Question 1

ERISA regulation 901.20(b)(2) states that an enrolled actuary may not perform actuarial services for any person or organization that the actuary believes may use those services in a fraudulent manner. Notifying the IRS or the DOL does not allow the actuary to perform those services.

The statement is false.

Answer is B.

Question 2

IRC section 4980(d)(1) allows for a reduction in the excise tax on the reversion of excess assets to an employer upon plan termination from 50% to 20% if a qualified replacement plan is established, and at least 25% of the excess assets are transferred to the qualified replacement plan. In order to be deemed a qualified replacement plan, IRC section 4980(d)(2)(A) requires that at least 95% of the active participants in the terminated plan be participants in the qualified replacement plan.

Although the requirement to transfer at least 25% of the excess assets to the replacement plan was satisfied, only 90% of the active participants from the terminated plan are active participants in the replacement plan. The excise tax is <u>not</u> reduced to 20%, and remains at 50%.

The statement is true.

Answer is A.

Question 3

IRC section 1563(a)(1) states that a parent-subsidiary controlled group exists if one company is owned by at least 80% of an individual or entity. Under those rules, Company A and Company B are not part of a controlled group.

However, for purposes of determining benefit limits under IRC section 415, a parent-subsidiary controlled group exists if one company is owned by more than 50% of an individual or entity (see IRC section 415(h)). Therefore, only for purposes of benefit limits, Company A and Company B are part of a controlled group.

As a result, the sum of Smith's benefits from both plans cannot exceed the limitations of IRC section 415.

The statement is true.

Answer is A.

Question 4

IRC section 432(e)(8)(A)(iv)(II) states that as part of a rehabilitation plan, a benefit adjustment is made for early retirement benefits (with some exceptions), reducing accrued benefits with regard to the early retirement subsidy. IRC section 432(e)(9)(A) states that a plan's unfunded vested benefits for purposes of determining withdrawal liability is determined without regard to those benefit adjustments. PBGC Technical Update 2010-3 provides a simplified method for dealing with these rules.

Under the technical update, the withdrawal liability is determined using the liability method defined under the terms of the plan, reducing the value of the benefits by the subsidized early retirement benefits being ignored.

In determining the withdrawing employer's proportional share of the Affected Benefits, the subsidized early retirement benefits would be taken into account, and the outstanding balance of that proportional share would be added to the value of the unfunded vested benefits allocated under the terms of the plan.

The statement is true.

Answer is A.

Question 5

All employees of the employer are HCEs. Treasury regulation 1.410(b)-2(b)(5) states that a plan satisfies the requirements of IRC section 410(b) for a plan year if the employer has no non-highly compensated employees at any time during the plan year.

The statement is true.

Answer is A.

Question 6

A plan that is spun off from another plan is deemed to be a new plan for PBGC premium purposes (ERISA regulation 4006.2, definition of "new plan"). PBGC premiums are therefore required for plan B for 2016.

The statement is true.

Answer is A.

Question 7

Interpretive Bulletin 2509.95-1 describes rules relating to fiduciary standards when choosing an annuity provider. Subsection (d) of the bulletin indicates that it would be a violation of fiduciary duties if the plan fiduciary were to purchase a riskier annuity merely to avoid the plan sponsor needing to make an additional contribution to the plan upon termination in order to allow the assets to be sufficient to purchase the annuity. The fiduciary must find the safest annuity possible.

The statement is false.

Answer is B.

Question 8

IRC section 436(g) states that any plan that has been in existence for less than 5 years is exempt from the requirements of IRC section 436(c), relating to limitations on plan amendments. The amendment effective 4/1/2016 is within the first 5 years of the 1/1/2012 effective date of the plan, so no IRC section 436 contribution is required in order to allow the amendment to take effect.

The statement is false.

Answer is B.

Question 9

IRC section 415(b)(2)(D) provides for an increase in the IRC section 415(b) dollar limit when benefit commencement exceeds age 65. There is no such increase for the IRC section 415(b)(1)(B) compensation limit. The statement is false.

Answer is B.

Question 10

ERISA regulation 4041.21(b)(2) allows that a majority owner may elect to forego receipt of their benefits in order for the plan to have assets sufficient to terminate as a standard termination, provided spousal consent is provided and the consent of the participant and the spouse is not in violation of a qualified domestic relations order. A majority owner under the definition in ERISA regulation 4041.2 is a person who owns 50% or more of the business sponsoring the retirement plan.

Smith owns 79% of the business, and is therefore a majority owner. Smith has never been married and is not a party to any qualified domestic relations order. The statement with respect to Smith is true.

Answer is A.

Question 11

Ownership for purposes of IRC section 416 follows the constructive ownership rules of IRC section 318. Under IRC section 318, an employee is deemed to own any percentages owned by their spouse, their parents, their children, and their grandchildren, in addition to their own ownership percentage.

Smith's grandchild is a 4% owner. It can be assumed from the facts presented that the grandchild is not married, and has no children or grandchildren. It can also be assumed that the grandchild's parents have no ownership. Smith is the grandparent of the grandchild, and while Smith does have 4% constructive ownership from the grandchild, the grandchild does not receive any constructive ownership from Smith. The grandchild therefore has 4% ownership for purposes of IRC section 416.

A key employee under IRC section 416(i)(1)(A) is an employee who is:

(1) A 5% owner (owns more than 5%),
(2) A 1% owner (owns more than 1%) and earns more than $150,000 during the year, or
(3) An officer earning more than $130,000 (adjusted for cost of living increases) during the year.

Smith's grandchild is a 1% owner, but does not earn enough salary to be classified as a key employee. The statement is false.

Answer is B.

Question 12

A participant has a benefit in priority category 3 of ERISA section 4044 if on the date exactly 3 years before the plan termination date they were either in pay status, or could have elected to be in pay status (that is, they could have elected to retire under the plan's early or normal retirement definition). See ERISA section 4044(a)(3).

The active participant did not satisfy the plan's early retirement provision until 1/1/2014, which is 2 years before the plan termination date of 1/1/2016. The participant has no priority category 3 benefit because the participant could not have retired 3 years before the plan termination date.

The statement is false.

Answer is B.

Question 13

ERISA section 4219(c)(1)(D) provides rules for determining withdrawal liability when a mass withdrawal occurs. That section states that all employers who have withdrawn during the 3 year period prior to the mass withdrawal are considered to be part of the mass withdrawal, so the amount of the withdrawal liability could increase for those employers.

Employer A completely withdrew 2 years prior to the mass withdrawal, so the complete withdrawal liability for Employer A could increase as a result of the mass withdrawal.

The statement is true.

Answer is A.

Question 14

ERISA regulation 901.20(j) states that an enrolled actuary must promptly return all client records (including electronic records) that are necessary for the client to fulfill a legal obligation, if requested by the client. The statement is true.

Answer is A.

Question 15

Smith provides services to the plan, and is considered to be a disqualified person under IRC section 4975(e)(2)(B). IRC section 4975(c)(1)(A) states that the sale of any property between the plan and a disqualified person is a prohibited transaction.

The sale of the plan's limited partnership holdings is thus considered a prohibited transaction. The statement is true.

Answer is A.

Question 16

Only the variable rate premium must be certified by the plan's enrolled actuary. The flat premium is not subject to certification. Under ERISA section 4006(a)(3)(A), a multiemployer plan is only subject to a flat premium. No certification by an enrolled actuary is needed for the PBGC premium filing. The statement is false.

Answer is B.

Question 17

Treasury regulation 1.416-1, Q&A T-23 describes the determination of the top heavy ratio when plans are aggregated with different plan years.

The top heavy ratio is based upon the valuation results for the valuation date during the 12-month period ending on the determination date. The determination date is the last day of the prior year. Plan A is not a calendar year plan, as it begins on 7/1 and ends on 6/30 each year. Each 6/30 is a determination date for Plan A, and the determination date for the plan year ending in 2016 is 6/30/2015 (last day of the year prior to 2016). The valuation date is the last day of the year, which is 6/30/2015 for Plan A. The present value of the accrued benefits used for Plan A is calculated as of 6/30/2015.

For the Plan B, the determination date for the 2016 calendar year is 12/31/2015 (last day of the year prior to 2016). The valuation date for that year is 12/31/2015 (also an end of year valuation). The present value of the accrued benefits used for Plan B is calculated as of 12/31/2015.

The statement is true.

Answer is A.

Question 18

The AFTAP, as defined in IRC section 436(j)(1) and determined on the plan valuation date, is equal to the ratio of the actuarial value of assets (reduced by the funding balances) to the funding target, with both the numerator and denominator increased by the total purchases of annuities for the NHCEs during the last 2 years. The stabilized segment rates are used for purposes of the AFTAP.

$$X = 2016 \text{ AFTAP} = \frac{920{,}000 - 75{,}000}{980{,}000} = 86.22\%$$

Answer is C.

Question 19

IRC section 411(a)(13)(B) requires that a cash balance plan provide 100% vesting after three years of service (no vesting is required prior to that). IRC section 411(a)(4)(A) allows years of service before attaining age 18 to be excluded for purposes of determining the vested percentage. IRC section 411(a) requires that an employee must be fully vested upon reaching the plan's normal retirement age.

Employee 1 worked more than 1,000 hours in each of 2011 through 2015, for 5 years of vesting service. Employee 1 is fully vested as of 1/1/2016.

Employee 2 worked more than 1,000 hours in 2011, 2013, and 2015, for 3 years of service. Note that the two years (2012 and 2014) with fewer than 500 hours worked (resulting in a break in service each year) does not negate the years in which 1,000 hours was worked. Employee 2 is fully vested as of 1/1/2016.

Employee 3 was hired at age 16, so the first two years of service (2011 and 2012) can be ignored. Employee 3 worked more than 1,000 hours in 2013 and 2015, for 2 years of service. Employee 3 is non-vested as of 1/1/2016.

Employee 4 was hired at age 60 and reached normal retirement age (62) on 1/1/2013. Employee 4 must be fully vested.

3 employees (1, 2, and 4) are vested as of 1/1/2016.

Answer is D.

Question 20

I. Revenue Notice 2008-30, Q&A 11 provides that no spousal consent is required when a participant elects a QOSA provided it is actuarially equivalent to the plan's QJSA. In this case, the QOSA is <u>not</u> actuarially equivalent to the QJSA, so spousal consent is required. The statement is false.

II. IRC section 417(g)(2)(ii) states that if the QJSA percentage is greater than or equal to 75%, then the QOSA percentage must be equal to 50%. The statement is true.

III. IRC section 417(d)(1)(A) states that a QJSA must be provided to a plan participant who has been married for a 1-year period ending on the annuity starting date (not 6 months). The statement is false.

Answer is C.

Question 21

IRC section 401(a)(26)(A) states that a plan satisfies the minimum participation requirement if it benefits the smaller of 50 participants, or 40% of the nonexcludable employees. In addition, Treasury regulation 1.401(a)(26)-1(b)(1) states that a plan that does not benefit any highly compensated employees (HCEs) satisfies the minimum participation requirement, regardless of the number of employees benefiting.

There are 4 HCEs and 6 NHCEs, for a total of 10 employees. It can be assumed from the exam general conditions that there are no other employees, and that all employees are nonexcludable.

The minimum number of participants receiving meaningful benefits in each plan must be:

$40\% \times 10 = 4$

Plan I: Only HCE1 and HCE2 have meaningful benefits. There are only 2 plan participants, so the plan does <u>not</u> satisfy the minimum participation requirement.

Plan II: Only NHCE3 has a meaningful benefit. However, the plan covers only NHCEs, so it satisfies the minimum participation requirement.

Plan III: Only HCE4 and NHCEs 4 - 6 have meaningful benefits. There are 4 plan participants, so the plan satisfies the minimum participation requirement.

Plans II and III satisfy the minimum participation requirement.

Answer is E.

Question 22

Treasury regulation 1.436-1(f)(2)(iv)(A) states that for a plan in which the certified adjusted funding target attainment percentage (AFTAP) is less than 80%, an IRC section 436 contribution may be made in order to allow a plan amendment increasing liabilities to take effect. In addition, Treasury regulation 1.436-1(f)(2)(iv)(B) states that for a plan in which the certified adjusted funding target attainment percentage (AFTAP) is at least 80% but would be less than 80% if the increase in the funding target due to the plan amendment were included as part of the funding target in the AFTAP, an IRC section 436 contribution may be made in order to allow that ratio to be exactly 80% if the contribution were included in the numerator. Regulation 1.436-1(f)(2)(i)(A)(2) states that if the IRC section 436 contribution is made on a date other than the valuation date for the year, then the contribution must be interest adjusted from the valuation date to the date of the contribution using the plan effective rate for that plan year. This question is asking for the additional contribution that could be made on 6/30/2016 that would allow the amendment increasing the funding target to take effect.

The amount of the IRC section 436 contribution is dependent on the AFTAP. The AFTAP, as defined in IRC section 436(j)(1) and determined on the plan valuation date, is equal to the ratio of the actuarial value of assets (reduced by the funding balances) to the funding target, with both the numerator and denominator increased by the total purchases of annuities for the NHCEs during the last 2 years.

$$\text{2016 AFTAP} = \frac{23{,}000{,}000 + (725{,}000 + 520{,}000)}{29{,}000{,}000 + (725{,}000 + 520{,}000)} = 80.16\%$$

If the increase in the funding target due to the plan amendment is included as part of the funding target in the AFTAP:

$$\frac{23{,}000{,}000 + (725{,}000 + 520{,}000)}{29{,}000{,}000 + 1{,}000{,}000 + (725{,}000 + 520{,}000)} = 77.60\%$$

In order to increase this ratio to 80%, a contribution of $X is deposited on 6/30/2016, and is interest adjusted using the plan effective rate of 5.5% for 6 months to the 1/1/2016 valuation date.

$$\frac{23{,}000{,}000+(725{,}000+520{,}000)+(X/1.055^{6/12})}{29{,}000{,}000+1{,}000{,}000+(725{,}000+520{,}000)}=80.00\% \qquad \rightarrow \qquad X=771{,}376$$

Answer is B.

Note: Although the AFTAP was certified on 6/1/2016, it is still determined as of the valuation date of 1/1/2016. As a result, the annuity purchases during the first 6 months of 2016 are ignored.

Question 23

This question requires allocation of assets through the PBGC priority categories, under ERISA section 4044. The question is asking for the present value of benefits allocated in priority category 5 under ERISA section 4044. This requires an allocation of assets through the PBGC priority categories.

PBGC priority categories 1 and 2 relate to voluntary and mandatory employee contributions, respectively. There are no employee contributions mentioned in this question, and as a result no category 1 or 2 benefits.

PBGC priority category 3 relates to benefits that could have been paid 3 years prior to the plan termination date, for participants who could have retired at that time. Smith is age 65 as of the plan termination date, and was age 62 three years prior to the plan termination date. Smith could have retired 3 years before the plan termination date (under the plan's early retirement provision of age 62), and has category 3 benefits. Jones is age 64 as of the plan termination date, and was age 61 three years prior to the plan termination date. Jones could not have retired 3 years before the plan termination date and does not have any category 3 benefits.

The category 3 benefit for Smith uses years of plan participation (note that the benefit formula uses years of plan participation, not years of service) through 12/31/2012 (the date that Smith could have retired 3 years before the plan termination date), and any early retirement reduction that would have applied on 12/31/2012 (the 5% per year early retirement reduction). The benefit formula used is the formula in effect at any time during the 5-year period prior to the plan termination date that would produce the smallest benefit. Smith is an owner of the company, so that is the \$360 formula. Smith had 17 years of plan participation as of 12/31/2012.

Smith category 3 monthly benefit = $\$360 \times 17 \text{ years} \times [1 - (.05)(3)] = \$5{,}202$

PBGC priority category 4 relates to guaranteed benefits (and some non-guaranteed benefits for majority owners). Smith is a majority owner (with ownership of at least 50%). Jones is not a majority owner (with no ownership). The total category 4 benefit is the same regardless of ownership, so the fact that Smith is a majority owner can be ignored (it would be important if there was not enough money to cover all category 4 benefits, which is not the case in this question). The vested accrued benefit attributable to the benefit structure in place exactly 5 years before the plan termination date is fully guaranteed (up to the PBGC maximum guaranteeable benefit). There have been no plan amendments in the past 5 years, so the original benefit structure applies. That benefit structure is a benefit of \$360 per month per year of plan participation for Smith, and \$135 per month per year of plan participation for Jones. It is given that the PBGC expected retirement age (XRA) is the age at plan termination for each participant. This is age 65 for Smith and age 64 for Jones, so the vested accrued benefit should be determined as if it will be payable at those ages. The vesting schedule is not provided, but both Smith and Jones have at least 7 years of service, and must therefore be fully vested under any vesting schedule that would satisfy the minimum vesting rules of IRC section 411(a).

The monthly vested accrued benefit, payable at XRA (with an early retirement reduction factor reflecting the 5% per year reduction prior to age 65 for Jones) is:

Smith: \$360 × 20 years of service = \$7,200.00
Jones: \$135 × 9 years of service × 0.95 = \$1,154.25

The PBGC dollar maximum guaranteeable monthly benefit for 2015 is \$5,011.36. This is payable at age 65 as a life annuity. The benefit payable to Smith is at age 65, so the maximum guaranteeable benefit is not adjusted. Smith has already been allocated a benefit of \$5,202 in category 3, and that exceeds the maximum guaranteeable benefit. There is no benefit for Smith in category 4. (Category 3 benefits can exceed the PBGC maximum.)

The benefit for Jones is well below the \$5,011.36 dollar maximum for 2015 (even reduced for Jones' assumed retirement age of 64). However, Jones high consecutive 5-year average salary is \$12,000 per year, or \$1,000 per month. The PBGC maximum guaranteeable benefit cannot exceed the high consecutive 5-year average salary, if this is less than the dollar maximum. The high consecutive 5-year salary is also reduced for retirement age below 65, using factors provided in PBGC regulations (and a table provided with this exam). The factor for retirement age 64 is 0.93. The PBGC maximum for Jones is:

Jones PBGC maximum guaranteeable benefit = \$1,000 × 0.93 = \$930

Jones has a category 4 benefit of \$930.

Priority category 5 represents vested accrued benefits that have not yet been reflected through category 4.

Smith's vested accrued benefit is \$7,200, and Smith's category 3 benefit was \$5,202. Smith had no category 4 benefit. The category 5 benefit for Smith is:

Smith category 5 benefit = \$7,200 - \$5,202 = \$1,998

Jones' vested accrued benefit is \$1,154.25, and Jones' category 4 benefit was \$930. Jones had no category 3 benefit. The category 5 benefit for Jones is:

Jones category 5 benefit = \$1,154.25 - \$930.00 = \$224.25

The present value of the benefits is determined at the participants' age as of the plan termination date (65 for Smith, 64 for Jones). The annuity factors provided are for annual benefits, and must be changed to reflect the monthly payments. Recall the approximation for a monthly life annuity:

$$\ddot{a}_x^{(12)} = \ddot{a}_x - \tfrac{11}{24}$$

So,

$$\ddot{a}_{64}^{(12)} = \ddot{a}_{64} - \tfrac{11}{24} = 15.84 - \tfrac{11}{24} = 15.382$$
$$\ddot{a}_{65}^{(12)} = \ddot{a}_{65} - \tfrac{11}{24} = 15.35 - \tfrac{11}{24} = 14.892$$

Smith category 5 PVAB = $\$1,998 \times 12 \times \ddot{a}_{65}^{(12)} = \$1,998 \times 12 \times 14.892 = \$357,051$

Jones category 5 PVAB = $\$224.25 \times 12 \times \ddot{a}_{64}^{(12)} = \$224.25 \times 12 \times 15.382 = \$41,393$

Total PVAB in category 5 = \$357,051 + \$41,393 = \$398,444

Answer is D.

Question 24

The withdrawal liability for Employer A is determined as of the end of the year prior to the complete withdrawal. The value of the unfunded vested benefits is multiplied by the ratio of the contributions made by Employer A over the 5-year period ending on 12/31/2014 to the contributions made by all employers.

The plan was certified as being in critical status in 2013, so the rules of PBGC Technical Update 2010-3 must be followed in determining the withdrawal liability for Employer A. Under the Rolling 5 method, the total unfunded vested benefits for the plan as of 12/31/2014 must be reduced by the value of the nonforfeitable reduced benefits under the terms of the rehabilitation plan as of that same date (12/31/2014), before multiplying by the 5-year ratio of contributions.

This is the unfunded vested benefit liability attributable to Employer A under the Rolling 5 method is:

$$38{,}500{,}000 \times \frac{16{,}000{,}000}{65{,}850{,}000} = 9{,}354{,}594$$

The outstanding balance of the value of nonforfeitable reduced benefits under the terms of the rehabilitation plan from 12/31/2013 (referred to in the PBGC Technical Update as "Affected Benefits"), amortized over 15 years using the plan valuation interest rate, is allocated to Employer A using the same contribution ratio, and added to the unfunded vested benefit liability attributable to Employer A under the Rolling 5 method.

Outstanding balance of Affected Benefits on 12/31/2014

$$= 8{,}000{,}000 \times \frac{\ddot{a}_{\overline{14}|6.25\%}}{\ddot{a}_{\overline{15}|6.25\%}} = 7{,}662{,}790$$

Allocation of Affected Benefits to Employer A:

$$7{,}662{,}790 \times \frac{16{,}000{,}000}{65{,}850{,}000} = 1{,}861{,}878$$

Total allocation to Employer A = 9,354,594 + 1,861,878 = 11,216,472

This is the complete withdrawal liability since the de minimis credit is clearly phased out (the total allocation of unfunded vested benefits exceeds $150,000).

Answer is D.

Question 25

The benefit payable to a participant must be limited under IRC section 415(b) to the smaller of the IRC section 415 dollar limit or the IRC section 415 compensation limit. The IRC section 415 compensation limit is equal to 100% of the high consecutive 3-year average compensation (reduced pro-rata for years of service less than 10). Smith has 10 years of service as of the retirement date, so there is no reduction in the high 3-year average compensation of $178,000.

The IRC section 415(b) dollar limit in effect for 2016 is $210,000. This must be reduced pro-rata for years of plan participation less than 10. Smith entered the plan on 1/1/2007, and has only 9 years of plan participation.

Pro-rated dollar limit = $210,000 × (9/10) = $189,000

The dollar limit is further reduced for retirement prior to age 62. Smith retires at age 60 (an early retirement age in this plan) The reduced dollar limit is the smaller of the limit reduced using plan equivalence or the limit reduced using actuarial equivalence based upon 5% interest and the applicable mortality table.

Plan equivalence, in the situation where there is an early retirement benefit, is based upon early retirement reduction factors. In this question the early retirement benefit is unreduced, so the plan reduction factor is 1.0 (no reduction). See Treasury Regulation 1.415(b)-1(d)(1).

Therefore, the dollar limit must be reduced using the statutory equivalence factors.

The given annuity factors are annual and must be adjusted to reflect the payment of monthly benefits. Recall the approximation:

$$\ddot{a}_x^{(12)} = \ddot{a}_x - \tfrac{11}{24}$$

So, $\ddot{a}_{62@5\%}^{(12)} = \ddot{a}_{62@5\%} - \tfrac{11}{24} = 12.68 - \tfrac{11}{24} = 12.222$

And $\ddot{a}_{60@5\%}^{(12)} = \ddot{a}_{60@5\%} - \tfrac{11}{24} = 13.25 - \tfrac{11}{24} = 12.792$

In applying a reduction from age 62 to age 60, the discount is on an interest only basis because there is a pre-retirement death benefit (the present value of accrued benefits).

Reduced dollar limit using statutory equivalence (5% interest and applicable mortality table):

$$\$189{,}000 \times \ddot{a}^{(12)}_{62@5\%} \times v^{2}_{5\%} \div \ddot{a}^{(12)}_{60@5\%} = \$189{,}000 \times 12.222 \times 0.907030 \div 12.792$$
$$= \$163{,}790$$

The smaller of the IRC section 415(b) dollar limit ($163,790) and the IRC section 415(b) compensation limit ($178,000) is the dollar limit of $163,790. (Note that the IRC section 415(b) compensation limit is not adjusted for retirement age). That is Smith's IRC section 415(b) limit as of 1/1/2016.

Answer is B.

Question 26

The top heavy ratio as described in IRC section 416(g)(1) 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. All plans of the employer that include at least one key employee must be aggregated for purposes of the top heavy ratio. Key employees Smith and Jones are both participants in each of the defined benefit and profit sharing plans, so the two plans must be aggregated.

The determination date for the top heavy ratio is defined in IRC section 416(g)(4)(C) to be the last day of the preceding year. For the 2016 top heavy ratio, the determination date is 12/31/2015. The valuation date during the 12-month period ending on the determination date is used for the top heavy ratio. The valuation date in this question is 1/1 for the defined benefit plan and 12/31 for the profit sharing plan (not specifically stated in the question, but data for the profit sharing plan is only provided as of 12/31). The present values as of 1/1/2015 are used for the defined benefit plan, and the account balances as of 12/31/2015 are used for the profit sharing plan.

In-service distributions paid during the 5-year period ending on the determination date are included in the top heavy ratio (IRC section 416(g)(3)(B)). The \$50,000 annual distributions paid to Jones on 2/1/2011 through 2/1/2014 must be added to Jones' present value of accrued benefit for the top heavy ratio. Note that the 2/1/2015 payment is already included in the present value of accrued benefits as of 1/1/2015.

Death benefits paid to beneficiaries of deceased employees are included in the top heavy ratio only to the extent that they do not exceed the present value of accrued benefits immediately prior to death. For Smith, the present value of accrued benefits of \$200,000 is less than the \$500,000 death benefit paid, so only the \$200,000 is considered in the top heavy ratio.

2016 top heavy ratio =

$$\frac{\$200{,}000 + [\$300{,}000 + (\$50{,}000 \times 4)] + \$100{,}000 + \$400{,}000}{\$200{,}000 + [\$300{,}000 + (\$50{,}000 \times 4)] + \$100{,}000 + \$400{,}000 + \$50{,}000 + \$200{,}000}$$

= 0.8276, or 82.76%

Answer is C.

Question 27

Treasury regulation 1.410(b)-6(b)(1) provides that an employee is excludable if they are excluded from a plan due to the minimum age and service requirements of the plan, provided they do not exceed the minimum age and service allowed under IRC section 410(a)(1) – minimum age no greater than age 21 and minimum service of no more than one year. Treasury regulation 1.410(b)-6(b)(2) provides that if a plan has multiple sets of eligibility requirements (including aggregated plans), then an employee is excludable only if they do not satisfy any of the sets of eligibility requirements.

An employee is non-excludable if they are not excludable. Therefore, with regard to the aggregated salaried and hourly plan in this question, an employee is non-excludable if they are at least age 18 with at least 6 months of service (regardless of whether they are salaried or hourly), since that is the least restrictive of the eligibility requirements for all employees. (Note that salaried employees between the ages of 18 and 21 and/or with service between 6 months and one year are actually excluded from the salaried plan, and would not be benefiting in that plan. But they would be considered to be non-excludable for purposes of the aggregated plan.)

In the chart containing selected employee information for 2016, those with both less than 6 months of service and under age 18 are excludable employees. All other categories represent non-excludable employees.

Number of non-excludable employees:

(1 + 70 + 2 + 100) + (10 + 10 + 5 + 25) + (50 + 80 + 6 + 100) + (5 + 20 + 5 + 15) = 504

Answer is E.

Question 28

A filing of PBGC Form 200 is required when there is a failure to contribute the minimum required contribution or a quarterly required contribution by their respective due dates, and the unpaid balance of the contribution(s), including interest, exceeds $1,000,000.

In this question, the first two quarterly contributions for 2016 are unpaid, each in the amount of $498,000. The due dates of these contributions were 4/15/2016 and 7/15/2016 (IRC section 430(j)(3)((C)(ii)). When a quarterly contribution is paid late, there is an additional interest penalty of 5 percentage points above the plan effective rate for the year (IRC section 430(j)(3)(A)). In this question, the plan effective rate is 6%, so the interest rate including the penalty rate is 11% (6% + 5%). The 4/15/2016 late quarterly contribution of $498,000 must be increased with interest from 4/15/2016 to 7/15/2016 with 11% annual interest. The 7/15/2016 late quarterly contribution is not increased with any interest.

Total outstanding unpaid quarterly contributions (with interest) as of 7/15/2016:

$\$X = (\$498{,}000 \times 1.11^{3/12}) + \$498{,}000 = \$1{,}009{,}164$

Answer is E.

Note: The topic of quarterly contributions is covered on the EA-2F exam, which is not a pre-requisite for this exam. However, the Appendix to PBGC Form 200 instructions includes an example illustrating how the quarterly contributions are accumulated with the plan effective rate and the 5 percentage point interest penalty. PBGC Form 200 (and the instructions) is part of the syllabus for the EA-2L exam, so this is considered a valid question.

Question 29

IRC section 411(a)(4)(A) allows for years of service prior to attaining age 18 to be ignored for purposes of vesting. Smith turned age 18 on 1/1/2003, so years of service prior to 2003 are ignored (it is stated that the plan provides the most restrictive vesting allowed under IRC section 411). In addition, it is stated that only plan years in which Smith works at least 1,000 hours are considered to be years of service for vesting.

As of 12/31/2008, Smith has only 2 years of service for vesting (2003 and 2004). However, IRC section 411(a)(6)(B) states that for an employee who has suffered a 1 year break in service (a year in which the employee has worked no more than 500 hours), years of service before the one year break in service are ignored until a year of service (a year in which the employee works at least 1,000 hours) is worked. Smith had breaks in service in the years 2005 – 2007, and only worked 950 hours in 2008. Therefore, as of 12/31/2008, the two years of service from 2003 and 2004 are ignored. $X = 0$.

Under the 7-year graded vesting schedule described in IRC section 411(a)(2)(A)(iii), an employee is nonvested until they reach 3 years of service. IRC section 411(a)(6)(D) provides that for a nonvested participant with at least 5 consecutive years of breaks in service, years of service before the consecutive years of breaks in service can be ignored for vesting purposes. Smith had breaks in service in the years 2005 – 2007. These are only 3 consecutive years, so Smith's years of service prior to 2005 cannot be ignored.

As of 12/31/2015, Smith has 7 years of service for vesting (2003 – 2004, 2009 – 2012, 2015). $Y = 7$.

$X + Y = 0 + 7 = 7$

Answer is B.

Question 30

ERISA regulation 901.20(d)(2)(i) provides that when there is the existence of a conflict of interest, the enrolled actuary can only perform services to each affected client if she believes that she can perform those services competently and diligently. Smith does not have that belief with respect to Company B, so Smith may not perform the requested service for Company B while continuing to perform services for Company A. The Assertion is true.

ERISA regulation 901.20(d)(2)(iii) provides that when there is the existence of a conflict of interest, each affected client must waive the conflict of interest. However, there is no requirement that this waiver be in writing. The Reason is false.

Answer is C.

Question 31

The excise tax with regard to a prohibited transaction is equal to 15% of the amount involved (IRC section 4975(a)). When the prohibited transaction is a prohibited loan, the amount involved is equal to the interest paid or accrued with respect to the loan. The determination of the excise tax in this situation is described in Revenue Ruling 2002-43.

During 2015, the prohibited loan existed for only 3 months (from 10/1/2015 through 12/31/2015). The interest rate on the loan must be at least a market rate interest rate, and the 9% interest rate satisfies this requirement. The interest on the loan for the 3 months is:

$\$100{,}000 \times 9\% \times 3/12 = \$2{,}250$

The 15% excise tax is:

$15\% \times \$2{,}250 = \$337.50$

Answer is B.

Note that this could alternatively be done using compound interest:

$\$100{,}000 \times (1.09^{3/12} - 1) = \$2{,}178$

$15\% \times \$2{,}178 = \$326.70$

Question 32

Revenue Notice 2012-46 requires a notice to be provided to the plan participants within 30 days after the plan has become subject to either partial or total restrictions on accelerated benefit payments (Q&A 1 in the notice). The plan in this question offers a lump sum option, so it is potentially subject to restrictions on accelerated distributions (total restriction if the AFTAP falls below 60%, and partial restriction if the AFTAP is at least 60% but less than 80%, as described in IRC sections 436(d)(1), (2), and (3)). Q&A 4 of Revenue Notice 2012-46 provides specific rules regarding notice requirements to participants when the accelerated distribution restriction applies. Any change in that restriction (no restriction to either a full or partial restriction, a partial restriction to a full restriction, or a full restriction to a partial restriction) results in a 30-day participant notice requirement.

I. The AFTAP has gone from 65% (at least 60% but less than 80%) to 55% (less than 60%). The plan has gone from having a partial restriction on accelerated distributions to a complete restriction. A 30 day notice is required.

II. The AFTAP has gone from 58% (less than 60%) to 68% (at least 60% but less than 80%). The plan has gone from having a complete restriction on accelerated distributions to a partial restriction. A 30 day notice is required.

III. For a plan in Title 11 bankruptcy proceedings, there is a complete restriction on accelerated distributions if the AFTAP is less than 100% (IRC section 436(d)(2)). The AFTAP before and after the 3/1/2016 certification is less than 100%, so there is no change in the status of this plan. A 30 day notice is not required.

Answer is A.

Question 33

I. IRC section 416(g)(2)(A) defines aggregation groups for purposes of the top heavy ratio. Generally, only plans of the employer with at least one key employee must be aggregated. In addition, any plans aggregated for purposes of satisfying the requirements of IRC sections 401(a)(4) and 410(b) must be aggregated for purposes of the top heavy ratio. Generally, a plan with no key employees is not aggregated for purposes of the top heavy ratio. The statement is false.

II. The definition of a highly compensated employee under IRC section 414(q) is not the same as the definition of a key employee under IRC section 416(j)(1). There is no requirement to aggregate plans with highly compensated employees for top heavy purposes. The statement is false.

III. Plans with different plan years can be aggregated (and in some situations, such as when they each have a key employee, must be aggregated). See example in Treasury regulation 1.416, Q&A T-23. The statement is true.

Answer is E.

Question 34

ERISA section 4006(a)(7) provides payment of an additional plan termination premium for plan sponsors that have filed for Chapter 11 bankruptcy. The additional termination premium is equal to $1,250 per participant, payable on <u>each</u> of 3 “applicable 12-month periods.” Over the three year period, the total premium per participant is $3,750 ($1,250 × 3).

The participant count is based on the number of participants the day before the plan termination date (not the date of bankruptcy filing). The participant count for this plan would be as of 9/30/2015.

Participant count on 9/30/2015 = 12 + 45 + 540 + 125 = 722

Total termination premium = 722 × $3,750 = $2,707,500

The assertion is true, but the reason is false.

Answer is C.

Question 35

Accrued benefits must be frozen under IRC section 436(e) when the AFTAP is less than 60%. However, the restrictions on benefit accruals do not apply during the first 5 plan years (IRC section 436(g)). With the plan having a 1/1/2002 effective date, IRC section 436 does not apply until 2008, the 6^{th} year of the plan, so the restrictions on benefit accruals could apply for all years from 2008 on.

As of January 1 of any plan year, the AFTAP is presumed to be equal to the prior year AFTAP until the current year AFTAP is certified (IRC section 436(h)(1)). As of April 1 of any plan year, if the current year AFTAP has not yet been certified, then the AFTAP is presumed to be 10 percentage points less than the prior year AFTAP until the current year AFTAP is certified (IRC section 436(h)(3)). As of October 1 of any plan year, if the current year AFTAP has not yet been certified, then the AFTAP is presumed to be less than 60% for the remainder of the plan year (IRC section 436(h)(2)).

A range certification can be relied upon provided the final (specific) AFTAP certification is within that range and is certified by the end of the plan year (Treasury regulation 1.436-1(h)(4)(ii)(B)). If the final AFTAP certification is made after the end of the plan year, then the AFTAP is presumed to be less than 60% for the last 3 months of the year (as the final certification is late).

Smith is hired on 1/1/2006, and has 12 months of accrual service in each of 2006 and 2007.

In 2008, the initial AFTAP is certified as 91%, so Smith has 12 months of accrual service in 2008.

Based upon the presumed underfunding rules, the plan has no presumed or actual underfunding in 2009 (the presumed AFTAP as of 1/1/2009 is 91%, as of 4/1/2009 is 81%, and the 2009 AFTAP certification of 83% is issued on 9/30/2009). Smith has 12 months of accrual service in 2009.

Based upon the presumed underfunding rules, the plan has no presumed or actual underfunding in 2010 (the presumed AFTAP as of 1/1/2010 is 83%, and the 2010 AFTAP certification of 75% is issued on 3/31/2010). Smith has 12 months of accrual service in 2010.

Based upon the presumed underfunding rules, the plan has no presumed or actual underfunding in 2011 (the presumed AFTAP as of 1/1/2011 is 75%, as of 4/1/2011 is 65%, and the 2011 AFTAP certification of 63% is issued on 9/30/2011). Smith has 12 months of accrual service in 2011.

In 2012, the range certification of 60% to 80% made on 3/31/2012 is substantiated by the final AFTAP certification for 2012 of 61%, certified on 3/31/2013. The presumed AFTAP as of 1/1/2012 is 63%, and the range certified AFTAP as of 4/1/2012 is in the 60% to 80% range. However, the final AFTAP for 2012 was certified after the end of the year, so the presumed AFTAP as of 10/1/2012 is less than 60%. Smith does not receive accrual for the last 3 months of 2012, so Smith has 9 months of accrual service in 2012.

In 2013, the AFTAP is presumed to be less than 60% from January 1 through March 31 (when the 2012 AFTAP is certified). On 4/1/2013, the presumed AFTAP is 51% (61% less 10%). On 10/1/2013, the AFTAP is presumed to be less than 60% because the 2013 AFTAP has not yet been certified. Smith has no accrual service in 2013.

In 2014, the AFTAP is presumed to be less than 60% until the 2013 AFTAP is finally certified on 7/1/2014 to be 64%. At that point, the presumed AFTAP is 54% (64% less 10%). The 2014 AFTAP is range certified on 9/30/2014 to be between 60% and 80%. However, the final certification for 2014 is not made by the end of the year, so the presumed AFTAP is less than 60% for the rest of the year. Smith has no accrual service in 2014 (the AFTAP is presumed to be less than 60% for the entire year).

In 2015, the AFTAP is presumed to be less than 60% from January 1 through February 1 (when the 2014 AFTAP is certified as 67%). From 2/1/2015 through 3/31/2015 the AFTAP is presumed to be 67%. On 3/31/2015, the 2015 AFTAP is certified to be 75%. Smith has 11 months of accrual service in 2015.

Based upon the presumed underfunding rules, the plan has no presumed or actual underfunding in 2016 (the presumed AFTAP as of 1/1/2016 is 75%, as of 4/1/2016 is 65%, and the 2016 AFTAP certification of 82% is issued on 9/30/2016). Smith has 12 months of accrual service in 2016.

The total number of months of service for Smith through the 2016 year is equal to:

$12 + 12 + 12 + 12 + 12 + 12 + 9 + 0 + 0 + 11 + 12 = 104$

$X = \frac{1}{12}\% \times (\$50{,}000/12) \times 104$ months of service $= \$361.11$

Answer is C.

Question 36

A measurement period of the current plan year used to determine the most valuable accrual rate requires the use of the current year accrual for the defined benefit plan. That is $1,000.

The most valuable benefit is deemed to be the qualified joint and survivor annuity (Treasury regulation 1.401(a)(4)-3(d)(1)(ii)). The qualified joint and survivor annuity (QJSA) must then be normalized using testing assumptions to a life annuity.

Early retirement benefits can be paid at age 60 or later, with a reduction in the $1,000 current year accrual of 3% per year prior to age 65. Each possible early retirement benefit must be considered, and normalized (using the 8.5% testing interest rate) to a life annuity at age 65 in order to determine the most valuable accrual from the defined benefit plan. At each age, the $1,000 annual accrual is adjusted by a factor of 0.95 to convert it to a QJSA benefit, and by the appropriate reduction for the early retirement age.

At age 60, the benefit payable as a QJSA is $807.50 ($1,000 × 0.95 × 0.85).
At age 61, the benefit payable as a QJSA is $836.00 ($1,000 × 0.95 × 0.88).
At age 62, the benefit payable as a QJSA is $864.50 ($1,000 × 0.95 × 0.91).
At age 63, the benefit payable as a QJSA is $893.00 ($1,000 × 0.95 × 0.94).
At age 64, the benefit payable as a QJSA is $921.50 ($1,000 × 0.95 × 0.97).
At age 65, the benefit payable as a QJSA is $950.00 ($1,000 × 0.95).

Each of these benefits must be normalized by multiplying by the QJSA annuity value at the actual retirement age, accumulating the result to age 65 at 8.5% interest, and dividing by the life annuity factor at age 65. The benefit at the actual retirement age multiplied by the normalization factor is equal to the normalized benefit.

RA	Benefit	Normalization factor	Normalized benefit
60	$807.50	$9.90 \times 1.085^5 \div 8.38 = 1.776396$	$1,434.44
61	$836.00	$9.75 \times 1.085^4 \div 8.38 = 1.612425$	$1,347.99
62	$864.50	$9.60 \times 1.085^3 \div 8.38 = 1.463243$	$1,264.97
63	$893.00	$9.44 \times 1.085^2 \div 8.38 = 1.326134$	$1,184.24
64	$921.50	$9.27 \times 1.085 \div 8.38 = 1.200233$	$1,106.01
65	$950.00	$9.09 \div 8.38 = 1.084726$	$1,030.49

The largest normalized benefit is $1,434.44, so that is the most valuable accrual.

The most valuable accrual rate is equal to the ratio of the most valuable accrual to the testing compensation.

$$\text{Most valuable accrual rate} = \frac{\$1{,}434.44}{\$50{,}000} = 0.0287, \text{ or } 2.87\%$$

Answer is E.

Question 37

The total PBGC premium under ERISA section 4006 consists of a flat-rate premium and a variable-rate premium. For 2016, the flat-rate premium is equal to \$64 per participant. The participant count is based on the number of plan participants as of the last day of the prior plan year (12/31/2015). Participants include vested and non-vested active participants, retired participants, and beneficiaries and alternate payees of deceased participants. Inactive participants are included.

The plan has 30 active participants and 5 inactive participants, for a total of 35 participants to be counted for the flat-rate premium.

Flat-rate premium = 35 × \$64 = \$2,240

The PBGC variable-rate premium using the alternative method utilizes the vested funding target using the same lookback month for segment rates as is used for minimum funding. The PBGC variable-rate premium for 2016 is equal to 3% of the unfunded <u>vested</u> benefits without regard to stabilized segment rates. Market value of assets is used for premium purposes.

2016 variable premium unfunded liability = \$1,500,000 – \$450,000 = \$1,050,000

2016 variable-rate premium = \$1,050,000 × 0.03 = \$31,500

In 2016, there is a variable premium cap of \$500 per plan participant.

Variable premium cap = \$500 × 35 participants = \$17,500

The variable-rate premium is limited by this cap.

Total 2016 PBGC premium = \$X = \$2,240 + \$17,500 = \$19,740

Answer is C.

Note: The small plan lookback rule allows a small plan to base variable rate premiums on the prior year valuation date results rather than the current year valuation date results (small plans can have a valuation date other than a first day valuation, so it is possible that the current year valuation has not been completed at the time the PBGC variable rate premium is due). The small plan lookback rule was not elected in this question, so the current year (2016) valuation results were used.

Question 38

A partial withdrawal occurred in 2010 because Employer A ceased to be obligated to make contributions with regard to one of its collective bargaining agreements (see ERISA section 4205(b)(2)(A)(i)). The partial withdrawal liability payment is equal to the complete liability payment as determined under ERISA section 4219(c)(1)(C)(i), multiplied by a pro-ration fraction determined under ERISA section 4206(a)(2).

The complete withdrawal liability payment is equal to the high consecutive 3-year average of base units for the withdrawing employer during the 10-year period ending with the year prior to withdrawal (ending in 2009 in this question) multiplied by the highest contribution rate during the 10-year period ending with the year of withdrawal (ending in 2010 in this question). The annual complete liability payment is:

$$\frac{400{,}000 + 400{,}000 + 390{,}000}{3} \times 1.45 = 575{,}167$$

The fraction determined under ERISA section 4206(a)(2) is equal to the ratio of the employer base units in the year following the partial withdrawal (2011 in this question) to the high consecutive 5-year average of employer base units during the 5 years prior to the year of partial withdrawal (2005 – 2009 in this question). The annual partial liability payment is:

$$X = 575{,}167 \times \left(1 - \frac{180{,}000}{(400{,}000 + 390{,}000 + 380{,}000 + 250{,}000 + 250{,}000)/5}\right) = 265{,}197$$

Answer is B.

Question 39

The benefit payable to a participant must be limited under IRC section 415(b) to the smaller of the IRC section 415 dollar limit or the IRC section 415 compensation limit. The IRC section 415 compensation limit is equal to 100% of the high consecutive 3-year average compensation (reduced pro-rata for years of service less than 10). Smith has 8 years of service as of the retirement date, so the reduced high 3-year average compensation is:

Pro-rated 415(b) compensation limit = $9,000 × (8/10) = $7,200

The IRC section 415(b) dollar limit in effect for 2016 is $210,000. This must be reduced pro-rata for years of plan participation less than 10. Smith entered the plan on 1/1/2009, and has only 7 years of plan participation.

Pro-rated 415(b) dollar limit = $210,000 × (7/10) = $147,000

Clearly, the smaller of the two limits is the compensation limit of $7,200.

This is further reduced for the 10-year certain and life form of benefit elected, as required under Treasury Regulation 1.415(b)-1(c). The reduced 415(b) limit is the smaller of the limit reduced using plan equivalence (7.5% interest and the applicable mortality table) or the limit reduced using actuarial equivalence based upon 5% interest and the applicable mortality table. The reduced limit is determined by taking the ratio of the life annuity factor to the life with 10 years certain factor.

Adjustment using 7.5% interest: $7,200 × (10.52/10.79) = $7,020

Adjustment using 5% interest: $7,200 × (13.05/13.36) = $7,033

The smaller of the two is $7,020.

Treasury regulation 1.415(b)-1(f) provides that, for a participant who has never participated in a defined contribution plan of the employer, the 415(b) limit is not less than a benefit of $10,000 (not adjusted for form of benefit). The $10,000 de minimis 415(b) limit is pro-rated for years of service less than 10. Smith has only 8 years of service, so this must be pro-rated.

Pro-rated de minimis 415(b) limit = $10,000 × (8/10) = $8,000

That is Smith's IRC section 415(b) limit as of 1/1/2016.

Answer is E.

Question 40

Each HCE determines a rate group under the general test of Treasury regulation 1.401(a)(4)-3(c). The rate group includes the HCE (in this case, the HCE in group C) and all other participants with both a normal and most valuable accrual rate at least as large as that of the HCE in group C. Note that it is given that the normal and most valuable accrual rates are the same for all participants. The ratio percentage is equal to the ratio of the percentage of NHCEs who are non-excludable employees and are benefiting in the rate group to the percentage of HCEs who are non-excludable employees and are benefiting in the rate group. Since no employees are mentioned in the question other than the participants listed, it can be assumed that there are no other non-excludable employees (exam general conditions). For purposes of the ratio percentage for this rate group, only the participants in the rate group are benefiting.

There are a total of 8 non-excludable HCEs in the plan (the sum of the HCEs in groups A, B and C). There are a total of 65 non-excludable NHCEs in the plan (the sum of the NHCEs in groups D, E, and F).

Permitted disparity can optionally be imputed for purposes of determining the accrual rates under Treasury regulation 1.401(a)(4)-7(c). For employees with compensation no larger than covered compensation, disparity is imputed under Treasury regulation 1.401(a)(4)-7(c)(2) as the smaller of two results:

(1) Twice the unadjusted accrual rate, or
(2) The unadjusted accrual rate plus the permitted disparity rate

Groups B, E, and F have compensation less than their covered compensation. Clearly, for a participant with an unadjusted accrual rate that is at least 0.65%, the smaller of the two results would be the unadjusted accrual rate plus 0.65%. This is the case for each participant in groups B, E, and F.

The imputed accrual rate for groups B, E, and F is:

Group B: 2.35% + 0.65% = 3.00%
Group E: 3.09% + 0.65% = 3.74%
Group F: 0.00% + 0.65% = 2.65%

Treasury regulation 1.401(a)(4)-7(c)(3) states that for employees whose compensation exceeds covered compensation, the imputed accrual rate is the smaller of:

$$\frac{\text{accrual}}{\text{testing compensation - 1/2 covered compensation}}\text{, or}$$

$$\frac{\text{accrual} + (\text{permitted disparity factor} \times \text{covered compensation})}{\text{testing compensation}}$$

The imputed accrual rate must be determined for Groups A, C, and D. Note that testing compensation must be assumed to be current compensation (allowed since the measurement period is the current year). Current compensation cannot exceed the 2015 IRC section 401(a)(17) limit of $265,000.

Group A:

Imputed accrual rate is smaller of:

$$\frac{5{,}875}{255{,}000 - (.5 \times 81{,}000)} = 2.739\%\text{, or}$$

$$\frac{5{,}875 + (.0065 \times 81{,}000)}{255{,}000} = 2.510\%$$

The smaller is 2.510%.

Group C:

Imputed accrual rate is smaller of:

$$\frac{6{,}750}{250{,}000 - (.5 \times 99{,}000)} = 3.367\%\text{, or}$$

$$\frac{6{,}750 + (.0065 \times 99{,}000)}{250{,}000} = 2.957\%$$

The smaller is 2.957%.

Group D:

Imputed accrual rate is smaller of:

$$\frac{1{,}850}{78{,}000-(.5\times 69{,}000)} = 4.253\%, \text{ or}$$

$$\frac{1{,}850+(.0065\times 69{,}000)}{78{,}000} = 2.947\%$$

The smaller is 2.947%.

The rate group determined by group C includes participants with an accrual rate of at least 2.957%. This includes the 2 HCEs in group B, the HCE in group C, and the 5 NHCEs in group E. There are 3 (out of 8) HCEs in the rate group, and 5 (out of 65) NHCEs in the rate group.

The ratio percentage for the rate group determined by the HCE in group C is:

$$\frac{5/65}{3/8} = 20.51\%$$

Answer is B.

Question 41

Participants who continue to work past normal retirement age must receive actuarial increases in their normal retirement benefit, to the extent that those increases are not covered by increases in their accrued benefit due to the additional service after normal retirement age. If the plan sponsor provides a suspension of benefits notice to a participant, the actuarial equivalent of the normal retirement benefit need not be provided, although additional accruals are required based upon the plan's benefit formula.

In this question, no suspension of benefits notice is provided to either participant, so the actuarial equivalent of the retirement benefit must be provided if it is less than the accrued benefit granting additional years of service past normal retirement age. The greater of those two amounts is looked each year, as the question states this is done on a year-by-year basis.

Normal retirement age is assumed to be age 65, based upon the general conditions of the exam.

The annuity factors provided in this question are annual annuities (payable annually), not annual annuities payable monthly. Recall the standard approximation:

$$\ddot{a}_x^{(12)} = \ddot{a}_x - \tfrac{11}{24}$$

Using that approximation,

$$\ddot{a}_{65}^{(12)} = \ddot{a}_{65} - \tfrac{11}{24} = 9.54 - \tfrac{11}{24} = 9.0817$$
$$\ddot{a}_{66}^{(12)} = \ddot{a}_{66} - \tfrac{11}{24} = 9.23 - \tfrac{11}{24} = 8.7717$$
$$\ddot{a}_{67}^{(12)} = \ddot{a}_{67} - \tfrac{11}{24} = 8.92 - \tfrac{11}{24} = 8.4617$$

<u>Smith</u>

Smith reached normal retirement age on 1/1/2014, with 9 years of service at that time.

Normal retirement benefit on 1/1/2014 = \$75 × 9 years of service = \$675

Actuarial equivalent of this benefit on 1/1/2015 $= \$675 \times \ddot{a}_{65}^{(12)} \times 1.05 \div \ddot{a}_{66}^{(12)}$
$= \$675 \times 9.0817 \times 1.05 \div 8.7717$
$= \$733.80$

Accrued benefit on 1/1/2015 = \$75 × 10 years of service = \$750.

The larger of the actuarial equivalent benefit and the accrued benefit is \$750 as of 1/1/2015.

Actuarial equivalent of this benefit on 1/1/2016 = $\$750 \times \ddot{a}_{66}^{(12)} \times 1.05 \div \ddot{a}_{67}^{(12)}$
$= \$750 \times 8.7717 \times 1.05 \div 8.4617$
$= \$816.35$

Accrued benefit on 1/1/2016 = \$75 × 11 years of service = \$825

The larger of the actuarial equivalent benefit and the accrued benefit is \$825 as of 1/1/2016. X = \$825.

<u>Jones</u>

Jones reached normal retirement age on 1/1/2015, with 19 years of service at that time.

Normal retirement benefit on 1/1/2015 = \$75 × 19 years of service = \$1,425

Actuarial equivalent of this benefit on 1/1/2016 = $\$1{,}425 \times \ddot{a}_{65}^{(12)} \times 1.05 \div \ddot{a}_{66}^{(12)}$
$= \$1{,}425 \times 9.0817 \times 1.05 \div 8.7717$
$= \$1{,}549.13$

Accrued benefit on 1/1/2016 = \$75 × 20 years of service = \$1,500

The larger of the actuarial equivalent benefit and the accrued benefit is \$1,549.13 as of 1/1/2016. Y = \$1,549.13.

|X – Y| = |\$825 - \$1,549.13| = \$724.13

Answer is B.

Question 42

The PBGC variable-rate premium using the alternative method utilizes the vested funding target using the same lookback month for segment rates as is used for minimum funding. The PBGC variable-rate premium for 2016 is equal to 3% of the unfunded vested benefits without regard to stabilized segment rates. Market value of assets is used for premium purposes.

2016 variable premium unfunded liability = \$1,000,000 – \$450,000 = \$550,000

2016 variable-rate premium = \$550,000 × 0.03 = \$16,500

In 2016, there is a variable premium cap of \$500 per plan participant (participant count as of the last day of the prior year).

Variable premium cap = \$500 × 50 participants = \$25,000

The variable-rate premium is not limited by the variable premium cap.

2016 is the final year for which a premium filing is due, because a trustee was appointed for the plan on 10/31/2016 (this is done when a plan terminates as a distress termination). The final year premium is pro-rated to the date the trustee was appointed.

X = 2016 variable-rate premium = \$16,500 × (10/12) = \$13,750

Answer is C.

Note: The small plan lookback rule allows a small plan to base variable rate premiums on the prior year valuation date results rather than the current year valuation date results (small plans can have a valuation date other than a first day valuation, so it is possible that the current year valuation has not been completed at the time the PBGC variable rate premium is due). The small plan lookback rule was not elected in this question, so the current year (2016) valuation results were used.