In this problem, the measurement period is the current plan year. You are given the current year’s benefit accrual and the unadjusted accrual rate. Using these items, you can calculate the average annual compensation.

The data in the problem gives three groups of HCEs and four groups of NHCEs. For employees with average annual compensation above covered compensation, you must calculate the “C rate” and the “D rate”, and use the lesser of the rates. These are defined at 1.401(a)(4)-7(c)(3) as:

C Rate	D Rate
$\frac{\text{ER provided accrual}}{\text{avg. annual comp} - \frac{1}{2} (\text{covered comp.})}$	$\frac{\text{ER provided accrual} + (\text{permitted disparity factor}) * (\text{covered comp.})}{\text{Average annual compensation}}$

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Problem 22 – Page 2

Revised 02/23/17

Group 1 – 5 HCEs

Pay values used for all purposes must not exceed the 401(a)(17) limit. In this problem, the 401(a)(17) limit has no effect.

Unadjusted
accrual rate = (benefit accrual) / (average annual compensation)

NAR = accrual / AAC
2.50% = 5,625 / AAC

AAC = 5,625 / 2.50%
= 225,000

These HCEs have average annual compensation in excess of the covered compensation of 75,000. You must use the C rate and D rate calculations to adjust the accrual rate for imputed permitted disparity.

C rate = 5,625 / [225,000 - .50(75,000)]
= 3.00%

D rate = [5,625 + .65%(75,000)] / 225,000
= 2.72%

The final NAR / MVAR adjusted for imputed permitted disparity is the lesser of the two values, or 2.72%.

Group 2 – 2 HCEs

Group 3 – 1 HCE

Calculations for these groups follow the same pattern as Group 1. In general, the D rate gives the final rate adjusted for imputed permitted disparity. Rather than bore you with the details, I have summarized the calculations for all the groups:

Grp	Num HCEs	Accrual	rate	AAC	Cov'd Comp	C rate	D rate	Lesser rate	In rate Group?
1	5	5,625	2.50%	225,000	75,000	3.00%	2.72%	2.72%	Yes
2	2	4,950	2.20%	225,000	90,000	2.75%	2.46%	2.46%	No
3	1	6,000	2.35%	255,000	105,000	2.96%	2.62%	2.62%	Yes

If you try to calculate the average annual compensation for the HCE in Group 3, you will get 255,319. But that is not correct - the benefit accrual rate of 6,000 / 255,000 is actually 2.3529%, which was rounded off to 2.35%. The rate group for “HCE 3” includes all participants whose adjusted accrual rate is at least 2.62%.

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Problem 22 – Page 3

Group 4 – 10 NHCEs

For employees with average annual compensation \leq covered compensation, you must calculate the “A rate” and the “B rate”, and use the lesser of the rates. The unadjusted accrual rate is the NAR (or MVAR) without imputing permitted disparity.

A Rate		B Rate
2 * unadjusted accrual rate		unadjusted accrual rate + permitted disparity rate
A rate	= 2(3.00%) = 6.00%	
B rate	= .65% + 3.00% = 3.65%	

The lesser of these two rates is 3.65%. As a result, all 10 NHCEs are in the rate group for “HCE 3”.

Group 5 – 10 NHCEs

Group 6 – 20 NHCEs

Group 7 – 20 NHCEs

Calculations for these groups follow the same pattern as Group 4. In general, the B rate gives the final rate adjusted for imputed permitted disparity. Rather than bore you with the details, I have summarized the calculations for all the groups:

Grp	Num NHCEs	Accrual rate	A rate	B rate	Lesser rate	In rate Group?
4	10	3.00%	6.00%	3.65%	3.65%	Yes
5	10	2.20%	4.40%	2.85%	2.85%	Yes
6	20	1.80%	3.60%	2.45%	2.45%	No
7	20	1.00%	2.00%	1.65%	1.65%	No

Rate Group Percentage – “HCE 3”

The “rate group percentage” equals the ratio percentage for the employees included in the rate group for “HCE 3”. As shown above, there are six HCEs out of eight total in the rate group. There are 20 NHCEs out of 60 total in the rate group:

$$\begin{aligned}\text{Ratio \%} &= (20 / 60) / (6/8) \\ &= 44.44\%\end{aligned}$$

Answer is C

2015 EA-2L Exam Solutions

Problem 23

Similar to 2011 #39

Based on looking at years with at least 1000 hours, this participant appears to have 10 years of service. The key point of the problem is that the participant was hired at age 15.

Under IRC 411(a)(4)(A) you can ignore the hours earned in years prior to the year an employee attains age 18 (which is 2003). The participant had only two years of vesting service prior to 2005, and they were not yet vested.

Another point of the problem is that you can ignore the hours earned prior to 2010. 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 2005-2009, there are five consecutive 1-year breaks in service. As a result, the prior years of vesting service in 2003 and 2004 can be ignored. The participant has 5 years of vesting service (2010-2014), and is 60% vested.

The plan defines benefit accrual service based on years of plan participation with at least 1,000 hours. Smith entered the plan on 01/01/2003 and has 7 years of benefit service. Unlike the vesting service, years of participation service are not lost due to the five consecutive 1-year breaks in service.

Smith's vested monthly accrued benefit is \$210, which equals $(60\%)(7)(\$50)$.

Answer is B

NOTE

One other item has been tested in recent similar exam questions. 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.

2015 EA-2L Exam Solutions

Problem 24 – Page 1

Similar to 2012 #39

This is almost a typical PBGC guaranteed benefits question. This question tests your knowledge of the five year phase-in calculations. The one unusual aspect is that this plan terminated while in bankruptcy.

Based on the PBGC regulation at 4022.11(d), the guaranteed benefit calculations use the bankruptcy date of 12/31/2012 as the date of plan termination. This affects all the phase-in calculations, as well as the age, service and vesting of the participants. This is the second exam question to test this idea.

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 point of the problem is that you use the 2012 MGB value, since the termination date is assumed to be 12/31/2012. The 2012 MGB at 65 is 4,653.41 per month (from the tables given with the exam).

You are not given any effective date, so you can assume the plan has been in effect for five full years at the 12/31/2012 DOPT. There are no phase-in calculations in this problem.

Smith: 5 year phase-ins

Date of birth	01/01/52
12/31/12 age	61
Date of hire	01/01/95
12/31/12 service	18
Majority owner?	NO
Vesting percentage	100%

For Smith, the guaranteeable benefit is calculated at age 65. Based on the data given, you can assume there are no early retirement benefits:

$$\begin{aligned} 12/31/12 \text{ FAE3} &= (110,000 + 115,000 + 115,000) / 3 \\ &= 113,333 \end{aligned}$$

$$\begin{aligned} \text{Accrued benefit} &= 3.5\%(18)(113,333) \\ &= 71,400 \text{ or } 5,950 / \text{mo} \end{aligned}$$

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Problem 24 – Page 2

Since the plan benefit exceeds the 2012 MGB limit, the guaranteed benefit is 4,653.41 per month.

Answer is C

NOTES

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.
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.
7. In some problems, plan amendments have different effective dates and adoption dates. For purposes of measuring the years that each set of plan provisions was effective, you use the later of the effective date and the adoption date. In the absence of any other information, you can assume both dates are the same (based on the default exam conditions).

2015 EA-2L Exam Solutions

Problem 25

Similar to 2014 #01

I. FALSE

This is not how the QJSA is determined. The plan must identify which of the joint and survivor forms is the QJSA.

II. TRUE

IRC 417(a)(2) requires spousal consent for any election to waive the QJSA under IRC 417(a)(1)(A)(i). The point of the question is that you may elect the QOSA instead. Since this election is under IRC 417(a)(1)(A)(ii), it is not subject to the requirement for spousal consent.

III. FALSE

The Qualified Optional Survivor Annuity (QOSA) was added to IRC 417(g) by PPA 2006. 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.

Only statement II is true.

Answer is C

2015 EA-2L Exam Solutions

Problem 26

Similar to 2009 #31

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

I. FALSE

II. FALSE

Small plans do not get an exemption from the 204(h) notice. But they do get a different time period for making the notice.

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

III. FALSE

There is no such exception for collectively bargained plans.

None of the items is true.

Answer is A

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, 2005 #35 and 2013 #40 tested the calculation of the amount of the excise tax.

2015 EA-2L Exam Solutions

Problem 27

Similar to 2014 #32

This question is similar to other recent exam questions on the 901.20 regulations. This is the first question that tested any of the details of 901.20(j), which covers the return of client records.

I. FALSE

The enrolled actuary can not withhold records provided by the client:

“901.20(j)(1)

In general, an enrolled actuary must, at the request of a client, promptly return any and all records of the client that are necessary for the client to comply with his or her legal obligations.”

II. TRUE

The enrolled actuary can withhold their work papers and the results of the study – but only if this is related to a dispute over fees:

“901.20(j)(2)

...

The term “records of the client” does not include any return, claim for refund, schedule, affidavit, appraisal or any other document prepared by the enrolled actuary or the enrolled actuary's firm, employees or agents if the enrolled actuary is withholding such document pending the client's performance of its contractual obligation to pay fees with respect to such document.”

III. FALSE

The enrolled actuary can not withhold records provided by a third party, such as the client's attorney:

“901.20(j)(2)

...

The term “records of the client” also includes materials that were prepared by the client or a third party (not including an employee or agent of the enrolled actuary) at any time and provided to the enrolled actuary with respect to the subject matter of the representation.”

Only item II is True

Answer is B

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Problem 28 – Page 1

Similar to 2012 #38

Revised 01/26/19

This is a typical §415 problem. The key point of the problem is the calculation of the actuarial reduction factor used to adjust the §415 dollar limit prior to age 62.

Earnings under §415 is defined as total compensation (not taxable). Based on the regulation that became final in 2007, earnings under §415 are subject to the §401(a)(17) limit.

At 12/31/15 Smith

Retirement age	60
Past service	9 years
Participation	8 years

PLAN BENEFIT

This problem is a bit unusual, since you must calculate the plan benefit. Most recent IRC 415 problem simply gave you the plan benefit, or only asked for the 415 limit.

The final average compensation for benefit purposes is defined using the final five years. You must limit each year's pay by the 401(a)(17) limit:

Year	2011	2012	2013	2014	2015
Pay	260,000	260,000	260,000	260,000	260,000
401(a)(17) limit	245,000	250,000	255,000	260,000	265,000
Limited pay	245,000	250,000	255,000	260,000	260,000

$$\begin{aligned}\text{High 5 year average pay} &= (245,000 + 250,000 + 255,000 + 260,000 + 260,000) / 5 \\ &= 254,000\end{aligned}$$

$$\begin{aligned}\text{Accrued benefit} &= 7.5\%(9)(254,000) \\ &= 171,450\end{aligned}$$

Smith is retiring at age 60, which is the plan's normal retirement age. Their retirement benefit is also equal to 171,450.

415 COMP LIMIT

The §415(b)(1)(B) compensation limit is based on the high consecutive three years. It is reduced when service is less than ten years. Smith has nine years of service:

$$\begin{aligned}\text{High 3 year average pay} &= (255,000 + 260,000 + 260,000) / 3 \\ &= 258,333\end{aligned}$$

$$\begin{aligned}\text{3 year comp §415 limit} &= 258,333(9/10) \\ &= 232,500\end{aligned}$$

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Problem 28 – Page 2

415 DOLLAR LIMIT

The next step is calculation of the §415 dollar limit under §415(b)(1)(A). The dollar limit is reduced when participation is less than ten years. Smith has 8 years of participation service:

$$\begin{aligned}\$415 \text{ dollar limit during 2015} &= 210,000 * (8/10) && \text{for ages 62-65} \\ &= 168,000\end{aligned}$$

§415(b)(2)(E)(i) says to use the greater of 5% and the interest rate specified in the plan to reduce the §415 dollar limit prior to age 62, but here the code is misleading. The examples in the 1.415 regulation clarify the reductions in the §415 dollar limit.

Mandated basis reduction factor

Here is the short version of what you need to know. If you want to see the long version, check out the notes at the end of the solution to this problem.

Actuarial decrease factor for 415 dollar limit, based on mandated 5%, applicable mortality

Death benefit definition	Factor
Waived QPSA, or NO death benefit (complete forfeiture on death)	$N_{62}^{(12)} / N_X^{(12)}$
QPSA death benefit, and plan charges participants for cost of QPSA (default per 2015 exam condition 10)	$N_{62}^{(12)} / N_X^{(12)}$
100% of PV of accrued benefit (no forfeiture on death)	$v^{62-X} (\ddot{a}_{62}^{(12)} / \ddot{a}_X^{(12)})$
QPSA death benefit, and plan does NOT charge for cost of QPSA (treat as no forfeiture on death)	$v^{62-X} (\ddot{a}_{62}^{(12)} / \ddot{a}_X^{(12)})$

You are told that the plan's death benefit is 100% of the present value of the accrued benefit. This means that a forfeiture does NOT occur upon the death of a participant, and you must ignore pre-retirement mortality in the actuarial reduction prior to age 62.

Mandated basis reduction factor

$$\begin{aligned}\text{Actuarial reduction from 62 to 60} &= (1.05)^{-2} (\ddot{a}_{62}^{(12)} / \ddot{a}_{60}^{(12)}) \\ &= .9070(12.98/13.56) \\ &= .8682\end{aligned}$$

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Problem 28 – Page 3

Plan basis reduction factor

The problem does not define how the plan benefit would be adjusted between age 60 and age 62. In this plan, that is an actuarial increase, since normal retirement age is 60. The problem makes no statement about benefit suspension notices, you should assume that the late retirement benefit is actuarially increased from age 60 to age 62. See the notes at the end of the problem for more details.

The 415 dollar limit must be actuarially reduced from age 62 down to age 60. The plan basis reduction factor is defined in the same way as that for the 415 dollar limit. The main difference is that the plan factor uses an interest rate of 8.0%:

$$\begin{aligned}\text{Actuarial reduction from 62 to 60} &= (1.08)^{-2}(\ddot{a}_{62}^{(12)} / \ddot{a}_{60}^{(12)}) \\ &= .8573(10.50/10.84) \\ &= .8304\end{aligned}$$

Final 415 limit

$$\begin{aligned}\$415 \text{ dollar limit at age 60} &= 168,000 * \text{lesser of } [.8682 \text{ or } .8304] \\ &= 139,515\end{aligned}$$

$$\begin{aligned}\text{Life annuity } \$415 \text{ limit at 60} &= \text{lesser of 3 year comp limit and dollar limit} \\ &= \text{lesser of } 232,500 \text{ and } 139,515 \\ &= 139,515\end{aligned}$$

Answer is A

NOTES

Mandated basis reduction factor

The plan basis and the 415 dollar limit are both defined as the actuarial equivalent using the same applicable mortality table. You do not actually need to calculate the mandated basis reduction factor, since the higher interest rate (plan basis) will always produce a lower factor.

Alternate Solution

Credit was also given for a different solution, which produces a result in answer range B. This is based on the (incorrect) assumption that the plan gives benefit suspension notices, and the late retirement benefit is not actuarially increased after age 60.

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Problem 28 – Page 4

Alternate Solution - continued

There are several options in the 1.411(b)-2 regulation regarding benefit commencement after NRA. See 1.411(b)-2(b)(4)(iii)(B):

- 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)

If you assume that the plan gives benefit suspension notices, then the benefits after NRA 60 would reflect continued benefit accruals. Since there are no actuarial increases after age 60, the plan basis reduction factor for the 415 dollar limit between ages 60 and 62 is also equal to 1.0:

Actuarial reduction from 62 to 60 = 1.0

\$415 dollar limit at age 60 = 168,000 * lesser of [.8682 or 1.0]
= 145,863

Life annuity \$415 limit at 60 = lesser of 3 year comp limit and dollar limit
= lesser of 232,500 and 145,863
= 145,863

Answer is B

As noted above, I think it is incorrect to assume that the plan gives benefit suspension notices. I would only use this alternate approach if the problem actually stated that the plan gives benefit suspension notices. Based on the data given in the problem, I think answer A is the correct answer.

Actuarial reduction of 415 dollar limit below age 62 (LONG version)

If the plan document does not define a life annuity at both age 62 and the early retirement age, then the \$415 dollar limit is reduced using a single factor calculated based on the mandated mortality and interest rate. If the plan does define a life annuity benefit at both ages, then the \$415 dollar limit is reduced using the lower of two factors:

1. Actuarial reduction factor based on the mandated mortality and interest rate, and
2. The ratio of the plan's life annuity benefit at the early retirement age divided by the plan's life annuity benefit at age 62, both ignoring the 415 limits

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Problem 28 – Page 5

Actuarial reduction of 415 dollar limit below age 62 - continued

The definition of the actuarial equivalent reduction factor (on the mandated mortality and interest rate) will vary depending on the definition of the death benefit. If there is no forfeiture on death, then you can ignore pre-retirement mortality:

$$v^{62-x}(\ddot{a}_{62}^{(12)} / \ddot{a}_x^{(12)})$$

If the death benefit is defined as 100% of the present value of the accrued benefit, then there is no forfeiture upon death. In 1.415(b)-1(e)(3), it states that you may treat a typical Qualified Pre-retirement Survivor Annuity (QPSA) death benefit as resulting in no forfeiture on death. This treatment is only allowed if the plan does not charge for the cost of the QPSA, and if the plan applies the same treatment for all retirement ages (both before age 62 and after age 65).

If there is a forfeiture on death, then you must reflect pre-retirement mortality:

$$(N_{62}^{(12)} / N_x^{(12)}) = v^{62-x} p_x(\ddot{a}_{62}^{(12)} / \ddot{a}_x^{(12)})$$

If there is no death benefit, then there is a full forfeiture upon death. This can happen if the participant is single, or if they are married, and they elect out of the Qualified Pre-retirement Survivor Annuity (QPSA). With a typical QPSA death benefit, there will be a forfeiture on death. Based on exam condition 12, in the absence of any other information, you should assume that the plan does charge the participants for the cost of the QPSA.

Actuarial decrease factor for 415 dollar limit, based on mandated 5%, applicable mortality

Death benefit definition	Factor
Waived QPSA, or NO death benefit (complete forfeiture on death)	$N_{62}^{(12)} / N_x^{(12)}$
QPSA death benefit, and plan charges participants for cost of QPSA (default per exam condition 12)	$N_{62}^{(12)} / N_x^{(12)}$
100% of PV of accrued benefit (no forfeiture on death)	$v^{62-x}(\ddot{a}_{62}^{(12)} / \ddot{a}_x^{(12)})$
QPSA death benefit, and plan does NOT charge for cost of QPSA (treat as no forfeiture on death)	$v^{62-x}(\ddot{a}_{62}^{(12)} / \ddot{a}_x^{(12)})$

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Problem 29

Similar to 2013 #08

FALSE

This is the second exam question testing details regarding mass withdrawal of a multiemployer plan. There are no details about filing dates in ERISA Section 4219, but the filing date is defined in the regulation at 4219.17(c). The notice must be filed within 30 days of the mass withdrawal valuation date.

Answer is B

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Problem 30

Similar to 2009 #05

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.

Smith attained age 70 1/2 on 07/01/2014. Smith "retired" on 03/31/2015 at age 71. The later of the two calendar years is 2016, so benefits must commence by 04/01/2016.

Answer is A

2015 EA-2L Exam Solutions

Problem 31

Similar to 2010 #31

FALSE

This question tests details of the PBGC 4041 regulations governing a standard plan termination. Several prior questions focused on distress terminations.

4041.22(a)(2) requires the plan administrator to make benefit payments (other than death benefits) as an annuity form. This requirement applies on or after the date they issue a notice of intent to terminate (not the date of plan termination).

Answer is B

NOTE

There is an exception in 4041.22(b) for benefit payments attributable to employee contributions, but only if *“the distribution is not reasonably expected to jeopardize the plan's sufficiency for plan benefits”*.

2015 EA-2L Exam Solutions

Problem 32

Similar to 2004 #39

TRUE

The key point of this problem is whether you know the definition of "current availability". This topic has not been tested on the exam for many years.

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:

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

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.

The regulation at 1.401(a)(4)-4 contains definitions and rules for nondiscriminatory availability of benefits rights and features. For a benefit to satisfy the "currently available" requirement for a plan year, the group of employees for whom the benefit is "currently available" must satisfy IRC 410(b). This determination is made ignoring the average benefits percentage test under 1.410(b)-5.

1.401(a)(4)-4(b)(2)(i) states the general rule is that any determination is "based on the current facts and circumstances with respect to the employee." 1.401(a)(4)-4(b)(2)(ii)(A)(1) states that "any specified age and service condition with respect to an optional form of benefit or a social security supplement is disregarded in determining whether the optional form of benefit or social security supplement is currently available."

For the ratio percentage calculation, only the salaried participants are benefiting. The reason is that the insured death benefit is only available to the salaried participants.

$$\begin{aligned} \text{Ratio \%} &= [8 / (8+3)] / [3 / (3+0)] \\ &= 8 / 11 \\ &= 72.7\% \end{aligned}$$

Answer is A

NOTE

The ratio percentage could be less than 70%, and the benefit might still satisfy the definition as currently available. It would need to satisfy the safe and unsafe harbor definitions at 1.410(b)-4(c)(4). The safe and unsafe harbors were tested on 2004 #39.

2015 EA-2L Exam Solutions

Problem 33

Similar to 2014 #32

FALSE

This question is similar to other recent exam questions on the 901.20 regulations. In 901.20(k), it requires the actuary to report any non-filing of actuarial documents they have signed with the applicable agency.

The plan administrator is not a governmental agency, so the actuary does not have to notify them.

Answer is B

2015 EA-2L Exam Solutions

Problem 34

Similar to 2010 #34

FALSE

This is a very simple question on IRC 436. The main point of this problem is whether you know the definition of the IRC 436(d) limitation regarding prohibited payments.

If a plan's adjusted funding target attainment percentage (AFTAP) is 60% or less, then the plan can not pay any prohibited payments. These include lump sums, annuity purchases or any payment in excess of the benefit on a straight life annuity form.

As of 10/01/2014, the 2014 AFTAP is “conclusively presumed” to be less than 60%. As a result, the lump sum can not be paid to Smith at 11/15/2014.

Answer is B

NOTES

1. IRC 436(d)(5) has an exception for de minimis payments that are below the 411(a)(11) involuntary cash out threshold (which is \$5,000). The definition of “prohibited payment” specifically excludes such payments. Since Smith’s lump sum exceeds \$5,000, it can not be paid.
2. The 2014 AFTAP was finally certified at 11/01/2014. But this value is only used for the 01/01/2015 presumed AFTAP. The lump sum could be paid to Smith at that date.
3. If the AFTAP is above 60%, but less than 80%, then the plan can make one prohibited payment for a participant while the restriction is in effect. The payment can not exceed the lesser of
 - 50% of the unrestricted benefit, or
 - The 417(e) present value of the PBGC maximum guaranteed benefit limit

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Problem 35

Similar to 2009 #09

TRUE

The 2014 AFTAP was certified at 65%. The 01/01/2015 presumed AFTAP for 2015 is also 65%. At 04/01/2015, the presumed AFTAP drops to 55%.

Since the 04/01/2015 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 09/02/05.

As a result, the plan can purchase annuities to settle some benefit liabilities.

Answer is A

NOTE

If the plan was frozen after 09/01/05, then the plan could not make any payments that exceed the straight life annuity benefit.

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Problem 36

FALSE

IRC 4975(f)(5) defines “correction” with respect to a prohibited transaction. The problem overstates the effect of the correction on the financial position of the plan.

Here is the language in the code:

4975(f)(5) Correction

The terms "correction" and "correct" mean, with respect to a prohibited transaction, undoing the transaction to the extent possible, but in any case placing the plan in a financial position not worse than that in which it would be if the disqualified person were acting under the highest fiduciary standards.

Answer is B

2015 EA-2L Exam Solutions

Problem 37

Similar to 2014 #32

FALSE

This question is similar to other recent exam questions on the 901.20 regulations. In 901.20(k), it requires the actuary to report any non-filing of actuarial documents they have signed with the applicable agency.

The Form 5500 is filed with the Department of Labor. They would also need to be notified of the non-filing of the Schedule SB.

Answer is B

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Problem 38 – Page 1

Similar to 2014 #36

The main point of this problem is calculating the additional contribution under IRC 436 to allow the 06/30/15 plan amendment to go into effect. To do this, you must know the rules in the 436 regulation regarding computation of adjusted funding target attainment percentage (AFTAP).

The amount of the additional contribution under IRC 436 is different based on the value of the AFTAP prior to the amendment. If that value is less than 80%, then the contribution must be equal to the increase in the funding target due to the plan amendment. If the AFTAP is at least 80% prior to the amendment, then the contribution must be sufficient to bring the AFTAP up to 80% after reflecting the amendment.

The AFTAP is defined in IRC 436(j)(2), and it is similar to the funding target attainment percentage (FTAP) defined in 430(d)(2). The AFTAP has an adjustment for any non-HCE annuity purchases (NHAP) in the prior two years. The calculation uses the actuarial asset value (AAV), the carryover balance (CB), the prefunding balance (PB), and the non At-Risk funding target:

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

The problem does not give you the value of the 2014 certified AFTAP. You can use the valuation results at 01/01/2015 to calculate the 2015 AFTAP prior to the plan amendment. You need to be careful to include the non-HCE annuity purchases for 2013 and 2014.

$$\begin{aligned}\text{Pre-amendment AFTAP} &= \frac{\text{NHAP} + \text{AAV} - \text{CB} - \text{PB}}{\text{NHAP} + \text{Funding Target (non At-Risk)}} \\ &= \frac{(50,000 + 40,000) + 1,850,000 - 0 - 100,000}{(50,000 + 40,000) + 2,000,000} \\ &= 1,840,000 / 2,090,000 \\ &= 88.03\%\end{aligned}$$

Since this value is above 80%, the required IRC 436 contribution must be sufficient to bring the AFTAP up to 80% after reflecting the amendment.

The problem states that the plan amendment increases the funding target by 500,000.

$$\begin{aligned}\text{Post-amendment AFTAP} &= \frac{(50,000 + 40,000) + 1,850,000 - 0 - 100,000}{(50,000 + 40,000) + 2,000,000 + 500,000}\end{aligned}$$

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Problem 38 – Page 2

Post-amendment

$$\begin{aligned}\text{AFTAP} &= 1,840,000 / 2,590,000 \\ &= 71.04\%\end{aligned}$$

The problem states that the plan sponsor will make an additional IRC 436 contribution at 06/30/2015 to allow the plan amendment to take effect. The IRC 436 contribution must be discounted to reflect the later date of payment.

The first step in the solution is to calculate the additional IRC 436 contribution at 01/01/2015 to allow the plan amendment to take effect. I'll call that Y, and it must produce an AFTAP equal to 80%.

Post-amendment

$$\begin{aligned}\text{AFTAP} \\ 80.0\% &= (1,840,000 + Y) / 2,590,000\end{aligned}$$

01/01/15

$$\begin{aligned}Y &= 2,590,000 * 80\% - 1,840,000 \\ &= 232,000\end{aligned}$$

In general, all 2015 plan year contributions are discounted using the 2015 effective interest rate.

$$Y = X(1.06)^{-6/12}$$

$$\begin{aligned}X &= 232,000(1.06)^{6/12} \\ &= 238,859\end{aligned}$$

Answer is E

NOTE

You could also use simple interest to determine the contribution at 06/30/2015. This produces a result of 238,960, which is in the same answer range.

§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.

The problem states that the plan sponsor makes an asset transfer of X to a qualified replacement plan. The amount of the final excise tax on the reversion to the employer is 215,000.

In addition, the plan sponsor increased benefits on a pro-rata basis for all participants at plan termination. You are given assets and liabilities prior to the benefit increase (and asset transfer).

$$\begin{aligned}\text{Initial reversion} &= 3,300,000 - 1,500,000 \\ &= 1,800,000\end{aligned}$$

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

- Present value \geq 20% of the reversion (prior to the benefit changes)
- Uniform for all participants

If the plan sponsor increased benefits by at least 20% of the reversion at plan termination, then the excise tax would be reduced to 20%. The increase in benefit liability was 225,000, which is not large enough (20% of 1,800,000 is 360,000).

This means that the asset transfer was based on 25% of the excess assets and reduced by the value of the benefit increases at termination.

$$\begin{aligned}\text{Required transfer} &= 25\%(1,800,000) \\ &= 450,000\end{aligned}$$

You can reduce the required asset transfer by the amount of the benefit increases granted. The net required transfer to reduce the excise tax to 20% has a minimum value of $225,000 = 450,000 - 225,000$.

I will assume that the 215,000 excise tax is based on the 20% rate. Now you can calculate the final reversion, as well as the excise tax:

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Problem 39 – Page 2

$$\begin{aligned}\text{Final reversion} &= \text{Assets - transfer} \quad \text{Liabilities + increase} \\ &= (3,300,000 - X) - (1,500,000 + 225,000) \\ &= 1,575,000 - X\end{aligned}$$

$$\begin{aligned}\text{Excise tax} \\ 215,000 &= 20\%(1,575,000 - X)\end{aligned}$$

$$\begin{aligned}X &= 1,575,000 - 215,000/(20\%) \\ &= 500,000\end{aligned}$$

Answer is B

This is probably the most confusing IRC 4980 reversion calculation that has appeared on the EA-2L exam.

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Problem 40

Similar to 2007 #37

TRUE

This question tests your knowledge of the IRC Section 415 limits. The example given in this problem has been simplified quite a bit.

At retirement, the participant is age 65, with 15 years of service (and participation service). The key point of the problem is that the participant is eligible for the 10,000 floor. This is based on 2015 exam condition 27:

“The employer has never maintained a defined contribution plan or another defined benefit plan. No employee has been covered by a defined contribution or defined benefit plan that is required to be aggregated with his employer’s plans for purposes of IRC section 415.”

The IRC 415 compensation limit is given as 7,500. The lesser of the 415 dollar limit and the 415 compensation limit is 7,500.

But the participant is eligible for the 10,000 floor, so the final IRC 415 limit is 10,000. The participant can be paid 8,000 per year, since that amount is less than the 415 limit.

Answer is A

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Problem 41 – Page 1

Similar to 2014 #27

Revised 04/26/16

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 accrued benefits at 12/31/2013 and 12/31/2014. The change in benefit is 3,000 and the annual pay is 80,000.

Smith is age 62 at 12/31/2014, and has 28 years of service. Smith becomes eligible for early retirement at age 62. To calculate the most valuable accrual rate, you need to allow for payment at ages 62 through 65, converted to a QJ&S form.

One minor complication is that you are not given a simplified J&S conversion factor. You must calculate the ratio of the life annuity to J&S annuity on the plan basis at each age. The normalized benefit reflects a life annuity payment form at testing age 65:

Δ							
Age	Accrued Benefit	ERF	J&S	Early ret J&S benefit	100% J&S Annuity	Interest	Normalized Δ Benefit
	(1)	(2)	(3)	(4)=(1)(2)(3)	(5)	(6)	(4)(5)(6) / 9.58
62	3,000	.85	$\frac{10.00}{12.49}$	2,041.63	11.45	$(1.08)^3$	3,074
63	3,000	.90	$\frac{9.85}{12.27}$	2,167.48	11.33	$(1.08)^2$	2,990
64	3,000	.95	$\frac{9.60}{12.04}$	2,272.43	11.21	$(1.08)^1$	2,872
65	3,000	1.00	$\frac{9.35}{11.80}$	2,377.12	11.08	1.0	2,749

It should be clear that you don't need to do calculations after age 63, since the factors for the 100% J&S annuity form and the interest accumulation decrease at higher ages. The effect of the early retirement factor is an increase of 5% per year, but the interest accumulation produces a reduction of 8% per year.

The MVAR equals the greatest normalized benefit divided by both testing service and testing compensation:

$$\text{MVAR} = \frac{\Delta \text{ benefit}}{(1) * (\text{Testing Comp})}$$

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Problem 41 – Page 2

Revised 04/26/16

$$\begin{aligned}\text{MVAR} &= \frac{3,074}{(1)*(80,000)} \\ &= 3.84\%\end{aligned}$$

Answer is C

NOTE

If you can skip ALL the arithmetic at ages 64 and 65, this is a fairly short 5 point problem!

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Problem 42

Similar to 2014 #41

Revised 04/29/19

In general, the Top Heavy (T-H) determination date is the last day of the preceding plan year. An exception to this is the first plan year, when the determination date is the last day of the first plan year.

The question asks for the T-H ratio used for the DC plan for the 2015 calendar year. For the 2015 plan year, the T-H determination date would be December 31, 2014.

Both plans are part of a required 416 aggregation group, since they both include at least one key employee. You must combine the two plans to determine the T-H status. If the entire aggregation group is T-H, then each of the plans would also be T-H for the year. Question T-23 of the 1.416-1 regulation requires you to use determination dates that fall within the same calendar year (2014). The determination date for the defined benefit plan is the last day of the plan year ending in 2014, which is September 30, 2014.

Based on questions T-24 and T-25, the present value of accrued benefits for the DB plan (or account balance for the DC plan) is calculated as of the valuation date in the 12 month period ending on the determination date. For the DB plan, you would use the valuation results at the October 1, 2013 valuation date. For the DC plan, you would use the results at December 31, 2014.

Once you have identified the valuation dates for both plans, you can do the T-H determination.

	DB Plan	DC Plan	Sum
Determination date in 2014	09/30/14	12/31/14	
Valuation date within prior 12 months	10/01/13	12/31/14	
Key employees	200,000	130,000	330,000
Non-key employees	100,000	60,000	160,000

The Top heavy ratio is

$$67.35\% = 330,000 / (330,000 + 160,000)$$

Answer is C

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Problem 43 – Page 1

Similar to 2014 #25

This is a straightforward problem on calculating the Top Heavy (T-H) minimum. The first step in the problem is calculating the accrued benefit under the plan formula. Then you calculate the T-H minimum to see if it is larger.

12/31/2014 data

Age	??
Past service	6

The plan benefit is calculated using the final three year average earnings:

$$\begin{aligned}\text{FAE3} &= (85,000 + 95,000 + 100,000) / 3 \\ &= 93,333\end{aligned}$$

$$\begin{aligned}\text{Plan benefit} &= 93,333 * (1.5\%) * (6) \\ &= 8,400\end{aligned}$$

The problem does not tell you the T-H averaging period. Based on IRC 416(c)(1)(D)(1), the T-H averaging period can not exceed five consecutive years. In the absence of any specific data in the problem, you should assume the plan uses a T-H averaging period of five years.

The T-H minimum benefit is calculated using the highest five year average earnings from hire date up through the end of the last year that the plan was Top Heavy. The T-H pay is based on the five years from 2009 through 2013:

2009-2013

$$\begin{aligned}\text{FAE5} &= (80,000 + 85,000 + 95,000 + 85,000 + 95,000) / 5 \\ &= 88,000\end{aligned}$$

The T-H minimum is based on years the plan has been T-H. The problem says the plan has been T-H in every year, except for 2014. The plan has been T-H for 5 years.

$$\begin{aligned}\text{T-H min} &= 88,000 * (2.0\%) * (5) \\ &= 8,800\end{aligned}$$

Smith's final accrued benefit is the greater of the plan benefit and the T-H minimum, or 8,800. The problem asks for the vested benefit, which has the same value.

Answer is B

The question was trying to trick you into using the six year graded vesting schedule for the T-H minimum. But that is not how the T-H vesting schedule works. Once a plan is T-H, a participant's vesting percentage is determined using is the greater of the plan's vesting schedule or the T-H vesting schedule. Smith is 100% vested under the plan's vesting schedule.

Problem 43 – Page 2

NOTES

1. The definition of T-H pay in IRC 416(c)(D) is really vague. My interpretation has always been that the T-H pay is updated each time the plan is found to be T-H. You look back at ALL years prior to the last year that the plan was Top Heavy, and find the five highest consecutive years. This period includes prior years that the plan is NOT Top Heavy.
2. The code (and regulation) state that if any service is disregarded under IRC sections 411(a)(4), (5), or (6), then for the top heavy minimum benefit, salary paid for those years is ignored. But 411(a) concerns vesting service – not benefit accrual service.
3. Questions can get tricky when they specify the plan's effective date. Years of service before the plan effective date can be excluded for vesting purposes, and this would affect the T-H pay calculation. You need to read the question carefully - for example, the problem could use language similar to this: "the plan credits the minimum amount of vesting service" or "the plan credits vesting service using the most restrictive rules allowed".

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Problem 44

TRUE

This is a straightforward problem on calculating the Top Heavy (T-H) ratio. Just don't get tangled up in the wording of the question:

*“There has **been** never **been** ...”*

T-H ratio
61.19% = 615,000/1,005,000

Answer is A

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Problem 45

Similar to 2013 #43

TRUE

In the PBGC Comprehensive premium payment instructions, there is a definition of when the enrolled actuary's certification is not required:

- The plan is a multiemployer plan, or
- The plan is a single employer plan, and either
 - The plan is exempt from the variable rate premium, or
 - The plan is eligible for the small plan cap, and is paying the maximum variable rate premium determined using the cap

Answer is A

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Problem 46

This is the first exam question on calculating the excise tax for minimum required distributions. The key point of the problem is that the excise tax is 50%.

Unlike prohibited transaction excise taxes, there are no revenue rulings that require complex calculations. You simply add up the missed distributions and multiply by 50%:

Year	Required Distribution	Actual Distribution	Missed Distribution
2013	30,000	15,000	15,000
2014	35,000	20,000	15,000
2015	40,000	20,000	20,000
Total			50,000

$$\begin{aligned}\text{Excise tax} &= 50,000 \times (50\%) \\ &= 25,000\end{aligned}$$

Answer is C

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Problem 47

Similar to 2008 #42

I. TRUE

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."

II. 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."

III. FALSE

Unlike Item II, the electronic correspondence does not seem to fall under 901.20(c). The reason is that it is not

"... advice or explanation relative to any report signed or certified by such enrolled actuary."

Items I and II are True.

Answer is A

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