

Question 1

A reportable event under ERISA regulation 4043.25 occurs when a required contribution under IRC section 430 is not made by the due date required by IRC section 430(j). A waiver of reporting applies if the late payment is made with regard to a quarterly required contribution and the plan had fewer than 100 participants in the prior plan year. In addition, there is a waiver of reporting if the contribution is made by the 30th day following the due date.

In this question, the contribution is made more than 30 days late, and it is not a required quarterly contribution. Form 10 is required to be filed by the plan administrator.

The statement is true.

Answer is A.

Question 2

Treasury regulation 1.401(a)(4)-3(b)(6)(xi) states that a benefit formula that provides the greater of two benefits is a safe harbor benefit formula provided each formula is a safe harbor formula on its own and that the formulas are available to all employees. Each of the two benefit formulas in this question satisfy the safe harbor for unit credit plans of regulation 1.401(a)(4)-3(b)(3). Therefore, the formula satisfies the nondiscrimination requirements of IRC section 401(a)(4). The statement is true.

Answer is A.

Question 3

For purposes of IRC section 410(b), regulation 1.410(b)-6(d)(1) states that a collectively bargained employee is always treated as excludable with respect to the portion of the plan that has been mandatorily disaggregated. The statement is true.

Answer is A.

Question 4

IRC section 411(a)(8) states the normal retirement age cannot exceed the later of age 65 or the 5th anniversary of commencement of participation in a plan. Smith entered the plan on 1/1/2018, and the 5th anniversary of that date is 1/1/2023 (at which time Smith is age 70). Normal retirement date cannot exceed 1/1/2023. The statement is true.

Answer is A.

Question 5

There is no requirement that, for a participant who continues to work after normal retirement date and receives distribution of benefits at normal retirement date, future accruals be paid in the same form of benefit as the normal retirement benefit. As a result, Smith can receive benefits accrued at normal retirement age as a lump sum, and have additional accruals earned after attaining normal retirement age in a different form. The statement is false.

Answer is B.

Question 6

ERISA regulation 4006.3(b)(3) provides for a small employer cap on the variable premium. This cap applies when the number of employees of the employer as of the first day of the year is no more than 25. The number of employees in this question as of 1/1/2018 is 22, so the small employer cap applies for 2018. The variable rate premium cannot exceed \$5 multiplied by the square of the number of plan participants as of the last day of the prior year.

$$\text{Small employer cap} = \$5 \times 20^2 = \$2,000$$

The statement is true.

Answer is A.

Question 7

ERISA regulation 4006.6(a) states that an individual is considered to be a participant if they have benefit liabilities. Smith is non-vested under the 5 year cliff vesting schedule. ERISA regulation 4006.6(b)(1)(i) states that a participant who has incurred a one year break in service has suffered a loss or distribution of benefits. As a result, Smith is deemed to have no benefit liabilities as of 12/31/2017. Smith would not be included in the participant count for purposes of the 2018 PBGC premium. The statement is false.

Answer is B.

Question 8

ERISA regulation 4010.4(b)(2) provides for the use of the actuarial value of assets as defined under IRC section 430(g)(3) for purposes of determining the 4010 funding target attainment percentage. The statement is false.

Answer is B.

Question 9

ERISA section 4022A(b)(1)(A) provides that any benefit or benefit increase that has been in effect for less than 60 months in a multiemployer plan prior to the plan termination date is not eligible for PBGC guarantee. The statement is true.

Answer is A.

Question 10

ERISA section 4219(c)(1)(D) provides that in the case of a mass withdrawal, any employer that has withdrawn during the 3-year period prior to the date of the mass withdrawal is deemed to be part of the mass withdrawal. As a result, Employer A is considered to be part of the mass withdrawal. The statement is true.

Answer is A.

Question 11

There is no requirement for a plan trustee to be an owner of the company. The statement is false.

Answer is B.

Question 12

IRC section 4975(c)(1)(B) provides that any direct or indirect lending of money between the plan and a disqualified person is a prohibited transaction. The statement is true.

Answer is A.

Note: The answer key for this question originally indicated the question as false, so credit was ultimately given for both answer choices. But the statement is actually a true statement.

Question 13

ERISA regulation 901.20(f)(1)(ii) provides that an enrolled actuary must exercise due diligence with regard to the correctness of oral or written information provided by the actuary to various government entities. The contribution date is included on the form Schedule SB. If a client has provided incorrect information in the past with regard to the dates of contributions, further investigation (such as requesting a copy of the check) is needed. The statement is false.

Answer is B.

Question 14

Treasury regulation 1.436-1(h)(2)(iii) provides that as of the first day of the 4th month of a plan year, if the AFTAP for that year has not been certified, then the presumed AFTAP is equal to the prior year certified AFTAP, reduced by 10 percentage points. That means that the presumed AFTAP in this question, as of 4/1/2019, is 82%. IRC section 436(d) allows for the payment of lump sums without restriction if the AFTAP (or in this case, presumed AFTAP) is at least 80%. Smith can receive a lump sum distribution on his entire benefit, and the statement is true.

Answer is A.

Question 15

The funding target attainment percentage (FTAP) under IRC section 430(d)(2) is equal to the ratio of the actuarial value of assets (reduced by the funding balances) to the funding target. The adjusted funding target attainment percentage (AFTAP) under IRC section 436(j)(2) is the same as the FTAP, but with the addition to both the numerator and the denominator of any amounts used to purchase annuities for the non-highly compensated employees during the last two years . There is no mention of any purchases of annuities, so it can be assumed that there are none.

$$\text{AFTAP} = \frac{780,000 - 84,000}{1,200,000} = 58\%$$

When the AFTAP is less than 60%, certain restrictions apply under IRC section 436, such as benefit accruals being frozen (IRC section 436(e)), restrictions on accelerated distributions (IRC section 436(d)), and the inability to pay unpredictable contingent event benefits. IRC section 436(f)(3) states that for plans other than a collectively bargained plan, the funding balance must be reduced if that will allow the AFTAP to reach the 60% threshold, but only in the case where the plan is subject to the restriction on accelerated distributions. This plan does not offer a lump sum, so there is no accelerated distribution offered by the plan and it is not subject to that restriction.

Therefore, the plan sponsor is not required to waive any of the prefunding balance in order to allow the AFTAP to reach 60% (although the plan sponsor can elect to make such a reduction in the prefunding balance).

The statement is false.

Answer is B.

Question 16

The IRC section 415(b) annual dollar limit for 2018 is \$220,000. This is reduced pro-rata for years of plan participation less than 10 years. Smith has 7 years of plan participation (from 1/1/2011 through 1/1/2018).

2018 dollar limit for Smith = $\$220,000 \times (7/10) = \$154,000$

The statement is true.

Answer is A.

Question 17

Treasury regulation 1.416-1, Q&A T-4 states that a terminated plan is treated like any other plan for purposes of the top heavy rules. That would include aggregating it with other plans of the employer in 2019 if it would be part of a required aggregation group had it not terminated. The statement is true.

Answer is A.

Question 18

In order to be considered a key employee under IRC section 416(i)(1), an employee must satisfy at least one of the following:

- (1) Have ownership of more than 5% in the prior year.
- (2) Have ownership of more than 1% in the prior year and salary of more than \$150,000 in the prior year.
- (3) Be an officer with salary of more than \$130,000 (indexed) in the prior year. The indexed amount for 2017 and 2018 is \$175,000.

With Smith's 2% ownership, annual compensation of more than \$150,000 would be needed to be a key employee. Note that technically 2017 compensation is needed for this question, in order to determine whether Smith is a key employee for 2018. But without that prior salary history, it must be assumed that the salary paid to Smith is \$140,000. As a result, Smith is not a key employee.

Answer is B.

Question 19

Treasury regulation 1.401(a)(4)-5(b)(3)(iv) provides that in the case of one of the top 25 paid HCEs, a lump sum can only be paid if one of the following requirements is satisfied.

- (1) The plan provides for mandatory cash outs of no more than \$5,000, and the lump sum does not exceed \$5,000. The lump sum in this question is \$29,000, so this requirement is not satisfied.
- (2) The lump sum is less than 1% of the current liability (or funding target for a single employer plan) of the plan before the distribution. 1% of \$1,910,000 is \$19,100, so this requirement is not satisfied.
- (3) The current liability (funding target) in the plan after the distribution is at least 110% of the market value of assets after the distribution. \$1,966,000 ($\$1,995,000 - \$29,000$) would be the remaining market value of assets after the distribution. \$1,883,500 ($\$1,910,000 - \$26,500$) would be the remaining current liability (funding target) after the distribution. 110% of the remaining current liability (funding target) is \$2,071,850. That would require an additional contribution of \$105,850 ($\$2,071,850 - \$1,966,000$).

Answer is D.

Question 20

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 62 or later, and are fully subsidized, so there is no reduction in accrued benefit for early retirement. Although each possible early retirement benefit must be considered, the benefit payable at the earliest retirement age will be the most valuable, due to the full subsidy. The accrued benefit is converted from a life annuity (normal form, due to exam general conditions) to a QJSA, using the plan's actuarial equivalence assumptions to find the benefit payable at early retirement age in the form of the QJSA. That amount is then normalized (accumulating using the 8.5% testing interest rate) to a life annuity at age 65 to determine the most valuable accrual from the defined benefit plan. The factors being asked for in this question consist of both the conversion factor to a QJSA as well as the normalization factor.

Smith's earliest retirement age is 62. The factor for Smith is:

$$X = \frac{152.16}{164.40} \times 110.65 \times 1.085^3 \div 95.38 = 1.371456$$

Jones' earliest retirement age is 63. The factor for Jones is:

$$Y = \frac{148.65}{161.10} \times 108.72 \times 1.085^2 \div 95.38 = 1.238172$$

$$X/Y = 1.371456/1.238172 = 1.107646$$

Answer is B.

Question 21

In this question, the employer has chosen to apply the general testing rules of IRC section 401(a)(4) for the defined benefit plan and the profit sharing plan by electing to aggregate the plans following the requirements of Treasury regulation 1.401(a)(4)-9. The employer has elected to test the plans on a benefits basis (determination of aggregated accrual rates is described in Treasury regulation 1.401(a)(4)-9(b)(ii)(B)). Treasury regulation 1.401(a)(4)-8(b)(2) requires the accumulation of contributions from the profit sharing plan, using testing assumptions, in order to determine equivalent accrual rates for the profit sharing plan participants.

The measurement period is the current plan year, so only the current 2018 accrual from the defined benefit plan and 2018 allocation from the profit sharing plan are used to determine accrual rates.

In a defined benefit cash balance plan, the “accrual” is equal to the pay credit, accumulated to normal retirement age using the cash balance interest crediting rate (5% in this question), and then converted to the normal form of a life annuity using plan actuarial equivalence (note that the normal form is assumed to be a life annuity due to the general conditions of the exam). Smith is age 60 as of 12/31/2018, so the pay credit must be accumulated for 5 years.

Defined benefit plan 2018 accrual for Smith = $\$44,000 \times 1.05^5 \div 141.57 = \396.67

For purposes of the general test of IRC section 401(a)(4), employee deferrals cannot be aggregated, so only the profit sharing contribution is considered in the profit sharing plan.

Profit sharing plan 2018 equivalent benefit for Smith = $\$2,500 \times 1.075^5 \div 94.80 = \37.86

The normal accrual rate is equal to the ratio of the sum of the benefits to the testing salary. Testing salary is not defined in this question, but since only current 2018 compensation is provided, it must be assumed that testing compensation is current compensation. The 2018 salary must be limited to the 2018 IRC section 401(a)(17) salary maximum, which is \$275,000.

Normal accrual rate = $(\$396.67 + \$37.86)/(\$275,000/12) = 1.896\%$

Answer is C.

Question 22

The non-highly compensated employee concentration percentage is equal to the percentage of employees who are non-highly compensated (Treasury regulation 1.410(b)-4c(4)(iii)). Excludable employees under Treasury regulation 1.410(b)-6 are not taken into account.

Regulation 1.410(b)-6(d)(1) provides that collectively bargained employees are considered to be excludable. In addition, a terminated plan participant who works no more than 500 hours and does not accrue a benefit is considered to be excludable (Treasury regulation 1.410(b)-6(f)(1)). As a result, the 13 NHCEs who have worked at least a year and are over age 21 (making them plan participants), but worked fewer than 500 hours and did not accrue a benefit are excludable. The 32 NHCEs who did not satisfy the minimum age and service requirements are also excludable.

All 12 HCEs are non-excludable, as are 42 NHCEs (the 34 active participants and the 8 terminated participants who worked at least 500 hours).

$$X = 42 / (42 + 12) = 77.78\%$$

Answer is B.

Question 23

IRC section 401(a)(26)(A) states that a plan satisfies the minimum participation requirement if it benefits (provides a meaningful benefit) the smaller of 50 participants, or 40% of the nonexcludable employees. Employees are excludable if they do not satisfy the minimum age or service requirements of the plan. In this question, all employees satisfy those requirements. However, a terminated plan participant who works no more than 500 hours and does not accrue a benefit is considered to be excludable (Treasury regulation 1.410(b)-6(f)(1)). As a result, the 12 office employees who terminated during 2018 with 250 hours are considered to be excludable. Note that the 9 warehouse employees who terminated during 2018 with 250 hours are non-excludable because they are not participants (warehouse employees are excluded from the plan).

Therefore, all employees are considered non-excludable other than the 12 office employees who terminated during 2018 with 250 hours.

$$\text{Total non-excludable employees} = (10 + 5 + 10) + (9 + 8 + 10) + (5 + 10 + 15) + (6 + X) = 88 + X$$

Only employees who worked at least 1,000 hours have a meaningful benefit, so that would be the office employees who worked 1,500 hours.

$$\text{Total benefiting employees} = 15 + X$$

Using the 40% rule to satisfy the minimum participation rules:

$$40\% \text{ of } (88 + X) = 15 + X \quad \rightarrow \quad X = 34$$

Answer is E.

Question 24

When a suspension of benefits notice is provided under IRC section 411(a)(3)(b), the benefit payable to a participant who retires after normal retirement age is equal to the accrued benefit provided under the plan benefit formula at actual retirement age, using all salary and service through the actual date of retirement.

When a suspension of benefits notice is not timely provided, the participant receives the greater of the accrued benefit at actual retirement age or the actuarial equivalent of the normal retirement benefit.

In this question, Smith is given a timely suspension of benefits notice, so there is no need to determine the actuarial equivalent of Smith's accrued benefit at normal retirement. Only the accrued benefit at the actual retirement age is required.

$$X = \$51 \times 18 \text{ years of service} = \$918.00$$

Jones is not given a timely suspension of benefits notice, so both the actuarial equivalent of the age 65 (normal retirement age) benefit and the accrued benefit at actual retirement (age 66) must be determined. The actuarial equivalence from age 65 to age 66 requires the use of an interest only increase for the one year.

$$\text{Jones age 65 accrued benefit} = \$18 \times 17 \text{ years of service} = \$306.00$$

$$\begin{aligned} \text{Actuarially equivalent benefit at age 66} &= \$306 \times \ddot{a}_{65}^{(12)} \times 1.05 \div \ddot{a}_{66}^{(12)} \\ &= \$306 \times 12.20 \times 1.05 \div 11.89 = \$329.68 \end{aligned}$$

$$\text{Jones age 66 accrued benefit} = \$18 \times 18 \text{ years of service} = \$324.00$$

$$Y = \$329.68$$

$$X + Y = \$918.00 + \$329.68 = \$1,247.68$$

Answer is C.

Question 25

When a benefit formula and/or accrual method changes, the accrued benefit as of the date of the change cannot be reduced.

Assuming a normal retirement age of 65 (exam general conditions), Smith had 5 years of service as of 12/31/2013, with a total of 15 years of projected years of service at age 65. Under the fractional rule, Smith had accrued 5/15 of the total benefit at retirement as of 12/31/2013.

Accrued benefit on 12/31/2013 = $\$100,000 \times (5/15) = \$33,333.33/\text{year}$, or $\$2,777.78/\text{month}$

As of 1/1/2015, Smith has 6 years of service. Under the benefit formula and accrual method that took effect on 1/1/2014, the accrued benefit as of 1/1/2015 is:

$5\% \times \$100,000 \times 6 \text{ years of service} = \$30,000/\text{year}$, or $\$2,500/\text{month}$

This cannot be less than $\$2,777.78$ per month, so $Y = \$2,777.78$.

As of 12/31/2018, Smith has 10 years of service. Under the benefit formula and accrual method that took effect on 1/1/2014, the accrued benefit as of 12/31/2018 is:

$5\% \times \$100,000 \times 10 \text{ years of service} = \$50,000/\text{year}$, or $\$4,166.67/\text{month}$

$X = \$4,166.67$

$X - Y = \$4,166.67 - \$2,777.78 = \$1,388.89$

Answer is A.

Question 26

- I. IRC section 411(a)(4)(A) allows that years of service prior to attaining age 18 (not 21) can be ignored for purposes of vesting. This statement is false.
- II. IRC section 411(a)(4)(C) provides that service for vesting can be ignored for years during which the employer did not maintain the plan or a predecessor plan. This statement is true.
- III. IRC section 411(a)(6)(D) provides that years of service prior to 5 consecutive 1-year breaks in service can be disregarded for vesting only if the employee is non-vested prior to the breaks in service. This statement is false.

Answer is C.

Question 27

The total PBGC premium under ERISA section 4006 consists of a flat-rate premium and a variable-rate premium. For 2018, the flat-rate premium is equal to \$74 per participant. The participant count is based on the number of plan participants as of the last day of the prior plan year (12/31/2017). Participants include vested and non-vested active participants, vested terminated participants, and retired participants. Beneficiaries of deceased retirees and alternate payees of deceased participants are not included in the count as the retiree/participant has already been counted.

The plan has 200 active participants (150 vested + 50 non-vested), 20 terminated vested participants, and 50 retirees, for a total of 270 participants to be counted for the flat-rate premium.

$$\text{Flat-rate premium} = 270 \times \$74 = \$19,980$$

The PBGC variable-rate premium for 2018 is equal to 3.8% of the unfunded vested benefits. The standard premium funding target is used in this question, since the alternative premium funding target is not elected (or even provided). Market value of assets is used for premium purposes.

$$\text{2018 variable premium unfunded liability} = \$5,100,000 - \$4,800,000 = \$300,000$$

$$\text{2018 variable-rate premium} = \$300,000 \times 0.038 = \$11,400$$

In 2018, there is a variable premium cap of \$523 per plan participant.

$$\text{Variable premium cap} = \$523 \times 270 \text{ participants} = \$141,210$$

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

Additionally, for small employers (no more than 25 employees), there is also a cap on the variable premium equal to the number of participants squared, multiplied by \$5. The employer in this question has at least 26 employees (the 200 active participants and 10 non-participating employees). So the small employer cap does not apply.

The 2018 variable-rate premium is \$11,400.

$$\text{Total 2018 PBGC premium} = \$19,980 + \$11,400 = \$31,380$$

Answer is B.

Note with regard to counting participants: Recall that for premium purposes, each participant is to be counted only once, so, for example, if there is a QDRO for a divorced participant, there is only one flat premium for the participant, even though two people are receiving a benefit (the participant and the ex-spouse). If you look at question 17 from the 2018 exam (or similarly question 15 on the 2015 exam), you will find that there are alternate payees of deceased participants listed. These benefits would come from terminated vested participants, and there are none listed in that category, so the alternate payees are counted for purposes of the flat premium.

Compare that to question 27 from the 2019 exam. In that question, there are terminated vested participants listed as well as alternate payees of deceased participants (and alternate payees of deceased retired participants). I believe that the intent is that the 5 alternate payees of deceased participants relate to 5 of the 20 terminated vested participants, and that the 20 beneficiaries of deceased retirees relates to the 50 retirees. So there is no need to count these people a second time. Compared to the questions on previous exams, this question layout was a little confusing, as it was hard to tell whether the alternate payees were in addition to the other participants (vested terminated and retired), or included in those totals.

So here is the rule that I would follow on these questions. If there is no category of terminated vested participants, then include the alternate payees of deceased participants because they have not yet been counted. Similarly, when there is a category of retired participants, this includes deceased retirees, so you would ignore "beneficiaries of retired participants" because the participant was already included in the count. If there is no category of retired participants, then include the beneficiaries of retired participants because they have not yet been counted.

Question 28

The total PBGC premium under ERISA section 4006 consists of a flat-rate premium and a variable-rate premium. For 2019, the flat-rate premium is equal to \$80 per participant. The participant count is based on the number of plan participants as of the last day of the prior plan year (12/31/2018). Participants include active participants, vested terminated participants, and retirees/beneficiaries.

The plan has 20 active participants, 3 terminated vested participants, and 1 retiree/beneficiary, for a total of 24 participants to be counted for the flat-rate premium.

$$\text{Flat-rate premium} = 24 \times \$80 = \$1,920$$

The PBGC variable-rate premium for 2019 is equal to 4.3% of the unfunded vested benefits. Generally, the unfunded vested benefits are determined as of the valuation date for the premium year. However, for a small plan (the participant count is not more than 100), unless the plan sponsor elects to opt out, the unfunded vested benefits are determined as of the prior year valuation date. This is due to the fact that a small plan has the option of using a valuation date other than the first day of the year, and that valuation date could be after the premium due date. Market value of assets is used for premium purposes.

$$\text{2019 variable premium unfunded liability} = \$1,459,750 - \$1,144,500 = \$315,250$$

This must be rounded up to the next multiple of \$1,000 -- \$316,000.

$$\text{2019 variable-rate premium} = \$316,000 \times 0.043 = \$13,588$$

In 2019, there is a variable premium cap of \$541 per plan participant.

$$\text{Variable premium cap} = \$541 \times 24 \text{ participants} = \$12,984$$

The variable-rate premium is limited by this cap.

Additionally, for small employers (no more than 25 employees), there is also a cap on the variable premium equal to the number of participants squared, multiplied by \$5. The employer in this question has at least 26 employees (the 26 active participants) as of 1/1/2019. So the small employer cap does not apply.

The 2019 variable-rate premium is \$12,984.

$$\text{Total 2018 PBGC premium} = \$1,920 + \$12,984 = \$14,904$$

Answer is C.

Question 29

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). The benefit structure in effect 5 years before the plan termination date of 1/1/2018 is \$1,200 per month per year of service, reduced by 5% per year of actual retirement prior to age 65. There have been no amendments changing the benefit structure in this question.

The question is looking for the guaranteed benefits assuming that Smith and Jones retire at the earliest retirement age. That is age 68 for Smith (Smith's age at plan termination) and age 55 for Jones. A vesting schedule is not provided, so it must be assumed that both participants are fully vested (Smith must be fully vested at normal retirement age, but Jones could be partially vested under certain vesting schedules).

Smith has postponed retirement. Although the late retirement benefit is equal to the greater of the age 65 benefit increased by 8% per year to age 68, or the accrued benefit at age 68 under the benefit formula, Smith has been provided a timely suspension of benefits notice, so only the accrued benefit at age 68 needs to be considered. The monthly accrued benefit, payable at 68 for Smith is:

$$\$1,200 \times 7 \text{ years of service} = \$8,400$$

This is fully guaranteed, provided it does not exceed the PBGC maximum guaranteeable benefit. The maximum guaranteeable monthly benefit under ERISA section 4022(b)(3) cannot exceed the smaller of:

- (1) The high consecutive 5-year average salary, or
- (2) The PBGC dollar maximum (\$5,420.45 per month for 2018)

Compensation history is not provided, so it must be assumed that the PBGC dollar maximum is smaller than the 5-year average salary. The PBGC maximum is increased for retirement age after age 65, and reduced for the normal form of benefit payable as a 5-year certain and life annuity. The factor (provided in a table given with the exam) for retirement age 68 is 1.34 and for the 5-year certain and life annuity is 0.975.

$$\text{PBGC maximum guaranteeable benefit} = \$5,420.45 \times 1.34 \times 0.975 = \$7,081.82$$

This is less than \$8,400, so the guaranteed benefit for Smith is \$7,081.82.

The monthly accrued benefit for Jones is:

$$\$1,200 \times 3 \text{ years of service} = \$3,600$$

Applying the early retirement reduction of 5% per year to age 55, the reduced early retirement benefit is:

$$\$3,600 \times [1 - (0.05 \times 10 \text{ years})] = \$1,800$$

The PBGC reduction factor for retirement at age 55 is 0.45. The PBGC maximum guaranteeable benefit for Jones is:

$$\$5,420.45 \times 0.45 \times 0.975 = \$2,378.22$$

This is more than \$1,800, so the guaranteed benefit for Jones is \$1,800.

Total monthly guaranteed benefit for Smith and Jones = \$7,081.82 + \$1,800.00 = \$8,881.82

Answer is B.

Question 30

- I. ERISA regulation 4050.101(a) indicates that the PBGC missing participant program is available only to terminating plans. The statement is true.
- II. This is a poorly worded statement that was deemed to be considered either true or false. The intent was that it be a false statement, as it says the opposite of a statement on page 2 of the instructions for PBGC form MP-100 that states that the program is available to participants subject to the plan's mandatory cash out provisions, who have not returned distribution forms. But it is technically true, because participants who are missing would not generally have returned distribution paperwork regardless of whether their benefit is above or below the plan's mandatory cash-out provisions and the program would still be available to those participants.
- III. The use of an internet search engine is allowed with regard to a Diligent Search for a missing participant, but only if the monthly accrued benefit is not more than \$50 (ERISA regulation 4050.104(a)(2)). The statement is false.

Answer is A (statement I only) or E (statements I and II both true, so the answer is not given by A, B, C, or D).

Question 31

Under the presumptive method, the unfunded vested benefits must be determined for each year from 1979 and later, with a share assigned to withdrawing Employer B. In this case, the first year that there are unfunded vested benefits is 2015 (it is given that there were no unfunded vested benefits prior to 2015). The unfunded vested benefits as of 12/31/2015 are multiplied by the ratio of the contributions by Employer B over the 5-year period ending on 12/31/2015 to the contributions for the same period by all employers (excluding any previously withdrawn employers). This is the unfunded vested liability attributable to Employer B as of 12/31/2015:

$$\$3,200,000 \times \frac{290,000}{1,250,000} = \$742,400$$

Since Employer B withdrew in 2018, the withdrawal liability is determined as of 12/31/2017 (the last day of the year prior to the complete withdrawal). The share of unfunded vested benefits allocated to Employer B as of 12/31/2015 must be adjusted to an outstanding balance as of 12/31/2017. Under the presumptive method, it is assumed that the liability is paid off at the rate of 5% per year, leaving 90% of the 12/31/2015 unfunded vested liability remaining as of 12/31/2017. So, the outstanding balance on 12/31/2017 is:

$$\$742,400 \times 90\% = \$668,160$$

Next, the gain or loss in the total unfunded vested benefits must be determined as of 12/31/2016.

The expected unfunded vested benefits as of 12/31/2016 (assuming a 5% per year reduction from 12/31/2015) are:

$$\$3,200,000 \times 95\% = \$3,040,000$$

The actual unfunded vested benefits is \$2,800,000, resulting in a gain (the unfunded vested benefits are smaller than expected).

The 2016 gain in the unfunded vested benefits is:

$$\$3,040,000 - \$2,800,000 = \$240,000$$

Before allocating the 2016 gain to withdrawn Employer B, the uncollectible liability for Employer A, which was deemed uncollectible in 2016 and established as a \$1,300,000 reallocation pool on 12/31/2016 must be combined with the 2016 gain. The amount to be allocated to Employer B as of 12/31/2016 is:

$$\$1,300,000 - \$240,000 = \$1,060,000$$

This amount is multiplied by the ratio of the contributions by Employer B over the 5-year period ending on 12/31/2016 to the contributions for the same period by all employers (excluding any previously withdrawn employers).

The allocation attributable to Employer B as of 12/31/2016 is:

$$\$1,060,000 \times \frac{250,000}{1,500,000} = \$176,667$$

This allocation must be adjusted to an outstanding balance as of 12/31/2017 (using the 5% reduction rule). The outstanding balance of this on 12/31/2017 is:

$$\$176,667 \times 95\% = \$167,833$$

Finally, the gain or loss in the total unfunded vested benefits must be determined as of 12/31/2017.

The expected unfunded vested benefits (using the 5% reduction rule) are:

$$[\$3,200,000 \times 90\%] - [(\$240,000) \times 95\%] = \$2,652,000$$

Note that the 2016 gain is used to determine the expected liability, and the reallocation pool does not affect the expected liability as it is not part of the actual unfunded vested benefits – it was simply reallocated as a liability that must be paid by the employers other than Employer A.

The actual unfunded vested benefits as of 12/31/2017 is \$2,500,000

The 2017 gain in the unfunded vested benefits is:

$$\$2,652,000 - \$2,500,000 = \$152,000$$

The 2017 gain must be allocated to Employer B. The gain in the unfunded vested benefits is multiplied by the ratio of the contributions by Employer B over the 5-year period ending on 12/31/2017 to the contributions for the same period by all employers (excluding any previously withdrawn employers).

$$\$152,000 \times \frac{205,000}{2,000,000} = \$15,580$$

The total share of unfunded vested benefits allocated to Employer B is:

$$\$668,160 + \$167,833 - \$15,580 = \$820,413$$

The allocated share of unfunded vested benefits is potentially reduced by a de minimis credit under ERISA section 4209. When no de minimis credit is defined, the mandatory de minimis credit is used. The de minimis credit is intended as a credit for withdrawing employers with a relatively small amount of allocated unfunded vested benefits, and is phased out when that amount is larger. The mandatory de minimis credit must be fully phased out once the share of unfunded vested benefits exceeds \$150,000. Therefore, the complete withdrawal liability for Employer B is \$820,413.

Answer is C.

Question 32

Complete withdrawal liability is determined as of the last day of the plan year prior to the year of withdrawal. In this question, that would be 12/31/2017. Under the Rolling 5 Method, the total unfunded vested benefits (UVBs) as of the end of the year prior to withdrawal is multiplied by a fraction, the numerator consisting of the total contributions made by the withdrawing employer for the 5-year period ending on the last day of that prior year, and the denominator consisting of the total contributions made by all employers for the same 5-year period (there is an adjustment to this if there are any previously withdrawn employers). The result is the withdrawing employer's share of UVBs.

Employer A contributions for 2013 – 2017:

$$\$200,000 + \$250,000 + \$300,000 + \$350,000 + \$325,000 = \$1,425,000$$

All employer contributions for 2013 – 2017:

$$\$8,000,000 + \$8,500,000 + \$9,100,000 + \$9,250,000 + \$9,400,000 = \$44,250,000$$

The amount of unfunded vested benefits must be allocated to Employer A. In addition, any collectible liabilities as of 12/31/2017 from previously withdrawn employers are used to reduce the total unfunded vested benefits (because those collectible amounts will help to pay for the unfunded vested benefits). The amount of unfunded vested benefits allocated to Employer A is:

$$\begin{aligned} \text{Unfunded vested benefits}_{12/31/2017} &\times \frac{\text{Employer A Contributions for 2013 - 2017}}{\text{All Employer Contributions for 2013 - 2017}} \\ &= (\$20,000,000 - \$850,000) \times \frac{\$1,425,000}{\$44,250,000} = \$616,695 \end{aligned}$$

The allocated share of unfunded vested benefits is potentially reduced by a de minimis credit under ERISA section 4209. When no de minimis credit is defined, the mandatory de minimis credit is used. The de minimis credit is intended as a credit for withdrawing employers with a relatively small amount of allocated unfunded vested benefits, and is phased out when that amount is larger. The mandatory de minimis credit must be fully phased out once the share of unfunded vested benefits exceeds \$150,000. Therefore, the complete withdrawal liability for Employer A is \$616,695.

Answer is B.

Question 33

IRC section 4980(a) provides for the application of a 20% excise tax on reversion of assets to the employer upon plan termination, provided one of two requirements under IRC section 4980(d) is satisfied.

- (1) Transfer at least 25% of the excess assets into a qualified replacement plan (covering at least 95% of the active participants from the terminated plan who remain as employees of the employer). The 25% can be reduced by the amount of any plan amendment made within the 60-day period prior to the plan termination date that increases the present value of the accrued benefits of the plan participants.
- (2) A plan amendment made as part of the plan termination providing for pro-rata benefit increases to the plan participants using at least 20% of the excess assets.

Excess assets on plan termination date = $\$2,000,000 - \$1,100,000 = \$900,000$

25% of excess assets = $25\% \times \$900,000 = \$225,000$

\$100,000 was reallocated to plan participants due to the plan amendment, so the remaining \$125,000 would need to be transferred to the qualified replacement plan.

Assets to be reverted to the employer = $\$900,000 - \$225,000 = \$675,000$

Excise tax = $20\% \times \$675,000 = \$135,000$

Answer is C.

Question 34

- I. The investment advisor must consider the interests of the participants, employers and trustees in the overall selection of investments, but not in any one individual investment. The statement is false.
- II. Field Assistance Bulletin 2018-01 provides that an investment in an economically targeted investment (ETI) cannot be made taking into account the social or environmental benefits as an offset to investment gain. The statement is false.
- III. Q&A FR-14 of Interpretive Bulletin 2509.75-8 states that, provided the named fiduciary has followed prudent man requirements in selecting a person who is not a named fiduciary to carry out fiduciary duties, the named fiduciary is not liable for any act or omission made by that designated person. The statement is false.

Answer is A.

Question 35

Employer A has discontinued part of its business on 12/31/2017, resulting in a potential reportable event due to a single cause, as defined in ERISA regulation 4043.23(a)(1). A reportable event occurs if the number of active participants at the end of 2017 is reduced to less than 80% of the number of active participants as of 1/1/2017 or 75% of the number of active participants as of 1/1/2016.

Based upon the number of active participants as of 1/1/2016: $75\% \times 1,000 = 750$.

Based upon the number of active participants as of 1/1/2017: $80\% \times 1,100 = 880$.

The smallest number of active participants that the plan could have as of 12/31/2017 that will not trigger a prohibited transaction is 880.

The answer is B.

Question 36

ERISA regulation 901.20(e)(1)(i) states that actuarial assumptions used by an enrolled actuary must individually and in combination be reasonable. That would then include an assumption that could be outside the range of assumptions used by other actuaries in similar studies.

The statement is false.

Answer is B.

Question 37

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 1/1/2006 effective date, IRC section 436(e) does not apply until 2011, the 6th year of the plan, so the restrictions on benefit accruals could apply for all years from 2011 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)), regardless of when the current year AFTAP is certified.

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 through 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 equal to the 2010 certified AFTAP of 82%, and as of 2/1/2011 is 72% when the 2011 AFTAP certification is issued). Smith has 12 months of accrual service in 2011.

The plan has no presumed or actual underfunding in 2012 (the presumed AFTAP as of 1/1/2012 is 72%, as of 4/1/2012 is 62%, and the 2012 AFTAP certification of 71% is issued on 7/1/2012). Smith has 12 months of accrual service in 2012.

The plan has no presumed or actual underfunding in 2013 (the presumed AFTAP as of 1/1/2013 is 71%, as of 4/1/2013 is 61%, and the 2013 AFTAP certification of 72% is issued on 7/1/2013). Smith has 12 months of accrual service in 2013.

The plan has no presumed or actual underfunding in 2014 (the presumed AFTAP as of 1/1/2014 is 72%, as of 4/1/2014 is 62%, and the 2014 AFTAP certification of 74% is issued on 7/1/2014). Smith has 12 months of accrual service in 2014.

The plan has no presumed or actual underfunding in 2015 (the presumed AFTAP as of 1/1/2015 is 74%, as of 4/1/2015 is 64%, and the 2015 AFTAP certification of 76% is issued on 7/1/2015). Smith has 12 months of accrual service in 2015.

In 2016, the range certification of 60% to 80% made on 7/1/2016 is substantiated by the final AFTAP certification for 2016 of 75%, certified on 1/1/2017. The presumed AFTAP as of 1/1/2016 is 76%, as of 4/1/2016 is 66%, and the range certified AFTAP as of 7/1/2016 is in the 60% to 80% range. However, the final AFTAP for 2016 was certified after the end of the year, so the presumed AFTAP as of 10/1/2016 is less than 60%. Smith does not receive accrual service for the last 3 months of 2016, so Smith has 9 months of accrual service in 2016.

The plan has no presumed or actual underfunding in 2017 (the presumed AFTAP as of 1/1/2017 is 75%, as of 4/1/2017 is 65%, and the 2017 AFTAP certification of 68% is issued on 7/1/2017). Smith has 12 months of accrual service in 2017.

In 2018, the AFTAP is presumed to be 68% as of 1/1/2018. On 4/1/2018, the presumed AFTAP is 58% (68% less 10%). On 9/1/2018, the range certification of 60% to 80% is made, and is substantiated by the final AFTAP certification of 72% made on 12/1/2018. Smith has no accrual service from 4/1/2018 through 8/31/2018 (5 months), when the AFTAP is presumed to be less than 60%. Smith has 7 months of accrual service in 2018.

The total number of months of service for Smith through the end of 2018 is equal to:

$$12 + 12 + 12 + 12 + 12 + 12 + 12 + 12 + 12 + 12 + 9 + 12 + 7 = 148$$

$$\text{Monthly accrued benefit on 12/31/2018} = \$5 \times 148 \text{ months of service} = \$740$$

Answer is D.

Question 38

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 denominator of 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 required 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 6/30/2018 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 (2016 and 2017 in this question).

$$2018 \text{ AFTAP} = \frac{(4,265,000 - 120,000) + 45,000}{4,875,000 + 45,000} = 85.16\%$$

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

$$\frac{(4,265,000 - 120,000) + 45,000}{4,875,000 + 45,000 + 365,000} = 79.28\%$$

In order to increase this ratio to 80%, a contribution of \$X is deposited on 6/30/2018, and is interest adjusted using the 2018 plan effective rate of 4% for 6 months to the 1/1/2018 valuation date.

$$\frac{(4,265,000 - 120,000) + 45,000 + (X / 1.04^{6/12})}{4,875,000 + 45,000 + 365,000} = 80.00\% \rightarrow X = 38,753$$

Answer is C.

Question 39

Smith has 6 years of service and 5 years of plan participation on 1/1/2018. The benefit is based upon the final 3-year average salary (an average of 2015, 2016 and 2017 salaries).

$$\text{1/1/2018 final 3-year average compensation} = \frac{\$150,000 + \$150,000 + \$120,000}{3} = \$140,000$$

$$\text{1/1/2018 accrued benefit} = 10\% \times \$140,000 \times 6 \text{ years of service} = \$84,000$$

The accrued 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's high consecutive 3-year average compensation is \$150,000 (note that this is not the same as final 3-year average, which is used for the plan benefit formula).

$$\text{1/1/2018 IRC section 415(b) compensation limit} = \$150,000 \times (6/10) = \$90,000$$

The IRC section 415(b) dollar limit in effect for 2018 is \$220,000. The dollar limit must be reduced pro-rata for years of plan participation less than 10.

$$\text{1/1/2018 IRC section 415(b) dollar limit} = \$220,000 \times (5/10) = \$110,000$$

Smith's plan accrued benefit is not more than either IRC section 415(b) limit, so the annual accrued benefit of \$X for Smith is \$84,000.

Answer is A.

Question 40

Smith has 8 years of service and 7 years of plan participation on 12/31/2018 (note that the years 2013 and 2015 do not earn a year of service or plan participation because Smith did not work at least 1,000 hours in those years). The benefit is based upon the highest consecutive 3-year average salary (an average of 2010, 2011 and 2012 salaries, with salaries limited to the IRC section 401(a)(17) compensation limit for each year). Note that the 2010 and 2011 401(a)(17) compensation limit was \$245,000, and the 2012 compensation limit was \$250,000. The 2012 salary of \$355,000 must be limited to \$250,000.

$$\begin{aligned} \text{12/31/2018 high consecutive 3-year average compensation} &= \frac{\$245,000 + \$155,000 + \$250,000}{3} \\ &= \$216,667 \end{aligned}$$

$$\text{12/31/2018 accrued benefit} = \$216,667$$

The accrued 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).

$$\text{12/31/2018 IRC section 415(b) compensation limit} = \$216,667 \times (8/10) = \$173,333$$

The IRC section 415(b) dollar limit in effect for 2018 is \$220,000. The dollar limit must be reduced pro-rata for years of plan participation less than 10.

$$\text{12/31/2018 IRC section 415(b) dollar limit} = \$220,000 \times (7/10) = \$154,000$$

The smaller of the IRC section 415(b) dollar limit and compensation limit is the dollar limit of \$154,000.

Smith's plan accrued benefit must be limited to \$154,000.

Answer is B.

Question 41

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 1/1/2018, and was paid \$220,000 each year.

1/1/2018 IRC section 415(b) compensation limit = \$220,000

The IRC section 415(b) dollar limit in effect for 2018 is \$220,000. This must be reduced pro-rata for years of plan participation less than 10. Smith has only 9 years of plan participation as of 1/1/2018.

Pro-rated dollar limit = $\$220,000 \times (9/10) = \$198,000$

The dollar limit is increased for retirement after age 65. The increased dollar limit at age 66 is the smaller of the limit increased using plan actuarial equivalence or the limit increased using actuarial equivalence based upon 5% interest and the applicable mortality table. Plan equivalence in this question uses 5.25% interest and the applicable mortality table. The smaller of the given late retirement factors is the one at 5% interest.

Adjusted dollar limit at age 66 = $\$198,000 \times 1.086 = \$215,028$

The smaller of the IRC section 415 compensation limit and dollar limit is \$215,028.

The maximum lump sum under IRC section 415(b)(2)(E) is equal to the maximum annual IRC section 415 benefit multiplied by the smallest of the following factors:

- (1) Lump sum factor using plan equivalence
- (2) 105% of lump sum factor using IRC section 417(e) assumptions
- (3) Lump sum factor using applicable mortality table and 5.5%

The smallest of the given lump sum factors at age 66 is the factor using the applicable mortality table and 5.5% interest.

$\$X = \$215,028 \times 11.43 = \$2,457,770$

Answer is A.

Question 42

The accrued benefit is equal to the greater of the plan accrued benefit or the top heavy minimum benefit. Smith has 7 years of service as of 12/31/2018.

$$\begin{aligned}\text{Plan accrued benefit} &= 1\% \times \frac{\$38,000 + \$36,000 + \$40,000}{3} \times 7 \text{ years of service} \\ &= \$2,660\end{aligned}$$

The top heavy minimum benefit under IRC section 416(c)(1) is equal to 2% of the high consecutive 5-year average salary per year of top heavy plan participation (participation during years in which the plan was top heavy), up to a maximum of 10 years. The plan was top heavy from 2015 through 2018, for a total of 4 years (Smith was a participant for all 4 years, having been hired on 1/1/2012). For purposes of the 5-year average salary, all years are taken into account, including the non-top heavy years.

$$\begin{aligned}\text{Top heavy minimum benefit} \\ &= 2\% \times \frac{\$36,000 + \$32,000 + \$38,000 + \$36,000 + \$40,000}{5} \times 4 \text{ years} \\ &= \$2,912\end{aligned}$$

$$\$X = \$2,912 - \$2,660 = \$252$$

Answer is A.

Note: Credit was given for all answers to this question (the Joint Board original solution contained an error), although the solution provided here is the correct solution.

Question 43

The top heavy minimum benefit under IRC section 416(c)(1) is equal to 2% of the high consecutive 5-year average salary per year of top heavy plan participation (participation during years in which the plan was top heavy), up to a maximum of 10 years. Smith has 2 years of service as of 12/31/2018, but only one of those was earned while a plan participant. The plan has always been top heavy, so one top heavy year is used for Smith.

Salary for top heavy minimum purposes must include all salary, regardless of any exclusion in the plan benefit formula. Smith has only two years of service, so a 2-year average is used rather than a 5-year average. Smith's salary was the same in each year of service, so the average is the same as each year's salary. So Smith's salary for top heavy minimum purposes is \$80,000 (\$60,000, plus the \$20,000 bonus).

$$\text{Top heavy minimum monthly benefit} = 2\% \times (\$80,000/12) \times 1 \text{ year} = \$133.33$$

Answer is B.