

Solutions to EA-2(B) Examination Spring, 2003

Question 1

The PBGC Form 10 is used to notify the PBGC of a reportable event. A reportable event occurs if there is a failure to meet the minimum funding requirements of the plan, including failure to make a required quarterly contribution. However, the reporting requirement is waived in the case of a small plan (plans with no more than 500 participants on each day of the prior plan year). Since this plan had only 200 participants, no filing is required.

Answer is B.

Question 2

A Qualified Social Security Supplement is a protected benefit. See IRS regulation 1.411(d)-4, Q&A1, section (a)(2).

Answer is A.

Question 3

Plans that disregard service prior to an employee's date of re-employment must allow the participants to buy back their past service benefits. However, if the plan does not disregard that service, there is no need for the plan to allow the participants to buy back their past service benefits. This statement is false since there is nothing in the given information that would **require** the plan to allow Smith to buy back his past service benefit. See IRC sections 411(a)(7)(B) and (C).

Answer is B.

Question 4

The IRC section 415(b) dollar maximum for both 2002 and 2003 is \$160,000. This is payable for retirements occurring between the ages of 62 and 65. Therefore, the \$160,000 straight life annuity that Smith is entitled to at age 62 on 12/31/2002 cannot be increased actuarially since it cannot exceed \$160,000 at age 63 on 12/31/2003. The statement is true.

Answer is A.

Question 5

This statement is true. See IRC section 415(f)(3)(A).

Answer is A.

Question 6

For purposes of the top-heavy ratio, there is a 5-year look-back period for in-service distributions. For purposes of determining whether the plan is top-heavy for 2003, the 5-year look-back period is 1998 – 2002. The in-service distribution to Smith was made in 2000, so it is included in the top-heavy determination for 2003. The statement is false. See IRC section 416(g)(3)(B).

Answer is B.

Question 7

A required aggregation group for top-heavy purposes generally consists of all plans with at least one key employee. Since there are no key employees in the collectively bargained plan, it is not part of the required aggregation group. See IRC section 416(g)(2)(A)(i)(I).

Answer is A.

Question 8

ERISA section 4213 describes rules concerning the actuarial assumptions to be used to determine withdrawal liability. There is no requirement that the assumptions used be the same as the plan funding assumptions. This is a false statement.

Answer is B.

Question 9

IRC section 4975(c)(1)(A) indicates that the exchange of property between a plan and a party-in-interest is a prohibited transaction. IRC section 4975(d) lists exemptions to the prohibited transaction rules. Lack of knowledge by a fiduciary is not an exemption to the prohibited transaction rules, and the exchange of property is in any case a prohibited transaction. The statement is false.

Answer is B.

Question 10

ERISA section 402(a)(1) indicates that the plan instrument must designate one or more named fiduciaries, either directly or by specifying a procedure to be used.

Answer is A.

Question 11

An enrolled actuary must provide written notification upon discovering that a document that he/she signed was not filed. The notification is made to the government agency to which the document should have been filed. See ERISA section 3042, regulation 901.20(h).

Answer is A.

Question 12

The full vesting of plan participants upon a partial termination only applies to the affected participants. Therefore, this statement is false. See IRC section 411(d)(3).

Answer is B.

Question 13

ERISA section 4010 provides that certain plans must provide the PBGC with actuarial and financial information. Under ERISA section 4010(b)(1), plans with aggregate unfunded vested benefits as of the end of the prior year in excess of \$50,000,000 are required to provide this information. All plans within the controlled group with unfunded vested benefits (unfunded current liability) are combined for this purpose. ERISA regulation 4010.4(b)(1) indicates that the calculation of the unfunded vested benefits is made as of the end of the plan year ending within the sponsor's fiscal year. In determining the unfunded vested benefits, they are generally determined using the same methods as for the unfunded vested benefits used for PBGC premiums under ERISA 4006.

However, PBGC Technical Update 96-3, Q&A 12 presents a chart indicating whether market value or actuarial value of assets are to be used, as well as what interest rate is to be used to determine the liability. In this question, it is not known what method (general or alternative) was used to determine the PBGC premium. So, the only option in the chart is to use the optional ERISA 4010 assumptions. Therefore, the market value of assets, unreduced by the credit balance, is used. The value of vested benefit is determined using 100% of the 30-year Treasury rate.

The unfunded vested benefits for each plan (based upon the plan year ending in 2002) is determined as follows:

$$\text{Plan A: } 980,000,000 - 955,000,000 = 25,000,000$$

$$\text{Plan B: } 100,000,000 - 80,000,000 = 20,000,000$$

$$\text{Plan C: } 220,000,000 - 230,000,000 = 0$$

$$\text{The total unfunded vested benefits are: } 25,000,000 + 20,000,000 = 45,000,000$$

Answer is B.

Question 14

IRS regulation 1.401(l)-5(b) provides for an annual overall disparity limit in the case of multiple plans of the same employer using permitted disparity. The regulation provides that the total annual disparity fraction cannot exceed one.

In this situation, there is a defined contribution plan and a defined benefit plan. Since the allocation formula is known for the defined contribution plan, the disparity fraction must to be determined for that plan first. IRS regulation 1.401(l)-5(b)(3) indicates that the annual disparity fraction for a defined contribution plan is equal to the ratio of the actual disparity used to the maximum allowable disparity that could have been used.

The actual disparity being used in the defined contribution plan is 1% (the difference between the base percentage of 5% and the excess percentage of 6%). The maximum allowable disparity is defined in IRS regulation 1.401(l)-2. Generally, the maximum allowable disparity is the smaller of the base percentage or 5.7% (see IRS regulation 1.401(l)-2(b)(2)). However, if the integration level is something less than the Taxable Wage Base, then the 5.7% must be reduced, as described in IRS regulation 1.401(l)-2(d)(4). In this case, since the integration level is greater than \$10,000 (or 20% of the Taxable Wage Base, if larger) and not more than 80% of the Taxable Wage Base, the 5.7% must be reduced to 4.3%. Therefore, the maximum allowable disparity for the defined contribution plan is equal to the smaller of 5% (the base percentage) or 4.3%. This is 4.3%. The annual disparity fraction for the defined contribution plan is:

$$1\%/4.3\% = 23.2558\%$$

Since the sum of the annual disparity fraction for the defined contribution plan and the annual disparity fraction for the defined benefit plan, this leaves 76.7442% left for the defined benefit plan.

The maximum allowable disparity that may be used in the defined benefit plan is defined in IRS regulation 1.401(l)-3. In order for the plan to satisfy the safe harbor rules for all participants, X% must be no larger than the maximum disparity factor at the retirement age yielding the lowest maximum disparity factor. Since there is an early retirement age of 62, and the retirement benefit is unreduced at that age, the age 62 factor will be the lowest maximum disparity factor. Using the permitted disparity tables in the attachment to the examination (these can also be found in IRS regulation 1.401(l)-3(e)(3)), at age 62, the smallest annual factor is 0.500, from the SSRA 67 column. However, the Simplified Table can be used in lieu of the individual SSRA tables. Using the Simplified Table, the annual factor is 0.520. Since the question is asking for the maximum value of X%, the Simplified Table should be used in this case, as it yields the higher factor. Thus, the maximum allowable disparity percentage is .52%.

The maximum allowable disparity percentage for the defined benefit plan must be reduced due to the use of a maximum of 40 years of service (rather than 35 years). This is a pro-rata reduction. In addition, the maximum allowable disparity percentage for the defined benefit plan must be reduced to reflect the remaining portion of the annual disparity fraction that is left for the defined benefit plan. The maximum allowable disparity percentage for the defined benefit plan is:

$$0.52\% \times (35/40) \times 76.7442\% = 0.3492\%$$

Therefore, the maximum value of X% that allows the defined benefit plan to satisfy the safe harbor rules of IRC section 401(l) is:

$$X\% = 0.7\% + 0.3492\% = 1.0492\%$$

Answer is B.

Question 15

The rate group with a normal accrual rate of 1.20% and a most valuable accrual rate of 2.20% consist of all employees with both a normal accrual rate of at least 1.20% and a most valuable accrual rate of at least 2.20%. The rate group in this case would include two groups of employees – those with normal rates of 1.20% and most valuable rates of 2.20%, and those with normal rates of 1.30% and most valuable rates of 2.30%.

The rate group must satisfy the provisions of IRC section 410(b) as if the only employees benefiting are those employees in the rate group. IRS regulation 1.410(b)-2(b)(7) indicates that for a plan that benefits both collectively bargained and non-collectively bargained employees, the collectively bargained employees are tested separately (and are automatically deemed to satisfy 410(b)). So, it remains to determine the ratio percentage in the rate group only considering the non-collectively bargained employees.

The ratio percentage (considering only the non-union employees) is:

$$\begin{aligned} & (\text{benefiting NHCEs/non-excludable NHCEs}) / (\text{benefiting HCEs/non-excludable HCEs}) \\ & = ((40 + 20)/300) / ((10+10)/50) = 50\% \end{aligned}$$

Answer is C.

Question 16

If Plan B is tested separately from Plan A, then the eligibility requirements of Plan B (age 21 and 1 year of service) would indicate that the testing group for Plan B consists of all HCEs and NHCEs who are at least age 21 with 1 year of service. Since no employee is in more than one plan, the total employee population that fits this condition would be 50 HCEs (40 from Plan A and 10 from Plan B) and 335 NHCEs (100 from Plan A and 235 from Plan B). This yields a total in the testing group for Plan B of 385 non-excludable employees. Statement I is True.

When plans are aggregated, the eligibility requirement used to determine the non-excludable employees is that requirement that would be most advantageous to each participant. Clearly, the eligibility requirement for Plan A (no age or service requirement) is more advantageous. So, for purposes of the aggregated plans, all employees are part of the testing group. There are a total of 440 employees (40 + 4 + 10 + 1 + 100 + 20 + 235 + 30). Statement III is false.

The non-highly compensated concentration percentage is the ratio of the non-excludable NHCEs to the total non-excludable employees. For the aggregated plans, we have already determined that the total non-excludable number of employees is 440. Of these, 385 are NHCEs (100 + 20 + 235 + 30). The non-highly compensated concentration percentage is:

$$385/440 = 87.5\%$$

Statement II is true.

Note that since it is stated that otherwise excludable employees are not tested separately, employees who could have been excluded due to the statutory eligibility requirements (age 21, 1 year of service) are treated like everyone else. Had the question stated that otherwise excludable employees were tested separately, then all employees under age 21 and/or with less than 1 year of service would have been treated as a separate testing group.

Answer is A.

Question 17

There is no early retirement age or optional forms of benefit mentioned in this question. Therefore, the most valuable accrual rate and the normal accrual rate are the same.

The accrual rate for each of the two HCEs is clearly 5%. Since Smith is the only NHCE, Smith must be part of the rate group determined by the HCEs. Therefore, the contribution for Smith must be large enough such that, when actuarially converted to a life annuity at age 65 using the testing assumptions, it yields a benefit of 5% of Smith's compensation. Smith is age 39 on the testing date of 12/31/2003.

If X% is equal to the percentage of compensation contributed to the profit sharing plan for Smith,

$$50,000 \times X\% \times 1.08^{26} \div 9.35 \div 50,000 = 5\%$$

Therefore, X% = 6.32%.

Answer is D.

Question 18

Under IRC section 401(a)(26), at least 40% of the non-excludable employees, or 50 employees, if smaller, must benefit under a plan. There are a total of 105 employees (35 + 70). 40% of the employees equals 42 employees. Since 35 HCEs will benefit under Plan A, an additional 7 NHCEs must benefit under Plan A in order to satisfy 401(a)(26).

Answer is C.

Question 19

The HCEs for a year are all employees who either are 5% owners (own more than 5%) in the current year or prior year, or earned more than \$80,000 (indexed to \$90,000 for 2002) in the prior year. (See IRC section 414(q)(1).) Green is clearly the only HCE due to being a 5% owner.

Company A has elected to use the top-paid group for purposes of limiting the number of HCEs earning more than \$90,000 in 2002. Under the top-paid group election, only the top-paid 20% of the employees are considered to be HCEs (provided they earn more than \$90,000). (See IRC section 414(q)(3).) Employees who have worked fewer than 6 months are excluded from the total employee count (see IRC section 414(q)(5)(A)). Collectively bargained employees are excluded only if the total number of collectively bargained employees is at least 90% of the total number of employees (see IRS regulation 1.414(q)-1T, Q&A 9, subsection (b)(1)(iii)(B)). In this question, the total number of collectively bargained employees is less than 90%, so those employees must be included.

There are a total of 190 employees (10 + 160 + 20) that are included in the determination of the top-paid group, since the 30 employees with less than 6 months of service are excluded. (Note that the actual plan eligibility requirement has nothing to do with this.) The maximum number of employees in the top-paid group is:

$$20\% \times 190 = 38$$

Each of Smith, Jones, Brown, and Green earned more than \$90,000 in 2002. However, only Smith and Brown were in the top 38 paid. Therefore, only Smith and Brown are HCEs due to earning more than \$90,000.

Jones is the only selected employee who is a non-highly compensated employee in 2003.

Answer is B.

Question 20

Ancillary benefits are not protected benefits under IRC section 411(d)(6). Therefore, ancillary life insurance protection is not a protected benefit. See IRS regulation 1.411(d)-4, Q&A 1, subsection (d).

A single sum benefit payable at separation of service is an optional form of benefit. This is a protected benefit under IRC section 411(d)(6). See IRS regulation 1.411(d)-4, Q&A 1, subsection (a)(3).

A joint and 75% survivor life annuity is an optional form of benefit. This is generally a protected benefit under IRC section 411(d)(6). However, IRS regulation 1.411(d)-4, Q&A2, subsection (b)(2)(ii) provides that when three or more actuarially equivalent joint and survivor annuity options are available, only the lowest and highest must be protected. So when a 50% and 100% option are also available, the 75% option can be eliminated.

Answer is B.

Question 21

Under the rules of IRC section 411(d)(6), the lump sum value of an accrued benefit cannot be reduced by plan amendment. However, Revenue Ruling 2001-62 provides an exception to this rule to the extent that the applicable mortality table is changed to the new 1994 GAR table. The lump sum value of Smith's accrued benefit based upon the amended lump sum actuarial equivalence assumptions is:

Post-12/30/2002 assumptions: $\$1,000 \times 12 \times 11.71 = \$140,520$

IRS regulation 1.417(e)-1(d)(10)(ii) indicates that when the actuarial equivalence assumptions are amended to change the date that the interest rate is determined, the benefit under the prior interest rate determination date must be protected for one year. Therefore, the lump sum value using the post-12/31/2002 assumptions must also be determined using the October interest rate of the prior plan year.

Revised post-12/31/2002 assumptions: $\$1,000 \times 12 \times 12.04 = \$144,480$

The largest of the above 2 lump sum calculations is \$144,480. That is the amount of the lump sum payment to Smith.

Answer is E.

Question 22

Smith becomes age 18 on 1/1/1999. Therefore, the first vesting computation period for Smith is the one-year period ending on 12/31/1999. Smith worked less than 1,000 hours in 1999, so no year of service is earned. Since the plan year is changed to a July 1 through June 30 year beginning July 1, 2000, there is a short plan year from 1/1/2000 through 6/30/2000. Vesting computation periods are defined to be one-year periods beginning with the first day of the plan year. So, the vesting computation period for the short plan year is the 2000 calendar year. Smith has worked 1,000 hours during 2000, and gets a year of vesting service. Smith also worked 1,000 hours in each of the 12-month periods ending on 6/30/2001, 6/30/2002, and 6/30/2003. Smith has a total of 4 years of vesting service.

Answer is C.

Question 23

Smith is paid his benefit on 2/1/2003. Since the stability period is a calendar year, and the look-back period is four months, the applicable interest rate should be the rate from September, 2002 (four months before the beginning of the 2003 calendar year). This is an interest rate of 4.76%, with a corresponding life annuity factor at age 65 of 12.038. The lump sum payable to Smith on 2/1/2003 is:

$$\$1,000 \times 12 \times 12.038 = \$144,456$$

Answer is E.

Question 24

Smith enters the plan on 1/1/1996 since there is a one-year eligibility period. As of 1/1/2003, Smith has 8 years of service, and 7 years of plan participation.

Calculate the retirement benefit under the plan provisions without regard to the limitations of IRC section 415. Smith has retired at age 55. There is an early retirement reduction of 3% for each of the first 3 years that retirement precedes age 65, and a reduction of 6% per additional year (to age 55). Therefore, Smith's normal retirement benefit must be reduced by 51% (3% × 3 years plus 6% × 7 years). In other words, his early retirement benefit is equal to 49% of his normal retirement benefit. The early retirement benefit under the plan formula is:

$$\text{Plan benefit} = 100\% \times \$170,000 \times .49 = \$83,300$$

Note that the wording of the early retirement benefit formula could be interpreted such that the reduction should actually be a 3% reduction for 3 years, followed by a 6% reduction for 7 years. This would lead to a normal retirement benefit of \$89,726 ($\$170,000 \times (1 - .09) \times (1 - .42)$). This is not how these types of early retirement reduction formulas have been applied on past examinations, however. Based upon the correct answer range, it is clear that this was not the intended interpretation.

The lump sum value of the plan benefit under IRC section 417(e)(3) is equal to the greater of the lump sum using plan equivalence or the lump sum using the applicable mortality table and the applicable interest rate. Examining the immediate annuity factors, the largest lump sum would be provided using the plan assumptions:

$$\text{Plan lump sum} = \$83,300 \times 13.63 = \$1,135,379$$

Next, the limitation under IRC section 415(b) must be considered. The compensation limit is equal to 100% of the high consecutive 3-year average salary, reduced by 1/10 for each year of service less than 10 years. Smith has 8 years of service, so the compensation limit is therefore $\$170,000 \times 8/10 = \$136,000$. (Note that the compensation limit is not adjusted for early retirement age.)

The defined benefit dollar limitation is \$160,000 for 2003. This is reduced for years of plan participation less than 10, as well as for retirement prior to age 62. Smith has 7 years of plan participation, so there is a 3/10 reduction, reducing the dollar maximum to \$112,000. Smith has retired at age 55, so the \$112,000 dollar limit must be reduced to age 55 from age 62. The reduced benefit is equal to the smaller of the benefit reduced using plan equivalence assumptions (or the plan tabular values), or reduced using the applicable mortality table and a 5% interest rate. This question is different from questions on past exams since both plan actuarial equivalence and tabular early retirement factors are provided. Since the tabular factor is used to determine the early retirement benefit under the plan, that factor is also used to adjust the IRC section 415(b) dollar limit. This is discussed in step 2 of Q&A 7 in Revenue Ruling 98-1.

The early retirement factor provides for a reduction in relation to age 65 (not age 62). In order to apply it to the \$112,000 dollar limit, the dollar limit must be increased up to age 65 from 62 (by dividing by the 3-year early retirement reduction factor of .91), and then reduced to age 55 using the 10-year early retirement reduction factor of .49. This is:

$$\$112,000 \times (.49/.91) = \$60,308$$

The actuarial reduction using the applicable mortality table and 5% interest from age 62 to age 55 can be determined using the immediate life annuity factors. Since there is a pre-retirement death benefit, the reduction from age 62 to age 55 is discounted with interest only. This is:

$$\$112,000 \times \ddot{a}_{62@5\%}^{(12)} \times v_{5\%}^7 \div \ddot{a}_{55@5\%}^{(12)} = \$112,000 \times 12.46 \times .710681 \div 14.35 = \$69,113$$

The dollar limitation is therefore \$60,308. This is the overall IRC section 415 limit for Smith since it is less than the compensation limit.

The maximum lump sum payable under IRC section 415 is equal to the smaller of the lump sum equivalent of the 415 limit using plan assumptions or the applicable mortality table and applicable interest rate. Examining the immediate annuity factors, the smaller factor is the one based upon the applicable mortality table and applicable interest rate. The IRC section 415 lump sum limit is:

$$\$60,308 \times 13.39 = \$807,524$$

This is the lump sum payable to Smith since it is less than the lump sum due to Smith without regard to IRC section 415.

Answer is A.

Question 25

The dollar limit under IRC section 415(b) is adjusted for payment prior to age 62. In this case, the dollar limit for Smith must be adjusted from age 62 to age 55. The adjusted dollar limit is equal to the smaller of the dollar limit adjust using plan actuarial equivalence (or plan early retirement tabular factors, if applicable) or the applicable mortality table and a 5% interest rate. There is a reduction for pre-retirement mortality in this question since there is no pre-retirement death benefit (benefits are forfeited on the pre-retirement death of the participant). Since the actuarial equivalence mortality table is the applicable mortality table, clearly the reduction using the plan equivalence interest of 6% will yield a smaller dollar limit than using the interest rate of 5%.

The dollar limit at age 62 for 2003 is \$160,000. This is reduced for years of plan participation less than 10. It is given that Smith has 10 years of service, and there is a general condition for the exam that states that there are no age or service requirements to enter the plan (unless told otherwise). So, it can safely be assumed that Smith also has 10 years of plan participation.

The age adjusted dollar limit under IRC section 415(b) for Smith is:

$$\begin{aligned} \$160,000 \times \ddot{a}_{62}^{(12)} \times v^7 {}_7p_{55} \div \ddot{a}_{55}^{(12)} &= \$160,000 \times 11.61 \times \frac{v^{10} {}_{10}P_{55}}{v^3 {}_3P_{62}} \div 13.15 \\ &= \$160,000 \times 11.61 \times (0.5253/0.8172) \div 13.15 \\ &= \$90,804 \end{aligned}$$

Answer is C.

Question 26

The annual benefit payable under the terms of the plan is:

$$\$300 \times 10 \text{ years of service} \times 12 = \$36,000$$

Smith has retired at age 62. The IRC section 415(b) dollar limit is \$160,000. Clearly, this does not apply.

The IRC section 415(b) compensation limit is the high consecutive 3-year average of annual compensation. This is:

$$(\$25,000 + \$23,000 + \$22,000)/3 = \$23,333$$

The IRC section 415(b) compensation limit is not adjusted for retirement age. Therefore, the annual benefit payable to Smith is limited to \$23,333.

Answer is C.

Question 27

Smith has retired at age 60, with 10 years of service, and has elected the optional joint and 50% survivor annuity. The accrued benefit payable at age 65 is:

$$\$200,000 \times 10\% \times 10 \text{ years of service} = \$200,000$$

This benefit must be reduced for early retirement and for the optional form elected under the terms of the plan. The early retirement reduction is 6.5% per year for 5 years, which is 32.5%. The reduced early retirement benefit is:

$$\$200,000 \times (1 - .325) \times .95 = \$128,250$$

This must be compared to the IRC section 415(b) limit. The compensation limit is clearly \$200,000, and does not come into play.

The defined benefit dollar limitation is \$160,000 for 2003. This is reduced for years of plan participation less than 10, as well as for retirement prior to age 62. There is a one year of service eligibility requirement, so Smith entered the plan on 1/1/1994. Smith has 9 years of plan participation, so there is a 1/10 reduction, reducing the dollar maximum to \$144,000. Smith has retired at age 60, so the \$144,000 dollar limit must be reduced to age 60 from age 62. The reduced benefit is equal to the smaller of the benefit reduced using plan equivalence assumptions (or the plan tabular values), or reduced using the applicable mortality table and a 5% interest rate. Since the tabular factor is used to determine the early retirement benefit under the plan, that factor is also used to adjust the IRC section 415(b) dollar limit.

The early retirement factor provides for a reduction in relation to age 65 (not age 62). In order to apply it to the \$144,000 dollar limit, the dollar limit must be increased up to age 65 from 62 (by dividing by the 3-year early retirement reduction factor of .805), and then reduced to age 60 using the 5-year early retirement reduction factor of .675. This is:

$$\$144,000 \times (.675/.805) = \$120,745$$

The actuarial reduction using the applicable mortality table and 5% interest from age 62 to age 60 can be determined using the immediate life annuity factors. Since there is no pre-retirement death benefit, the reduction from age 62 to age 60 is discounted with both interest and mortality. The reduction is always done using the single life annuity factors, regardless of the form of benefit elected. This is:

$$\begin{aligned} \$144,000 \times \ddot{a}_{62}^{(12)} \times v^2 {}_2p_{60} \div \ddot{a}_{60}^{(12)} &= \$144,000 \times 12.680 \times \frac{v^5 {}_5P_{60}}{v^3 {}_3P_{62}} \div 13.251 \\ &= \$144,000 \times 12.680 \times (0.753/0.841) \div 13.251 \\ &= \$123,376 \end{aligned}$$

The smaller of the benefit reduced using the plan tabular factors, or reduced using the applicable mortality table and a 5% interest rate, is \$120,745.

There is no adjustment to the IRC section 415(b) dollar limit for a qualified joint and survivor annuity form of benefit. Since the survivor benefit is payable to Smith's spouse, and is at least a 50% survivor benefit, it is a qualified joint and survivor annuity.

The overall IRC section 415(b) limit is \$120,745. Since this is less than the plan benefit, \$120,745 is Smith's annual retirement benefit.

Answer is C.

Question 28

An understanding of IRS regulation 1.416-1, Q&A 25, is necessary to properly solve this question. Note that since compensation is the same for all years for each participant, current compensation can be used as average compensation.

In the first year of a plan, the top-heavy determination date is the last day of the plan year (see IRC section 416(g)(4)(C)(ii)). In determining the top-heavy ratio, the present value is determined as of the most recent valuation date within the 12-month period ending on the determination date. This would be 1/1/2002 for the first year of the given plan. In the first year of a plan only, the accrued benefit used is calculated as of the determination date (12/31/2002).

Since the benefit formula is 1% of compensation per year of participation, each participant has earned an accrued benefit of 1% of compensation as of 12/31/2002. The present value of the accrued benefits as of 1/1/2002 is:

$$\text{Smith: } 1\% \times \$100,000 \times \ddot{a}_{65}^{(12)} \times v^{11} = \$1,000 \times 10.0 \times .5847 = \$5,847$$

$$\text{Jones: } 1\% \times \$84,000 \times \ddot{a}_{65}^{(12)} \times v^{18} = \$840 \times 10.0 \times .4155 = \$3,490$$

The top-heavy ratio is equal to the ratio of the present value of accrued benefits for the key employees to the present value of accrued benefits for all employees. This ratio for 2002 is:

$$5,847 / (5,847 + 3,490) = .6262$$

The plan is top-heavy for 2002.

Jones is entitled to the top-heavy minimum benefit for 2002, if that is larger than the plan benefit. Clearly the 2% minimum is larger than the 1% benefit under the benefit formula. Therefore, Jones actual accrued benefit for 2002 is:

$$2\% \times \$84,000 = \$1,680$$

The present value of this benefit as of 1/1/2002 is:

$$2\% \times \$84,000 \times \ddot{a}_{65}^{(12)} \times v^{18} = \$1,680 \times 10.0 \times .4155 = \$6,980$$

For the second and all subsequent plan years, the determination date is the last day of the prior plan year. So, for 2003, the determination date is 12/31/2002, and the present values are determined as of 1/1/2002. Note that in Q&A T-25 of IRS regulation 1.416-1, it states that in the second year of a plan, the actual accrued benefit is used. For Jones, this is \$6,980 (his estimated accrued benefit was \$3,490, since it was not initially known whether the plan was top-heavy in 2002).

The top-heavy percentage for 2003 is:

$$5,847 / (5,847 + 6,980) = .4558, \text{ or } 45.58\%$$

Answer is C.

Question 29

For 2003, the top-heavy determination date is 12/31/2002 (the last day of the prior plan year). It can be assumed that the valuation date for the defined benefit plan is the first day of the plan year, since this is a general condition of the examination. For the top-heavy ratio, the present value of accrued benefit for the defined benefit plan is determined as of the valuation date during the 12-month period ending on the determination date. This valuation date is 1/1/2002. For a defined contribution plan, the present value of accrued benefits is equal to the account balance as of the valuation date during the 12-month period ending on the determination date. This is 12/31/2002.

Plan participants who have terminated during the 1-year period ending on the determination date are included in the top-heavy ratio. However, participants terminated prior to that time are excluded (see IRC section 416(g)(4)(E)). As a result, Participant 2 is excluded from the determination. In-service distributions made during the 5-year period ending on the determination date are included in the top-heavy ratio (see IRC section 416(g)(3)(B)). So, the in-service distribution to Participant 5 is included.

The top-heavy ratio is equal to the ratio of the present value of accrued benefits for the key employees to the present value of accrued benefits for all employees. The defined benefit plan and the profit sharing plan must be aggregated since they each have key employees as participants. This percentage for 2003 is:

$$\frac{360,000 + 55,000}{360,000 + 55,000 + 100,000 + 45,000 + 50,000 + 30,000 + 40,000 + 20,000 + 55,000} = .5497, \text{ or } 54.97\%$$

Answer is B.

Question 30

The market value of assets exceeds the ERISA 4044 termination liability. This means that there are excess assets. Each plan must receive an allocation of the market value of assets equal to the plan's termination liability, plus an allocation of the excess assets. IRC section 414(l)(2)(B) indicates that the excess assets are allocated based upon the excess (if any) of the full funding limitation liability over the termination liability. Note that the actuarial value of the assets is not part of this allocation.

The full funding limitation liability under IRC section 412(c)(7)(A)(i) is equal to the smaller of the accrued liability (including normal cost since the spin-off occurs at the end of the year) or 170% of OBRA current liability (including the expected increase for benefits accruing during the year since the spin-off occurs at the end of the year).

The following chart summarizes the allocation. Note that numbers for Plan A (before spin-off) equals numbers for Plan A (after spin-off) plus Plan B.

	Plan A <u>(Before Spin-off)</u>	Plan A <u>(After Spin-Off)</u>	<u>Plan B</u>
Accrued liability	\$12,400,000	\$9,900,000	\$2,500,000
OBRA CL	8,400,000	7,000,000	1,400,000
170% of OBRA CL	N/A	11,900,000	2,380,000
FFL liability	N/A	9,900,000	2,380,000
Termination liability	9,800,000	8,200,000	1,600,000
Difference*	2,480,000	1,700,000	780,000
Excess assets**	1,200,000	822,581	377,419
Total market value***	11,000,000	9,022,581	1,977,419

* Difference between FLL liability and termination liability

** Allocated proportionately to difference

*** Termination liability plus excess assets

The market value allocated to Plan B is \$1,977,419.

Answer is D.

Question 31

All three statements are relevant to the actual date of a merger or spin-off. This question is taken from IRS regulation 1.414(l)-1(a)(11).

Answer is D.

Question 32

Survivor benefits for participants who die before reaching the earliest possible retirement age of the participant are determined as an immediate annuity payable beginning at the earliest retirement age of the participant (see IRC section 417(c)(1)(A)(ii)).

Smith has died at age 50, with 11 years of service. Smith could have retired at age 55. The monthly early retirement benefit payable to Smith at age 55 (applying the early retirement reduction of 4% per year) is \$60 ($\$100 \times .6$). Payable as a joint and 50% survivor annuity, the benefit is \$57 ($\$60 \times .95$). The spouse receives 50% of this, or \$28.50. The present value of Smith's survivor benefit, payable to Smith's spouse (also age 50) is:

$$\$28.50 \times 12 {}_5| \ddot{a}_{50}^{(12)} = \$342 \times 9.71 = \$3,321$$

Jones has died at age 60, with 6 years of service. Jones was not eligible for early retirement since he had less than 10 years of service. The earliest retirement age for Jones is age 65. The monthly retirement benefit payable to Jones at age 65 is \$100. Payable as a joint and 50% survivor annuity, the benefit is \$95 ($\$100 \times .95$). The spouse receives 50% of this, or \$47.50. The present value of Jones' survivor benefit, payable to Jones' spouse (also age 60) is:

$$\$47.50 \times 12 {}_5| \ddot{a}_{60}^{(12)} = \$570 \times 7.80 = \$4,446$$

The total lump sum value is: $\$3,321 + \$4,446 = \$7,767$

Answer is B.

Question 33

Under the Alternative Calculation Method, the adjusted value of plan assets is determined as of the first day of the prior year. For the 2003 PBGC Form Schedule A, this would be a 1/1/2002 determination date (or 12/31/2001).

The adjusted value of plan assets must be determined by subtracting contributions receivable and adding back all contributions for each year prior to 2003, each discounted with interest at the PBGC required interest rate for 2003 from the date they were deposited to 1/1/2002. Note that the given asset value includes the receivable contribution for 2001. The adjusted value of the plan assets is:

$$900,000 - 180,000 + 180,000/1.0492^{6/12} + 16,000/1.0492^{18/12} = 910,617$$

Answer is E.

Question 34

Both Smith and Jones are eligible for priority category 3 benefits, since they were eligible to retire on 1/1/2001 (the beginning of the 3-year period ending on the plan termination date). The benefit in category 3 is based upon the worst benefit structure during the 5-year period ending on the termination date of 12/31/2003. This would be the benefit formula in effect before 2000 of \$50 per month per year of service.

The normal form of benefit is a life annuity with 3% annual cost of living increases. ERISA regulation 4044.13(b)(5) addresses the issue of automatic benefit increases. The regulation states that the worst benefit structure during the 5-year period ending on the termination date “includes the automatic increases in the fourth and fifth years preceding termination.” So, any cost of living increases given in 1999 and 2000 would be included as part of the category 3 benefit.

Smith actually retired on 1/1/1998. His monthly category 3 benefit (without regard to the cost of living increase) is:

$$\$50 \times 25 \text{ years of service} = \$1,250$$

Since Smith retired on 1/1/1998, his first COLA increase would occur on 1/1/1999, and his second increase would occur on 1/1/2000. Therefore, per ERISA regulation 4044.13(b)(5), the category 3 benefit should include 2 years of COLA increases. The category 3 benefit for Smith is:

$$\$1,250 \times 1.03^2 = \$1,326$$

Since Jones had not retired 3 years before the plan termination date, his category 3 benefit is determined as if he had retired 3 years before the plan termination date (but using the worst benefit structure during the 5-year period ending on the termination date). This benefit is:

$$\$50 \times 27 \text{ years of service} = \$1,350$$

No cost of living adjustment applies to Jones since he had not actually retired.

In determining the present value of the category 3 benefits, they must be valued as life annuities (since no credit for additional cost of living increase may be given in category 3).

The present value (as of 12/31/2003) of the category 3 benefits are:

$$\text{Smith: } \$1,326 \times 12 \times \ddot{a}_{68}^{(12)} = \$1,326 \times 12 \times 9.88 = \$157,211$$

$$\text{Jones: } \$1,350 \times 12 \times \ddot{a}_{65}^{(12)} = \$1,350 \times 12 \times 10.81 = \$175,122$$

There is clearly not enough plan assets to cover all of the benefits in category 3. The assets must be allocated pro-rata to the two participants.

The assets allocated to Smith are:

$$\$300,000 \times \frac{157,211}{157,211 + 175,122} = \$141,916$$

Answer is C.

Note that initially the answer key released with the examination indicated that E was the correct answer. This was corrected in September 2003 to reflect choice C as the correct solution.

Question 35

This question basically comes straight out of IRS regulation 1.401(a)(4)-5(b)(3).

- I. This is false. IRS regulation 1.401(a)(4)-5(b)(3)(iv)(A) indicates that the market value of plan assets is used, not the actuarial value.
- II. This is true. The employer may choose a number larger than 25. See IRS regulation 1.401(a)(4)-5(b)(3)(ii).
- III. This is false. See IRS regulation 1.401(a)(4)-5(b)(3)(i).

Answer is C.

Question 36

A partial withdrawal has occurred on 12/31/2001 due to a 70% decline, as defined in ERISA section 4205(b)(1). Looking at the years 1994 – 1998 (the five year period before the three year period ending on 12/31/2001), the years with the two largest contribution base units (hours, in this case) are 1994 and 1996 (note that these do not need to be consecutive years). The average of the base units from 1994 and 1996 is:

$$(250,000 + 260,000)/2 = 255,000$$

30% of this amount is:

$$255,000 \times .3 = 76,500$$

Clearly, a 70% decline has occurred since the base units in each of 1999, 2000 and 2001 are less than 76,500.

The fraction used to prorate the complete liability for Employer A upon the partial withdrawal due to the 70% decline, as defined in ERISA section 4206(a)(2), is:

$$1 - \frac{55,000}{(250,000 + 220,000 + 260,000 + 80,000 + 85,000)/5} = .692737$$

Note that the numerator in the above fraction is equal to the base units in 2002 (the year following the year of the partial withdrawal).

ERISA section 4219(c)(1)(C)(i) defines the amount of the annual withdrawal liability payment for an employer that has completely withdrawn to be equal to the product of the high consecutive 3-year average of the withdrawn employer's base units in the 10 years prior to the year of withdrawal and the highest contribution rate during the 10-year period ending with the year of withdrawal. The last sentence of this section indicates that in the case of a partial withdrawal due to a 70% decline in contribution base units, the employer is deemed to have withdrawn at the end of the first year of the three-year testing period. In this case, that year is 1999 (the first of the three years in which there was a 70% decline).

The high consecutive 3-year average of Employer A's base units from 1989 through 1998 is:

$$(250,000 + 220,000 + 260,000)/3 = 243,333.33$$

The highest contribution rate during the 10-year period ending in 1999 is \$3.00.

The annual complete withdrawal liability payment is:

$$243,333.33 \times \$3.00 = \$730,000$$

ERISA section 4219(c)(1)(E) indicates that the annual liability payment for a partially withdrawn employer is equal to the product of the payment if the employer had completely withdrawn multiplied by the fraction used to pro-rate the complete liability.

Employer A's annual partial withdrawal liability payment is:

$$\$730,000 \times .692737 = \$505,698$$

Answer is B.

Question 37

Since Employer A withdrew in 2002, the withdrawal liability is based upon Employer A's share of unfunded vested benefits (UVBs) as of 12/31/2001 (the last day of the year before withdrawal). Under the rolling five withdrawal liability method, the UVBs are reduced by the liability expected to be collected by previously withdrawn employers. In this case, there are no previously withdrawn employers.

The UVB as of 12/31/2001 must be multiplied by the ratio of the employer contributions for Employer A for the five-year period ending on 12/31/2001 to the ratio of the contributions for all employers for the same period. This ratio is:

$$\frac{140,000 + 110,000 + 125,000 + 135,000 + 125,000}{980,000 + 1,050,000 + 1,300,000 + 1,350,000 + 1,400,000} = .104441$$

Employer A's share of the UVBs is:

$$\$2,030,000 \times .104441 = \$212,015$$

The de minimis rule of ERISA section 4209(a) must be applied. When the mandatory de minimis credit is applied, a credit against Employer A's share of the UVBs is determined, equal to the smaller of \$50,000 or .75% of the total UVB (before reduction for amounts expected to be collected from previously withdrawn employers). The smaller of the two is:

$$.0075 \times \$2,030,000 = \$15,225$$

The de minimis credit is phased out dollar-for-dollar for every dollar that Employer A's share of the UVBs exceeds \$100,000. Since the credit is only \$15,225, the credit is completely phased out once Employer A's share of the UVBs reaches \$115,225. The credit is completely phased out in this case since Employer A's share of the UVBs is \$212,015. The withdrawal liability for Employer A is \$212,015.

Answer is C.

Question 38

The prohibited transaction rules are described in IRC section 4975. There is a 15% excise tax on the amount of the prohibited transaction for each taxable year (or part of a year) that the transaction exists.

The amount of the prohibited transaction in this case is \$100,000. It exists for at least part of both the 2003 and 2004 taxable years. Therefore, the 15% excise tax is owed for both years. The amount of the excise tax is:

$$\$100,000 \times 15\% \times 2 \text{ years} = \$30,000$$

Answer is D.

Question 39

- I. ERISA regulation 901.31(a) states that an enrolled actuary may be suspended for failure to satisfy the eligibility conditions of ERISA regulation 901.13. ERISA regulation 901.13(f)(iii) indicates that enrollment may be denied if an individual fails to file a federal tax return. This statement is true.
- II. ERISA regulation 901.20(d) provides that an enrolled actuary may perform actuarial services when a conflict of interest exists provided that the enrolled actuary fully discloses this fact to the plan trustees, any named fiduciary of the plan, and the plan administrator. This statement is false.
- III. ERISA regulation 901.20(b) provides that an enrolled actuary may not perform actuarial services when it is believed that those services may be used in a fraudulent manner. This statement is true.

Answer is C.