Question 1

Generally, PBGC Form 10 is required to be filed within 30 days of a reportable event. However, ERISA regulation 4023.23(e) provides that when there is a reduction in the number of active participants due to an attrition event, the PBGC Form 10 due date is the premium filing due date for the following year.

The statement is true.

Answer is A.

Question 2

Based upon the data provided for Smith, Smith is a plan participant. Plan participants are generally non-excludable employees, other than the exception provided under Treasury Regulation 1.410(b)-6(f). In order to be eligible for the exception, the employee cannot benefit under the terms of the plan (regulation 1.410(b)-6(f)(1)). Smith works 350 hours during 2017, and only 250 hours are required to accrue a benefit. Therefore, Smith accrues a benefit in 2017, and is <u>not</u> eligible for the exception under the regulation. Smith is a non-excludable employee in 2017.

The statement is false.

Answer is B.

Question 3

The accrued benefit is equal to the greater of the plan accrued benefit or the top heavy minimum benefit. Smith has 15 years of service as of 12/31/2016.

$$\text{Plan accrued benefit} = 1.25\% \times \frac{\$94{,}000 + \$95{,}000 + \$93{,}000}{3} \times 15 \text{ years of service}$$
$$= \$17{,}625$$

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 2002 through 2012, for a total of 11 years (Smith was a participant for all 11 years, having been hired on 1/1/2002). For purposes of the 5-year average salary, years since the last top heavy year (2012) are not taken into account (IRC section 416(c)(1)(D)(iii)(II)).

Top heavy minimum benefit
$$= 2.00\% \times \frac{\$91{,}000 + \$89{,}000 + \$90{,}000 + \$92{,}000 + \$93{,}000}{5} \times 10 \text{ years}$$
$$= \$18{,}200$$

Smith's accrued benefit as of 12/31/2016 is equal to the greater of the two benefits, which is $18,200.

Answer is B.

Question 4

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.

Looking at unrelated companies A, B, and C, each must generally have as participants at least 40% of the nonexcludable employees of that company (or 50 employees, if smaller). It is stated that there are no excludable employees, so all employees listed are nonexcludable.

For company A, 40% of the 25 employees equals 10. So Plan A must have at least 10 participants.

For company B, all employees are NHCEs, so Plan B only needs 1 participant (the plan will not benefit any HCEs).

For company C, 40% of the 115 employees equals 46. That would make it appear that Plan C needs to have a minimum of 46 participants. However, if the only participant(s) in Plan C is/are NHCE(s), then Plan C needs only 1 participant.

Once the employers are merged, the nonexcludable employees from the three companies must be combined in order to determine the minimum number of participants required for Plan D. That would bring the nonexcludable employee total to 180 (25 + 40 + 115).

For company D, 40% of the 180 employees equals 72. That would make it appear that Plan D needs to have a minimum of 50 participants. However, if the only participant(s) in Plan D is/are NHCE(s), then Plan D needs only 1 participant.

$X = 10 + 1 + 1 = 12$ and $Y = 1$
$X - Y = 12 - 1 = 11$

My answer is C.

However, the intended answer assumed that each plan included at least one HCE as a participant if that Plan's employer had any nonexcludable HCEs. In that case:

$X = 10 + 1 + 46 = 57$ and $Y = 50$
$X - Y = 57 - 50 = 7$

This would be in answer range B. There was no statement provided about having at least one HCE in each plan (other than Plan B). As a result, credit was given for all answers.

Question 5

A plan participant is allowed to revoke a waiver of a QPSA (Treasury regulation 1.401(a)-20, Q&A 30), although a plan can allow that the spouse cannot make such a revocation.

The statement is true.

Answer is A.

Question 6

Under IRC section 415(b)(2)(B), a maximum monthly benefit under IRC section 415(b) payable in a form other than a life annuity (or a qualified joint and survivor annuity) must be adjusted to a reduced amount. So in this question, generally X > Y. However, in the event that the maximum monthly benefit does not exceed $833.33 under IRC section 415(b)(4), there is no adjustment for the form of benefit. So in that case, X = Y. The statement is sometimes true, but not always. Therefore, the statement is false.

Answer is B.

Note: The originally released exam showed answer A as the correct answer. Since it was subsequently pointed out that there was an exception under IRC section 415(b)(4), it was determined that credit would be given for this question for both choice A and choice B, although choice B is the truly correct answer.

Question 7

The PBGC variable-rate premium for 2017 is equal to 3.4% of the unfunded <u>vested</u> benefits (the difference between the premium funding target and the market value of assets).

2017 variable premium unfunded liability = \$5,500,000 – \$3,500,000 = \$2,000,000

2017 variable-rate premium = \$2,000,000 × 0.034 = \$68,000

In 2017, there is a variable premium cap of \$517 per plan participant (the participant count is as of the last day of the prior year).

Variable premium cap = \$517 × 42 participants = \$21,714

The variable-rate premium is limited by this cap.

Additionally, for small employers (no more than 25 <u>employees</u> as of the first day of the year), there is also a cap on the variable premium equal to the number of <u>participants</u> squared, multiplied by \$5. The employer in this question has 24 employees. So the small employer cap must be considered.

Small employer variable premium cap = $\$5 \times 42^2 = \$8,820$

The small employer variable premium cap applies because the variable premium (as limited by the \$517 cap) before considering the small employer cap is larger. Note that while the number of <u>employees</u> is used to determine whether the small employer cap applies, the number of <u>participants</u> is used to determine the amount of the cap.

The 2017 variable rate premium is \$8,820.

Answer is B.

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 employer opted out of the small plan lookback rule in this question, so the current year (2017) valuation results were used.

Question 8

Smith entered the plan on 1/1/2017, so the only pay credit that Smith has received as of 12/31/2017 is the 2017 pay credit, equal to 40% of the 2017 salary.

2017 pay credit = 40% × $40,000 = $16,000

The pay credit is as of 12/31/2017. As of that date, Smith is age 28, with 37 years to the assumed retirement age of 65 (assumed due to the exam general conditions). That pay credit is accumulated at the given interest crediting rate of 5%.

Accumulated pay credit at age 65 = $16,000 × 1.05^{37} = $97,303

Monthly life annuity at age 65 = $97,303 ÷ 140.02 = $695

This must be limited by the maximum benefit allowed under IRC section 415(b). Clearly, the 2017 IRC section 415(b) dollar limit of $215,000 per year does not apply, but it is possible that the 100% of the high consecutive 3-year average limit may apply, as that limit is based upon years of service (2 years for Smith), and is reduced pro-rata for years of service less than 10. Since Smith only has 2 years of salary history, a 2-year average is used.

Monthly 415(b) limit: $\dfrac{\$35,000 + \$40,000}{2} \times \dfrac{2}{10} \div 12 = \$625$

Smith's 12/31/2017 monthly accrued benefit is equal to $625, since that is less than the hybrid plan accrued benefit.

Answer is C.

Question 9

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. In-service distributions made during the past 5 years must be included in the top heavy ratio (IRC section 416(g)(3)(B)).

$$2016 \text{ top heavy ratio} = \frac{\$225{,}000 + \$5{,}000}{\$225{,}000 + \$5{,}000 + \$145{,}000 + \$20{,}000} = 58.23\%$$

A plan is top heavy if the top heavy ratio determined in the prior year is greater than 60% (IRC section 416(g)(1)(A)(i)). The plan is not top heavy for 2017.

The statement is false.

Answer is B.

Question 10

Under the presumptive method, the unfunded vested benefits must be determined for each year from 1979 and later, with a share assigned to Employer A. In this case, the first year that there are unfunded vested benefits is 2013 (it is given that there were no unfunded vested benefits prior to 2013). The unfunded vested benefits as of 12/31/2013 are multiplied by the ratio of the contributions by Employer A over the 5-year period ending on 12/31/2013 to the contributions for the same period by all employers. This is the unfunded vested liability attributable to Employer A:

$$\$8,000,000 \times \frac{400,000}{5,000,000} = \$640,000$$

Since Employer A withdrew in 2016, the withdrawal liability is determined as of 12/31/2015 (the last day of the year prior to the complete withdrawal). The share of unfunded vested benefits allocated to Employer A as of 12/31/2013 must be adjusted to an outstanding balance as of 12/31/2015. Under the presumptive method, it is assumed that the liability is paid off at the rate of 5% per year, leaving 90% of the 12/31/2013 unfunded vested liability remaining as of 12/31/2015. So, the outstanding balance on 12/31/2015 is:

$$\$640,000 \times 90\% = \$576,000$$

Next, the gain or loss in the total unfunded vested benefits must be determined as of 12/31/2014.

The expected unfunded vested benefits as of 12/31/2014 (assuming a 5% per year reduction from 12/31/2013) are:

$$\$8,000,000 \times 95\% = \$7,600,000$$

The actual unfunded vested benefits is $7,300,000

The 2014 gain in the unfunded vested benefits is:

$$\$7,600,000 - \$7,300,000 = \$300,000$$

The 2014 gain must be allocated to Employer A. The gain (denoted as a negative amount) in the unfunded vested benefits is multiplied by the ratio of the contributions by Employer A over the 5-year period ending on 12/31/2014 to the contributions for the same period by all employers.

$$(\$300,000) \times \frac{600,000}{6,000,000} = (\$30,000)$$

This share of unfunded vested benefits allocated to Employer A as of 12/31/2014 must be adjusted to an outstanding balance as of 12/31/2015 (using the 5% reduction rule). The outstanding balance of this on 12/31/2015 is:

$$(\$30,000) \times 95\% = (\$28,500)$$

Finally, the gain or loss in the total unfunded vested benefits must be determined as of 12/31/2015.

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

$$[\$8,000,000 \times 90\%] + [(\$300,000) \times 95\%] = \$6,915,000$$

The actual unfunded vested benefits is $9,000,000

The 2015 loss in the unfunded vested benefits is:

$$\$9,000,000 - \$6,915,000 = \$2,085,000$$

The 2015 loss must be allocated to Employer A. The loss in the unfunded vested benefits is multiplied by the ratio of the contributions by Employer A over the 5-year period ending on 12/31/2015 to the contributions for the same period by all employers. Note that the $200,000 of contribution obligation that was not contributed by Employer A for 2015 must be included in the ratio (the ratio, as defined in ERISA section 4211(b), includes all contributions required to be contributed by the employer(s)).

$$\$2,085,000 \times \frac{525,000 + 200,000}{7,200,000} = \$209,948$$

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

$$\$576,000 - \$28,500 + \$209,948 = \$757,448$$

This is the complete withdrawal liability since the mandatory de minimis credit must be fully phased out once the share of unfunded vested benefits exceeds $150,000.

Answer is C.

Question 11

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 HCEs in group B) and all other participants with both a normal and most valuable accrual rate at least as large as that of the HCEs in group B. 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 3 non-excludable HCEs in the plan (the sum of the HCEs in groups A and B). There are a total of 26 non-excludable NHCEs in the plan (the sum of the NHCEs in groups C, D, and E).

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

The unadjusted accrual rate is the ratio of the accrual for the year to the plan year compensation.

All participants have a permitted disparity rate of 0.65% because they were born after 1954 (it is given that they were all born on or after 1/1/1976).

Participants in groups C, D, and E 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 C, D, and E.

Unadjusted accrual rate:

Group C: $1,800/60,000 = 3.00\%$
Group D: $1,100/50,000 = 2.20\%$
Group E: $950/40,000 = 2.375\%$

The imputed accrual rate for groups C, D, and E is:

Group C: 3.00% + 0.65% = 3.65%
Group D: 2.20% + 0.65% = 2.85%
Group E: 2.375% + 0.65% = 3.025%

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:

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

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

The imputed accrual rate must be determined for participants in groups A and B. Current compensation cannot exceed the 2016 IRC section 401(a)(17) limit of $265,000.

Group A:

Imputed accrual rate is smaller of:

$$\frac{5,500}{250,000 - (.5 \times 90,000)} = 2.683\%\text{, or}$$

$$\frac{5,500 + (.0065 \times 90,000)}{250,000} = 2.434\%$$

The smaller is 2.434%.

Group B:

Imputed accrual rate is smaller of:

$$\frac{7,200}{265,000 - (.5 \times 105,000)} = 3.388\%\text{, or}$$

$$\frac{7,200 + (.0065 \times 105,000)}{265,000} = 2.975\%$$

The smaller is 2.975%.

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The rate group determined by group B includes participants with an accrual rate of at least 2.975%. This includes the 2 HCEs in group B, the 8 NHCEs in group C, and the 3 NHCEs in group E. There are 2 (out of 3) HCEs in the rate group, and 11 (out of 26) NHCEs in the rate group.

The ratio percentage for the rate group determined by the HCEs in group B is:

$$\frac{11/26}{2/3} = 63.46\%$$

Answer is C.

Question 12

Treasury regulation 1.401(a)-20, Q&A 25(b) states that if a participant is married at the date of death, and the spouse subsequently remarries, the QPSA must still continue to the surviving spouse. As a result, the survivor annuity would still be payable to the spouse even though the spouse in this question remarries prior to age 55.

The statement is false.

Answer is B.

Note that had the value of the benefit been $5,000 or less, then the plan could have forced a lump sum payout, and there would have been no further spousal survivor annuity. In addition, had the participant been married for less than one year as of the date of death, there would have been no requirement to provide a spousal benefit.

Question 13

IRC section 417(a)(1) requires a defined benefit plan to offer a qualified joint and survivor annuity (QJSA) option to married participants, with a minimum survivor annuity for the spouse of 50% and maximum of 100% of the benefit that would be payable over the joint lives of the participant and the spouse.

IRC section 417(c)(1)(A) states that the qualified preretirement survivor annuity (QPSA) percentage cannot be less than the qualified joint and survivor annuity percentage. The QJSA percentage is not given in this question, so it can be assumed that the smallest QPSA percentage that must be provided in this plan is equal to 50%.

The preretirement death benefit payable to a spouse as a QPSA upon the death of the participant is payable at the earliest possible retirement age had the participant not died (IRC section 417(c)(1)(A)(ii)). The benefit payable to the spouse is the spousal benefit that would have been paid if the participant had elected to retire on that earliest retirement age and then died.

Note that no QPSA benefit is required to be paid if the participant and spouse have been married for less than one year as of the date of death (IRC section 417(d)). The question states that the participant and spouse had been married for over one year at the time of death.

Smith has died at age 52 and had 6 years of service, so the earliest retirement age at which Smith could have retired had he not died is age 65 (Smith does not have the 10 years of service necessary to satisfy the early retirement requirements, and it cannot be assumed that Smith would have continued to earn the additional 4 years of service needed). Smith's benefit is 80% vested under the 7-year graded vesting schedule.

Vested accrued benefit = $500 × 6 years of service × 80% = $2,400

The vested accrued benefit must be adjusted to a 50% J&S benefit (multiplied by the given adjustment factor of 0.95).

50% QJSA benefit = $2,400 × 0.95 = $2,280

50% of this amount is the QPSA benefit payable to Smith's spouse.

QPSA benefit = 50% × $2,280 = $1,140

Answer is D.

Question 14

ERISA regulation 4010.4(b)(1) states that the funding target for purposes of PBGC reporting under ERISA section 4010 is determined <u>without</u> regard to the stabilized segment rates. The statement is false.

Answer is B.

Question 15

ERISA section 4219(c)(6) states that when a withdrawal liability payment is missed, interest is charged based upon prevailing market rates, not stabilized segment rates. The statement is false.

Answer is B.

Question 16

A qualified replacement plan is a defined contribution plan (new or existing). There is no effective date requirement under IRC section 4980(d)(2). The statement is false.

Answer is B.

Question 17

ERISA section 901.20(g) allows an enrolled actuary to advertise in relation to actuarial services providing the advertisement does not contain false, fraudulent, deceptive or misleading claims.

The statement is false.

Answer is B.

Question 18

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%

When the employer has no more than 100 employees earning at least $5,000 per year (as is the case in this question), the second of the two factors is ignored.

The lump sum factor using 5.5% would be a smaller factor than the plan equivalence, which uses 5% (the smaller the interest rate, the larger the factor). Therefore, the maximum lump sum under IRC section 415 uses an interest rate of 5.5% and the applicable mortality table. The statement is true.

Answer is A.

Question 19

ERISA regulation 901.20(d) provides rules relating to potential conflicts of interest with regard to services performed by an enrolled actuary. In particular, regulation 901.20(d)(2)(iii) requires that each affected party waive the conflict of interest and give informed consent at the time that the existence of the conflict is known to the enrolled actuary. None of the three statements in this question satisfy this requirement, so all statements are false.

Answer is E.

Question 20

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 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 6/1/2017 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.

$$2017 \text{ AFTAP} = \frac{(690,000 - 90,000) + 30,000}{726,000 + 30,000} = 83.33\%$$

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

$$\frac{(690,000 - 90,000) + 30,000}{726,000 + 105,000 + 30,000} = 73.17\%$$

In order to increase this ratio to 80%, a contribution of $X is deposited on 6/1/2017, and is interest adjusted using the plan effective rate of 5.1% for 5 months to the 1/1/2017 valuation date.

$$\frac{(690,000-90,000)+30,000+(X/1.051^{5/12})}{726,000+105,000+30,000} = 80.00\% \quad \rightarrow \quad X = 60,031$$

Answer is B.

Question 21

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. Therefore, generally only plans A and C are aggregated. However, when plans are aggregated for purposes of coverage and nondiscrimination testing, they must also be aggregated for the top heavy ratio even when there is no key employee in the plan (see IRC section 416(g)(2)(A)(i)(II)). So in this question, all plans must be aggregated for the top heavy ratio.

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 2017 top heavy ratio, the determination date is 12/31/2016. 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, so the present values as of 1/1/2016 are used for the top heavy ratio.

$$\text{Top heavy ratio} = \frac{1,875,000+3,870,000}{1,875,000+3,870,000+2,400,000+750,000+2,250,000}$$

$$= 51.55\%$$

Answer is B.

Question 22

The excise tax upon reversion of assets to the employer after a plan termination under IRC section 4980 is equal to 50% of the amount of the reversion, unless the plan satisfies either of the requirements under IRC sections 4980(d)(2) or 4980(d)(3). Those requirements are:

(1) Transfer at least 25% of the assets eligible for reversion to a Qualified Replacement Plan, or
(2) Increase benefits to the participants pro-rata in an amount equal to at least 20% of the assets eligible for reversion.

If either requirement is satisfied, then the excise tax is reduced to 20% of the amount of the reversion.

The Qualified Replacement Plan option can also be satisfied by amending the plan to increase benefits to participants in addition to a transfer of assets to the qualified replacement plan, such that the sum of the increase of benefits from the amendment and the transfer to the qualified replacement plan is at least 25% of the assets eligible for reversion. The plan amendment must be adopted no more than 60 days before the plan termination date (see IRC section 4980(d)(2)(B)(ii)). The plan amendment in this question was adopted 120 days prior to the plan termination date, so it cannot be used to satisfy the requirement to transfer at least 25% of the excess assets to the qualified replacement plan.

In this question, the amount of assets available for reversion before the transfer to the replacement plan is taken into account is:

$2,000,000 – $1,200,000 – $100,000 = $700,000

Note that although the amendment cannot be used to satisfy the 25% transfer requirement, it does represent additional benefit liabilities that must be paid for by the plan assets.

25% of assets available for reversion = 25% × $700,000 = $175,000

The amount that must be transferred (at a minimum) to the replacement plan is equal to $175,000 but only $150,000 was transferred. Therefore, the plan does not qualify for the use of the reduced 20% excise tax rate, and the tax is 50% of the amount of the reversion.

Employer reversion = $700,000 – $150,000 = $550,000

Excise tax = $550,000 × 50% = $275,000

Answer is D.

Question 23

Smith has 5 years of service as of 1/1/2017. Compensation must be limited under IRC section 401(a)(17), so the salaries paid in 2015 and 2016 must be limited to $265,000.

$$\text{1/1/2017 accrued benefit} = 10\% \times \frac{\$250,000 + \$265,000 + \$265,000}{3} \times 5 \text{ years}$$
$$= \$130,000$$

The benefit must be limited, if necessary, under IRC section 415(b). The IRC section 415(b) compensation limit of 100% of the high consecutive 3-year average salary (pro-rated for years of service less than 10) is the same as the $130,000 accrued benefit. However, the dollar limit for 2017 is $215,000, and is pro-rated for years of plan participation less than 10 years. It can be assumed from the exam general conditions that Smith entered the plan immediately upon hire, so Smith has 5 years of plan participation.

1/1/2017 dollar limit = $215,000 × 5/10 = $107,500

The accrued benefit is limited to $107,500.

Answer is A.

Question 24

IRC section 4980F(b) provides for a tax of $100 per day per affected plan participant when there is a failure to provide an ERISA section 204(h) notice. IRC section 4980F(c)(2) states that no tax will apply if the failure to provide the notice is corrected within 30 days. That exception does not apply in this question since the failure was not corrected within 30 days of being discovered.

Tax = $100 × 65 days × 85 applicable individuals = $552,500

IRC section 4980F(c)(3) states that when the failure is unintentional, there is a limit on the tax of $500,000.

Therefore, the tax is equal to $500,000.

Answer is C.

Question 25

The disability benefit described in this question is available only to a single NHCE. Under the benefits, rights and features rules of Treasury regulation 1.401(a)(4)-4, this would be deemed to be nondiscriminatory as it only benefits an NHCE, and thus would pass any ratio test associated with the particular benefit. The statement is true.

Answer is A.

Question 26

A measurement period of the current and all prior years of service used to determine the most valuable accrual rate requires the use of the accrued benefit as of 6/30/2017. That accrued benefit is divided by the years of service that Smith has earned through 6/30/2017 (17 years) in order to get an annual accrual.

Smith's compensation paid each year is $300,000, which exceeds the limit under IRC section 401(a)(17). When the plan year is not a calendar year, the limit used is the limit in effect as of the beginning of the plan year (Treasury regulation 1.401(a)(17)-1(b)(3)(ii)). So, for example, the $300,000 salary paid from 7/1/2016 through 6/30/2017 must be limited to $265,000 (the limit in effect for the 2016 calendar year). Therefore, the final 5-year average compensation is based upon the IRC section 401(a)(17) limits in effect for the calendar years 2012 – 2016.

$$\text{5-year average compensation} = \frac{\$250,000 + \$255,000 + \$260,000 + \$265,000 + \$265,000}{5}$$
$$= \$259,000$$

$$\text{Accrued benefit}_{6/30/2017} = (1\% \times \$259,000 \times 10 \text{ years}) + (1.33\% \times \$259,000 \times 7 \text{ years})$$
$$= \$50,012.90$$

$$\text{Average annual accrual} = \$50,012.90 \div 17 = \$2,941.94$$

The most valuable benefit is deemed to be the qualified joint and survivor annuity (Treasury regulation 1.401(a)(4)-3(d)(1)(ii)). Based upon the terms of this plan, the QJSA is a 100% joint and survivor annuity equal to the life annuity benefit. The qualified joint and survivor annuity (QJSA) must be normalized using testing assumptions to a life annuity.

Most valuable accrual in QJSA form = $2,941.94

Normalized most valuable accrual = $2,941.94 × (9.50/7.95) = $3,515.53

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

$$\text{Most valuable accrual rate} = \frac{\$3,515.53}{\$259,000} = 0.0136, \text{ or } 1.36\%$$

Answer is C.

Question 27

IRC Section 411(a)(8)(B) requires that normal retirement age cannot exceed the later of the date a participant reaches age 65 or the 5th anniversary of entry into the plan.

Smith reaches age 65 on 1/1/2020. Smith's 5th anniversary of entry into the plan is 1/1/2018. The later of these two dates is 1/1/2020, which is the latest normal retirement date for Smith allowed by law.

The statement is false.

Answer is B.

Question 28

IRC section 414(b) states that for purposes of IRC section 411, all employees of all corporations that are members of a controlled group are to be treated as if they are employees of a single employer. As a result, Smith's service with both Company A and Company B must be counted for purposes of determining Smith's years of service for vesting under IRC section 411(a). Smith has a total of 7 years of service between the two companies.

The 7-year graded vesting schedule of IRC section 411(a)(2)(A)(iii) provides for 100% vesting after 7 years of service.

The statement is false.

Answer is B.

Question 29

I.   IRC section 411(c)(2) does state that mandatory employee contributions means amounts that are contributed by the employee as a condition of employment, plan participation, or obtaining benefits in the plan that are attributable to employer contributions. This statement is true.

II. IRC section 411(c)(2)(B) states that the accrued benefit derived from contributions made by an employee are equal to the accumulated mandatory contributions expressed as an annual benefit payable at normal retirement age. This statement is true.

III. IRC section 411(a)(1) requires that all employee contributions be fully vested. This statement is false.

Answer is A.

Question 30

The PBGC variable-rate premium for 2017 is equal to 3.4% of the unfunded <u>vested</u> benefits (the difference between the premium funding target and the market value of assets).

2017 variable premium unfunded liability = \$3,650,000 – \$1,000,000 = \$2,650,000

2017 variable-rate premium = \$2,650,000 × 0.034 = \$90,100

In 2017, there is a variable premium cap of \$517 per plan participant (the participant count is as of the last day of the prior year). It is given that the number of <u>active</u> participants is 115, but it is not known if there are also inactive participants. As a result, credit was given for all answer choices on this question. However, the question can be solved assuming that there are no participants other than those who are active.

Variable premium cap = \$517 × 115 participants = \$59,455

The variable-rate premium is limited by this cap.

Additionally, for small employers (no more than 25 <u>employees</u> as of the first day of the year), there is also a cap on the variable premium equal to the number of <u>participants</u> squared, multiplied by \$5. The employer in this question has 115 employees. The small employer cap is not considered.

The 2017 variable rate premium is \$59,455.

Answer is A, although credit was given for all answer choices.

Question 31

ERISA regulation 4006.6(a) states that for purposes of PBGC premiums, an individual is considered a participant if the plan has benefit liabilities with respect to the participant. Participants with no benefit liabilities are not counted. The statement is false.

Answer is B.

Question 32

ERISA regulation 2510.3-21 states that a fiduciary provides investment advice to an employee benefit plan. A person who is an officer of an employer does not necessarily provide investment advice, and therefore is not necessarily a fiduciary of the plan. The statement is false.

Answer is B.

Question 33

The accrued benefit is equal to the greater of the plan accrued benefit or the top heavy minimum benefit. Smith has 4 years of service as of 1/1/2017.

$$\text{Plan accrued benefit} = 1.25\% \times \frac{\$64,000 + \$70,000 + \$67,000}{3} \times 4 \text{ years of service}$$
$$= \$3,350$$

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 has been top heavy for all years since Smith was hired, for a total of 4 years. Since Smith has only 4 years of service, only those years are used in place of a 5-year average.

Top heavy minimum benefit
$$= 2.00\% \times \frac{\$60,000 + \$64,000 + \$70,000 + \$67,000}{4} \times 4 \text{ years}$$
$$= \$5,220$$

Smith's accrued benefit as of 1/1/2017 is equal to the greater of the two benefits, which is $5,220.

The plan is top heavy, so the 6-year graded top heavy vesting schedule defined in IRC section 416(b)(1)(B) is used. Under this schedule, Smith, with 4 years of service, is 60% vested.

Vested accrued benefit as of 1/1/2017 = $5,220 × 60% = $3,132

Answer is B.

Question 34

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 determination dates for the two plans must fall within the same calendar year.

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 <u>prior</u> year. The defined benefit plan is not a calendar year plan, as it begins on 2/1 and ends on 1/31 each year. Each 1/31 is a determination date for the defined benefit plan, and the determination date for the plan year beginning 2/1/2016 is 1/31/2016. The valuation date is the first day of the year, which is 2/1/2015 for the defined benefit plan year ending on 1/31/2016. The present value of the accrued benefits used for the defined benefit plan is calculated as of 2/1/2015.

For the profit sharing plan, the determination date for the 2017 calendar year is 12/31/2016 (last day of the year prior to 2017). The valuation date for that year is 12/31/2016 (an end of year valuation must be assumed given the data provided). The account balances used for the profit sharing plan is calculated as of 12/31/2016.

Note that the defined benefit plan determination date of 1/31/2016 and the profit sharing plan determination date of 12/31/2016 fall within the same calendar year.

The top heavy ratio as described in IRC section 416(g)(1) is equal to the ratio of the present value of accrued benefits (or account balances for the profit sharing plan) for the key employees to the present value of accrued benefits for all employees. In-service distributions made during the past 5 years must be included in the top heavy ratio (IRC section 416(g)(3)(B)).

$$\text{Top heavy ratio} = \frac{\$800,000 + \$600,000 + \$300,000}{\$800,000 + \$600,000 + \$300,000 + \$400,000 + \$450,000} = 66.67\%$$

Answer is E.

Question 35

Note that credit was given for all answers to this question because the annuity values provided in the question were listed as annuities due payable at age 65, rather than the intended age 62. This solution solves the question assuming that the given annuities were properly labeled as payable at age 62.

Smith is age 62 as of 1/1/2017 with 31 years of service, and has qualified to receive an unreduced early retirement benefit. Before the application of the retirement incentive program, the accrued benefit for Smith is:

1/1/2017 accrued benefit (without incentive) = 2% × $135,800 × 31 years = $84,196

The lump sum value of the accrued benefit, using the plan factor, is:

$84,196 × 15.00 = $1,262,940

Under the retirement incentive program, the accrued benefit (and equivalent lump sum) increases by 50%.

Lump sum under incentive program = 150% × $1,262,940 = $1,894,410

The maximum lump sum payable under IRC section 415(b) must be determined, and the lump sum payable under the plan (either before or after the incentive program is taken in to account) must be limited if the maximum lump sum is less than the plan lump sum.

In order to determine the maximum lump sum payable under IRC section 415(b), the maximum benefit allowed under IRC section 415 must first be determined. Under IRC section 415(b), the accrued benefit cannot exceed the smaller of the 415(b) dollar maximum or the 415(b) compensation maximum.

The dollar maximum for 2017 is equal to $215,000, reduced by 10% for each year of plan participation less than 10 years. Smith has 8 years of plan participation (the plan became effective on 1/1/2009).

Pro-rated 415(b) dollar maximum = $215,000 × 8/10 = $172,000

There is no further adjustment of the dollar maximum for the retirement age of 62.

The compensation maximum under 415(b) is equal to the high consecutive 3-year average salary, reduced by 10% for each year of service less than 10 years. Smith has 31 years of service with the employer, so there is no reduction. Smith's high consecutive 3 years of salary is given to be $144,000.

The smaller of the dollar maximum and the compensation maximum is the compensation maximum of $144,000.

The maximum lump sum under IRC section 415 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 (applicable mortality and interest)
(3) Lump sum factor using applicable mortality and 5.5%

Note that item (2) above is ignored if the employer has no more than 100 employees earning more than $5,000 in the prior year. It is given that more than 100 employees earned more than $5,000 in 2016.

The smallest of these factors is the one using applicable mortality and 5.5%.

Maximum lump sum payable to Smith = $144,000 × 12.00 = $1,728,000

The lump sum without regard to the incentive program ($1,262,940) is not limited, but the lump sum under the incentive program ($1,894,410) must be limited to $1,728,000.

X = $1,728,000 − $1,262,940 = $465,060

The intended answer is C.

Question 36

ERISA section 4041(c)(3)(D)(ii)(III) states that during the process of a distress termination, the plan administrator may not use plan assets to purchase irrevocable commitments to provide benefits from an insurer. The statement is false.

Answer is B.

Question 37

Smith is age 60 as of the plan termination date, so the accrued benefit payable at age 65 must be reduced for 5 years at the rate of 5% per year to determine the equivalent early retirement benefit.

Plan benefit payable at age 60 = $4,133.00 × 0.75 = $3,099.75

The PBGC maximum monthly guaranteed benefit payable as a life annuity at age 65 for the year 2015 is $5,011.36. This must be adjusted using the PBGC factors for retirement age 60 and a form of benefit equal to a 10-year certain and life annuity (factors provided with exam).

PBGC maximum = $5,011.36 × 0.65 × 0.925 = $3,013.08

The plan benefit is limited to the PBGC maximum, so the monthly guaranteed benefit for Smith is $3,013.08.

Answer is B.

Note: For majority owners, if the plan has been in effect for less than 10 years, the guaranteed benefit is pro-rated for the number of years the plan has been in effect. In this question, the plan has been in effect for 9 years. A majority owner is defined in ERISA section 4022(b)(5)(A) as someone who owns at least 50% of a company. Smith owns only 10%, and is not a majority owner.

Question 38

ERISA regulation 901.20(e)(1) requires that an enrolled actuary apply due diligence in selecting actuarial assumptions. Failure to receive input from the plan sponsor would be a failure to apply this requirement. The statement is false.

Answer is B.

Question 39

IRC section 4975(a) provides for payment of an excise tax when a prohibited transaction occurs. The excise tax applies for each tax year in which the prohibited transaction exists. A prohibited transaction occurs when there is lending of money between a plan and a disqualified person (IRC section 4975(c)(1)(B)). A person providing services to a plan is a disqualified person (IRC section 4975(e)(2)(B)). Smith would be a disqualified person, and the loan would be a prohibited transaction, resulting in Smith being subject to an excise tax in both 2016 and 2017. The statement is true.

Answer is A.

Question 40

A prohibited transaction occurs when services are provided by a disqualified person to a plan (IRC section 4975(c)(1)(C)). A person providing services to a plan is a disqualified person (IRC section 4975(e)(2)(B)). Therefore, the employee's 19-year old child is a disqualified person. However, a prohibited transaction exemption exists when the disqualified person receives reasonable compensation for the services performed, and the person does not already receive full time pay from the employer (IRC section 4975(d)(10)). As a result, the payment of compensation to the child is not a prohibited transaction. The statement is false.

Answer is B.

Question 41

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 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 whether the proposed amendment can take effect given the additional IRC section 436 contribution.

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 (it can be assumed that there have been no purchases of annuities since no information has been provided).

Let X be equal to the actuarial value of assets (reduced by the funding balances).

$$2017 \text{ AFTAP} = \frac{X}{450,000} = 82.00\% \quad \rightarrow \quad X = 369,000$$

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

$$\frac{369,000}{450,000 + 35,000} = 76.08\%$$

In order to attempt to increase this ratio to at least 80%, a discounted contribution of $20,000 is made.

$$\frac{369,000 + 20,000}{450,000 + 35,000} = 80.21\%$$

The plan amendment can take effect once the contribution is made because including the contribution in the numerator of the adjusted ratio produces a result of at least 80%. The statement is true.

Answer is A.

Question 42

Treasury regulation 1.416-1, Q&A G-2 states that a multiple employer plan is subject to the top heavy requirements, but only with respect to each individual employer. So, if the top heavy ratio is greater than 60% for only one employer, then the top heavy minimum benefits apply only to that employer. The statement is false.

Answer is B.

Question 43

Note that statements II and III concern continuing education requirements for enrolled actuaries, which is not part of the exam syllabus. Credit was given for this question for all answers. This describes the intended solution.

I. ERISA regulation 901.20(k) requires written notification to the government entity where a document that an enrolled actuary signed should have been filed, if they become aware of the non-filing. The statement is true.

II. ERISA regulation 901.11(e)(2)(vi) requires at least 2 hours of ethics (regardless of core hours required) in order to satisfy the continuing education requirement for a 3-year cycle. The statement is true.

III. ERISA regulation 901.11(e)(2)(v) requires at least 18 core hours for the first full 3-year cycle. 12 hours is required for each subsequent enrollment cycle. The statement is false.

The intended answer is A.

Question 44

Accrued benefits must be frozen under IRC section 436(e) when the AFTAP (or presumed AFTAP) is less than 60%. However, the restrictions on benefit accruals do not apply during the first 5 plan years (IRC section 436(g)). The plan effective date has not been provided, so it must be assumed that the plan has been in effect for at least 5 years as of 1/1/2012.

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)) – even when the AFTAP is certified during the last 3 months of the year.

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).

The 2011 AFTAP is timely certified as 90%. The presumed AFTAP as of 1/1/2012 is 90%, until the range certification of at least 80% is made on 3/1/2012. The final AFTAP for 2012 is certified to be 85%, so the range certification is correct. There are no restricted months in 2012.

In 2013, the 2012 certification of 85% is presumed through 3/31/2013. From 4/1/2013 through 9/1/2013, the AFTAP is presumed to be 75% (10 percentage points less than 85%). On 9/1/2013, the 2013 AFTAP is certified as 65%. There are no restricted months in 2013.

In 2014, the 2013 certification of 65% is presumed through 3/31/2014. From 4/1/2014 through 9/1/2014, the AFTAP is presumed to be 55% (10 percentage points less than 65%). Months of service during that period are not to apply for benefit accruals. On 9/1/2014, the 2014 AFTAP is range certified as at least 80%. The final AFTAP for 2014 is certified to be 85%, so the range certification is correct. There are 5 restricted months in 2014.

In 2015, the 2014 certification of 85% is presumed through 2/28/2015. On 3/1/2015, a range certification of 60% to 80% is made, and on 12/1/2015 this is certified as being 75%. There are no restricted months in 2015.

In 2016, the 2015 certification of 75% is presumed through 3/31/2016. From 4/1/2016 through 9/30/2016, the AFTAP is presumed to be 65% (10 percentage points less than 75%). The final 2016 AFTAP was certified on 12/1/2016 as 90%. Because this was certified after the deadline of 9/30/2016, the plan is presumed to have an AFTAP of less than 60% from 10/1/2016 through 12/31/2017. There are 3 restricted months in 2016.

The total number of restricted months from 2012 through 2016 in which the plan's accrued benefits were restricted is:

$X = 5 + 3 = 8$

Answer is C.

Question 45

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 contributions basis (determination of aggregated allocation rates is described in Treasury regulation 1.401(a)(4)-9(b)(ii)(A)). Treasury regulation 1.401(a)(4)-8(c)(2) requires the use of the actuarial present value of both the normal and most valuable benefits from the defined benefit plan, using testing assumptions, in order to determine equivalent allocation rates for the defined benefit plan participants.

The measurement period is the current plan year, so only the current 2017 accrual from the defined benefit plan and 2017 allocation from the profit sharing plan are used to determine allocation rates.

Smith participates only in the defined benefit plan. The 2017 monthly accrual for Smith is $300. This is the normal accrual (in the form of a life annuity payable at age 65 – note that it can be assumed that the normal form is a life annuity and normal retirement age is 65 based upon exam general conditions).

The most valuable benefit is deemed to be the qualified joint and survivor annuity (Treasury regulation 1.401(a)(4)-3(d)(1)(ii)). Based upon the terms of the defined benefit plan, the QJSA is equal to 98% of the life annuity benefit.

Most valuable accrual for Smith = $300 × 0.98 = $294

Both the normal and most valuable accruals must be converted to equivalent allocations at Smith's current age using testing assumptions (factors provided in the question).

Equivalent allocations for Smith:

Normal accrual = $300 × 95.38 = $28,614
Most valuable accrual = $294 × 104.68 = $30,776

The equivalent allocation rates are equal to the equivalent allocations divided by the 2017 compensation (current year compensation must be used as testing compensation when testing on a contributions basis).

Normal allocation rate = $28,614/$150,000 = 19.076%
Most valuable allocation rate = $30,776/$150,000 = 20.517%

Jones participates only in the profit sharing plan. Defined contribution plans do not have a most valuable benefit, so when the plan is aggregated with a defined benefit plan, the single defined contribution plan allocation rate must be as large as the greater of the normal or most valuable rate of the HCE from the defined benefit plan. So, Jones must have an allocation rate of at least 20.517% in order to be in the rate group determined by Smith.

Jones allocation/$40,000 = 20.517%   →   Jones allocation = $8,206.80

Answer is E.

Note: It is not stated in the question whether the profit sharing plan valuation date is the first or the last day of the plan year, or whether the testing date is the first or last day of the year. This solution assumes that both dates are the last day of 2017. However, if the testing date is on the last day of the year and the allocation date for the profit sharing plan is on the first day of the year, then the allocation to Jones would be discounted with one year's interest. That would make the allocation to Jones:

$8,206.80/1.085 = $7,563.87

This would be answer choice D.

There are other possibilities (with different combinations of testing date/allocation date) that would produce different results, all at least as large as $7,563.87. Credit was given for this question for both answer choices D and E.