

AMERICAN SOCIETY OF PENSION PROFESSIONALS & ACTUARIES
JOINT BOARD FOR THE ENROLLMENT OF ACTUARIES
SOCIETY OF ACTUARIES

Enrolled Actuaries Pension Examination, Segment L

EA-2, Segment L

Date: Tuesday, May 7, 2019

Time: 1:00 p.m. – 3:30 p.m.

INSTRUCTIONS TO CANDIDATES

- Write your candidate number here _____. Your name must not appear.
 - Do not break the seal of this book until the supervisor tells you to do so.
 - Special conditions generally applicable to all questions on this examination are inserted in the front of this book.
 - All questions should be answered in accordance with laws, rules and regulations in effect as of November 30, 2018.
 - This examination consists of 43 True/False or multiple-choice questions worth a total of 100 points. The point value for each question is shown in parentheses at the beginning of each question.
 - Your score will be based on the point values for the questions that you answer correctly. No credit will be given for omitted answers and no credit will be lost for wrong answers; hence, you should answer all questions even those for which you have to guess. Answer choices C, D, and E will be considered incorrect answers on True-False questions.
 - A separate answer sheet is inside the front cover of this book. During the time allotted for this examination, record all your answers on side 2 of the answer sheet. **NO ADDITIONAL TIME WILL BE ALLOWED FOR THIS PURPOSE.** No credit will be given for anything indicated in the examination book but not transferred to the answer sheet. Failure to stop writing or coding your answer sheet after time is called will result in the disqualification of your answer sheet or further disciplinary action.
 - Five answer choices are given with each question, each answer choice being identified by a key letter (A to E). For each question, blacken the oval on the answer sheet which corresponds to the key letter of the answer choice that you select.
 - Use a soft-lead pencil to mark the answer sheet. To facilitate correct mechanical scoring, be sure that, for each question, your pencil mark is dark and completely fills only the intended oval. Make no stray marks on the answer sheet. If you have to erase, do so completely.
 - Do not spend too much time on any one question. If a question seems too difficult, leave it and go on.
 - While every attempt is made to avoid defective questions, sometimes they do occur. If you believe a question is defective, the supervisor or proctor cannot give you any guidance beyond the instructions on the exam booklet.
 - Clearly indicated answer choices in the test book can be an aid in grading examinations in the unlikely event of a lost answer sheet.
 - Use the blank portions of each page for your scratch work. Extra blank pages are provided at the back of the examination book.
 - When the supervisor tells you to do so, break the seal on the book and remove the answer sheet.
- On the front of the answer sheet, space is provided to write and code candidate information. Complete the information requested by printing in the squares and blackening the circles (one in each column) corresponding to the letters or numbers printed. For each empty box blacken the small circle immediately above the "A" circle. Fill out the boxes titled:
- Name
(Include last name, first name and middle initial)
 - Candidate Number
(Candidate/Eligibility Number, use leading zeros if needed to make it a five digit number)
 - Test Site Code
(The supervisor will supply the number.)
 - Examination Part
(Code the examination that you are taking by blackening the circle to the left of "Exam EA-2L")
 - Booklet Number
(The booklet number can be found in the upper right-hand corner of this examination book. Use leading zeros if needed to make it a four digit number.)
- In the box titled "Complete this section only if instructed to do so", fill in the circle to indicate if you are using a calculator and write in the make and model number.
- In the box titled "Signature and Date" sign your name and write today's date. **If the answer sheet is not signed, it will not be graded.**
- Leave the boxes titled "Test Code" and "Form Code" blank.
- On the back of the answer sheet fill in the Booklet Number in the space provided.
- After the examination, the supervisor will collect this book and the answer sheet separately. **DO NOT ENCLOSE THE ANSWER SHEET IN THE BOOK.** All books and answer sheets must be returned. **THE QUESTIONS ARE CONFIDENTIAL AND MAY NOT BE TAKEN FROM THE EXAMINATION ROOM.**

**Answer Key EA-2L Spring 2019
July 15, 2019**

Question	Answer		Question	Answer
1	A		31	C
2	A		32	B
3	A		33	C
4	A		34	A
5	B		35	B
6	A		36	B
7	B		37	D
8	B		38	C
9	A		39	A
10	A		40	B
11	B		41	A
12	Correct for All		42	Correct for All
13	B		43	B
14	A			
15	B			
16	A			
17	A			
18	B			
19	D			
20	B			
21	C			
22	B			
23	E			
24	C			
25	A			
26	C			
27	B			
28	C			
29	B			
30	A & E			

Data for Question 1 (1 point)

A plan has always had fewer than 100 participants. It has a 2018 minimum required contribution of \$200,000 that is due by 9/15/2019. The employer makes the \$200,000 contribution on 11/15/2019. No other contributions were made for the 2018 plan year. A Form 200 (Notice of Failure to Make Required Contributions) is not filed with the PBGC.

Consider the following statement:

The plan administrator must file Form 10 (Post-Event Notice of Reportable Event) with the PBGC to report the missed minimum required contribution.

Question 1

Is the above statement true or false?

- (A) True
- (B) False

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Data for Question 2 (1 point)

The benefits under a plan equal the greater of the benefits determined under two formulas. The first formula provides one percent of annual compensation for each year of service. The second formula provides \$300 per year of service. There have never been any HCEs in the plan.

Consider the following statement:

The plan satisfies the nondiscrimination requirements under IRC section 401(a)(4).

Question 2

Is the above statement true or false?

- (A) True
- (B) False

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Data for Question 3 (1 point)

Consider the following statement:

For purposes of IRC section 410(b), a collectively bargained employee is always an excludable employee with respect to the mandatorily disaggregated portion of any plan that benefits non-collectively bargained employees.

Question 3

Is the above statement true or false?

- (A) True
- (B) False

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Data for Question 4 (1 point)

A plan's normal retirement date is the latest allowable under the law.

Smith became a participant in the plan on 1/1/2018, his 65th birthday.

As of 1/1/2023, Smith has 4 years of participation service.

Consider the following statement:

Smith's normal retirement date is 1/1/2023.

Question 4

Is the above statement true or false?

- (A) True
- (B) False

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Data for Question 5 (1 point)

On her 65th birthday, Smith received a lump sum payment for all benefits she accrued to that date. Smith remained employed.

The plan has never been subject to a benefit restriction under IRC section 436.

Consider the following statement:

Any additional benefit accruals Smith earns must be paid to her in the form of a lump sum.

Question 5

Is the above statement true or false?

- (A) True
- (B) False

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Data for Question 6 (2 points)

Number of participants as of 12/31/2017: 20

Number of employees as of 1/1/2018: 22

Consider the following statement:

The PBGC Variable-rate Premium for 2018 cannot exceed \$2,000.

Question 6

Is the above statement true or false?

- (A) True
- (B) False

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Data for Question 7 (1 point)

Vesting: 5-year cliff

Data for participant Smith:

Date of birth	1/1/1986
Date of hire	1/1/2016
Date of participation	1/1/2017
Date of termination	3/1/2017

Smith incurred a one-year break in service in 2017.

Consider the following statement:

Smith should be included in the Plan Participant Count for purposes of determining the 2018 PBGC Premium.

Question 7

Is the above statement true or false?

- (A) True
- (B) False

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Data for Question 8 (1 point)

Consider the following statement:

In calculating the ERISA section 4010 funding target attainment percentage, the actuary must use an asset value equal to the fair market value.

Question 8

Is the above statement true or false?

- (A) True
- (B) False

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Data for Question 9 (1 point)

A multiemployer plan provides for a benefit increase that has been in effect for fewer than 60 months.

Consider the following statement:

This benefit increase is not eligible for the PBGC guarantee.

Question 9

Is the above statement true or false?

- (A) True
- (B) False

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Data for Question 10 (1 point)

Employer A completely withdraws from a multiemployer plan in 2017. In 2019 the plan is terminated in a mass withdrawal.

Consider the following statement:

Employer A is treated as if it had withdrawn in the mass withdrawal.

Question 10

Is the above statement true or false?

- (A) True
- (B) False

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Data for Question 11 (1 point)

Smith, a 10% owner of a company, is a trustee of its plan.

On 1/1/2019, Smith ceases to be an owner of the company.

Consider the following statement:

As of 1/1/2019, Smith is no longer allowed to be a trustee of the plan.

Question 11

Is the above statement true or false?

- (A) True
- (B) False

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Data for Question 12 (1 point)

Consider the following statement:

Any direct or indirect lending of money or other extension of credit between a plan and a disqualified person is a prohibited transaction.

Question 12

Is the above statement true or false?

- (A) True
- (B) False

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Data for Question 13 (1 point)

A client provides the dates of plan contributions to the actuary as the date the check was written. On more than one occasion, the dates reported in the financial statement provided to the actuary varied significantly from the dates the client provided to the actuary.

Consider the following statement:

The actuary need not make any additional inquiries since the information is being provided by the client.

Question 13

Is the above statement true or false?

- (A) True
- (B) False

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Data for Question 14 (1 point)

A plan's 1/1/2018 AFTAP is 92%.

Participant Smith, who has never been a highly compensated employee, is retiring on 4/30/2019.

The 2019 AFTAP has not been prepared prior to Smith's retirement.

The plan provides for lump sum distributions of any amount as an optional form of payment.

Consider the following statement:

Participant Smith is eligible to receive a lump sum distribution of the entire benefit.

Question 14

Is the above statement true or false?

- (A) True
- (B) False

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Data for Question 15 (2 points)

Valuation results as of 1/1/2019:

Funding target	\$1,200,000
Prefunding balance	84,000
Actuarial value of assets	780,000

The plan does not pay lump sums.

Consider the following statement:

The plan sponsor is required to waive \$24,000 of the prefunding balance so that the resulting AFTAP is at least 60%.

Question 15

Is the above statement true or false?

- (A) True
- (B) False

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Data for Question 16 (2 points)

Plan's normal retirement age: 62

Data for participant Smith:

Date of birth	1/1/1956
Date of hire	1/1/2010
Date of plan participation	1/1/2011
Date of retirement	1/1/2018

Consider the following statement:

Smith's annual IRC section 415 dollar limit payable as a single life annuity at retirement is \$154,000.

Question 16

Is the above statement true or false?

- (A) True
- (B) False

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Data for Question 17 (1 point)

A plan terminated on 12/31/2018.

Consider the following statement:

For purposes of aggregation under IRC section 416 for 2019, this terminated plan is treated like any other plan.

Question 17

Is the above statement true or false?

- (A) True
- (B) False

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Data for Question 18 (1 point)

Smith is an officer and a 2% owner of Company A. She received annual compensation of \$140,000 for 2018.

Consider the following statement:

For purposes of IRC section 416, Smith is a key employee for 2018.

Question 18

Is the above statement true or false?

- (A) True
- (B) False

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Data for Question 19 (3 points)

Valuation date: 1/1/2019

Smith is one of the 25 highest paid HCEs and is a restricted employee.

Selected valuation results:

Current liability (funding target)	\$1,910,000
Actuarial (market) value of assets	1,995,000
Current liability (funding target) for Smith	26,500

Smith has elected a lump sum distribution of \$29,000, to be paid on 1/1/2019.

The plan sponsor will make a contribution so that the lump sum can be paid.

$\$X$ = the contribution needed on 1/1/2019 to enable Smith's lump sum to be paid.

Question 19

In what range is $\$X$?

- (A) Less than \$103,000
- (B) \$103,000 but less than \$104,000
- (C) \$104,000 but less than \$105,000
- (D) \$105,000 but less than \$106,000
- (E) \$106,000 or more

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Data for Question 20 (4 points)

A plan provides a fully subsidized early retirement benefit for participants who have reached age 62. Benefits are not payable before age 62.

Provisions and assumptions:

Plan's actuarial equivalence	5.0%
Testing interest rate	8.5%

Smith and his spouse are both age 61.

Jones and his spouse are both age 63.

Selected annuity factors at selected ages:

Age of participant and spouse	<u>Plan provisions</u>		<u>Testing assumptions</u>	
	Life annuity <u>5%</u>	QJSA <u>5%</u>	Life annuity <u>8.5%</u>	QJSA <u>8.5%</u>
61	155.61	167.63	103.89	112.52
62	152.16	164.40	101.83	110.65
63	148.65	161.10	99.72	108.72
64	145.11	157.74	97.57	106.73
65	141.53	154.31	95.38	104.68

X = the factor to convert Smith's normal equivalent benefit accrual rate to his most valuable equivalent benefit accrual rate.

Y = the factor to convert Jones' normal equivalent benefit accrual rate to his most valuable equivalent benefit accrual rate.

Question 20

In what range is X / Y ?

- (A) Less than 1.08
- (B) 1.08 but less than 1.17
- (C) 1.17 but less than 1.26
- (D) 1.26 but less than 1.35
- (E) 1.35 or more

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Data for Question 21 (4 points)

An applicable defined benefit (cash balance) plan and profit sharing plan are aggregated for nondiscrimination testing.

Nondiscrimination testing methods and assumptions for the 2018 plan year:

Testing method	Benefits basis without permitted disparity
Measurement period	Current plan year
Normalization interest rate	7.5%
Normalization pre-retirement mortality	None
Cash balance interest crediting rate	5%

Selected monthly annuity factors at normal retirement date:

Plan actuarial equivalence	141.57
Normalization assumptions	94.80

Data for participant Smith:

Age at 12/31/2018	60
2018 compensation	\$280,000
2018 pay credit	44,000
2018 profit sharing contribution	2,500
2018 Employee deferrals	5,000

Question 21

In what range is Smith's normal accrual rate?

- (A) Less than 1.86%
- (B) 1.86% but less than 1.89%
- (C) 1.89% but less than 1.92%
- (D) 1.92% but less than 1.95%
- (E) 1.95% or more

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Data for Question 22 (3 points)

Plan eligibility: Age 21 and 1 year of service

Year of service: 1,000 hours

Total number of employees: 125

Highly compensated employees:

Not eligible	0
Eligible	12

Nonhighly compensated employees:

Under age 21 or with less than 1 year of service	32
Age 21 or over and at least 1 year of service:	
Covered by a collective bargaining agreement	26
Not covered by a collective bargaining agreement:	
Active participants	34
Terminated employment with 500 or more hours	8
Terminated employment with less than 500 hours without accruing a benefit	13

X = the nonhighly compensated employee concentration percentage under IRC section 410(b).

Question 22

In what range is X ?

- (A) Less than 77%
- (B) 77% but less than 81%
- (C) 81% but less than 85%
- (D) 85% but less than 89%
- (E) 89% or more

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Data for Question 23 (3 points)

Data for employees in 2018:

Hours worked during 2018:	<u>250</u>	<u>750</u>	<u>1,500</u>
Active warehouse employees	10	5	10
Warehouse employees who terminated during 2018	9	8	10
Active office employees	5	10	15
Office employees who terminated during 2018	12	6	X

Warehouse employees are excluded from the plan.

All employees meet the age and service requirement for plan participation.

Eligible employees who work at least 1,000 hours accrue a meaningful benefit in the plan.

The plan covers at least one HCE.

The plan has never been top-heavy.

The plan satisfies the minimum participation requirements of IRC section 401(a)(26).

Question 23

In what range is the minimum value of X ?

- (A) Less than 21
- (B) 21 but less than 25
- (C) 25 but less than 29
- (D) 29 but less than 33
- (E) 33 or more

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Data for Question 24 (4 points)

Benefit formula: Group 1: \$51 per month for each year of service
 Group 2: \$18 per month for each year of service

Pre-retirement death benefit: Present value of accrued benefit

Actuarial equivalence: 5% and applicable mortality table with no preretirement mortality

Plan provides for suspension of benefits upon reaching normal retirement age.

Selected annuity factors:

$$\begin{aligned} \ddot{a}_{65}^{(12)} & 12.20 \\ \ddot{a}_{66}^{(12)} & 11.89 \end{aligned}$$

Selected participant data:

	<u>Smith</u>	<u>Jones</u>
Group	Group 1	Group 2
Date of birth	1/1/1952	1/1/1952
Date of hire	1/1/2000	1/1/2000
Date of retirement	1/1/2018	1/1/2018
Benefit suspension notice status	Provided timely	Not provided
Monthly benefit at retirement	X	Y

Question 24

In what range is $X + Y$?

- (A) Less than \$1,233
- (B) \$1,233 but less than \$1,243
- (C) \$1,243 but less than \$1,253
- (D) \$1,253 but less than \$1,263
- (E) \$1,263 or more

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Data for Question 25 (3 points)

Selected plan provisions prior to 1/1/2014:

Benefit formula	100% of monthly average compensation at normal retirement date
Accrued benefit	Fractional rule using years of service

Selected plan provisions after 12/31/2013:

Benefit formula	5% of monthly average compensation times all years of service
Accrued benefit	Benefit formula is applied using average compensation and years of service at computation date.

Selected participant data:

Date of birth	1/1/1959
Date of hire	1/1/2009
Annual compensation, each year of employment	\$100,000

X = Smith's monthly accrued benefit on 12/31/2018.

Y = Smith's monthly accrued benefit on 1/1/2015.

Question 25

What is $|X - Y|$?

- (A) Less than \$1,600
- (B) \$1,600 but less than \$2,000
- (C) \$2,000 but less than \$2,400
- (D) \$2,400 but less than \$2,800
- (E) \$2,800 or more

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Data for Question 26 (2 points)

Consider the following statements when computing the period of service for purposes of determining the nonforfeitable percentage of participant's accrued benefit:

- I. A plan may disregard all years of service completed before age 21.
- II. A plan may disregard years of service completed when the employer did not maintain the plan or a predecessor plan.
- III. A plan may always disregard years of service completed prior to a period of 5 consecutive 1-year breaks in service.

Question 26

Which, if any, of the above statements is (are) true?

- (A) None
- (B) I only
- (C) II only
- (D) III only
- (E) The correct answer is not given by (A), (B), (C), or (D) above.

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Data for Question 27 (3 points)

Selected data as of 12/31/2017:

Vested active participants	150
Non-vested active participants	50
Non-participating employees	10
Terminated vested participants	20
Retirees	50
Beneficiaries of deceased retirees	20
Alternate payees of deceased participants	5
Terminations during 2017	0

Selected data as of 1/1/2018:

Market value of assets	\$4,800,000
Actuarial value of assets	4,400,000
Standard premium funding target:	
Vested benefits	\$5,100,000
Non-vested benefits	100,000

Question 27

In what range is the total 2018 PBGC premium for this plan?

- (A) Less than \$30,000
- (B) \$30,000 but less than \$35,000
- (C) \$35,000 but less than \$40,000
- (D) \$40,000 but less than \$45,000
- (E) \$45,000 or more

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Data for Question 28 (3 points)

Selected information as of valuation date:	<u>1/1/2018</u>	<u>1/1/2019</u>
Vested premium funding target	\$1,459,750	\$1,430,000
Non-vested premium funding target	0	0
Market value of assets	1,144,500	1,200,000
Actuarial value of assets	1,257,000	1,100,000

Selected participant counts as of:	<u>12/31/2018</u>	<u>1/1/2019</u>
Actives	20	26
Terminated vested	3	3
Retirees and beneficiaries	1	1

The plan sponsor has not opted out of the Lookback Rule.

Question 28

In what range is the total 2019 PBGC premium due?

- (A) Less than \$11,000
- (B) \$11,000 but less than \$13,000
- (C) \$13,000 but less than \$15,000
- (D) \$15,000 but less than \$17,000
- (E) \$17,000 or more

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Data for Question 29 (4 points)

Plan effective date: 9/1/2010

Plan termination date: 1/1/2018

Normal retirement benefit: \$1,200 per month per year of service

Normal form of annuity: 5-year certain and life

Early retirement eligibility: Age 55

Early retirement reduction: 5% per year prior to age 65

Late retirement benefit: Greater of age 65 benefit increased 8% per year (compounded) and the accrued benefit at late retirement

Data for participants:

	<u>Smith</u>	<u>Jones</u>
Date of birth	1/1/1950	1/1/1966
Date of hire	1/1/2011	1/1/2015

Neither Smith nor Jones is a majority owner.

The plan suspends benefits after normal retirement date and Smith timely received a suspension of benefits notice.

Question 29

In what range is the sum of monthly PBGC guaranteed benefits at earliest retirement for Smith and Jones?

- (A) Less than \$7,900
- (B) \$7,900 but less than \$8,900
- (C) \$8,900 but less than \$9,900
- (D) \$9,900 but less than \$10,900
- (E) \$10,900 or more

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Data for Question 30 (2 points)

Consider the following statements with respect to the PBGC Missing Participant Program on or after 1/1/2018:

- I. It is available to terminating plans only.
- II. It is available for participants whose benefits are above the mandatory cash-out limit but whose distribution forms have not been received by the plan.
- III. If the participant's accrued monthly benefit is greater than \$50, use of an internet search engine is sufficient to meet PBGC requirements on Diligent Search.

Question 30

Which, if any, of the above statements is (are) true?

- (A) I only
- (B) II only
- (C) III only
- (D) I, II, III
- (E) The correct answer is not given by (A), (B), (C), or (D) above.

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Data for Question 31 (5 points)

Type of plan: Multiemployer

Method for withdrawal liability: Presumptive

There were no unfunded vested benefits in any year prior to 2015.

Employer A withdrew in 2016 and was assessed withdrawal liability of \$1,300,000.

This assessment was deemed uncollectible and was established as a 12/31/2016 reallocation pool.

Employer B completely withdraws on 7/1/2018.

No employers other than Employer A and Employer B have withdrawn from the plan.

Year ending	5-year sum of contributions		Total unfunded vested benefits
	<u>Employer B</u>	<u>Total*</u>	
<u>12/31</u> 2015	\$290,000	\$1,250,000	\$3,200,000
2016	250,000	1,500,000	2,800,000
2017	205,000	2,000,000	2,500,000
2018	155,000	1,800,000	2,000,000

**Contributions excluding prior withdrawn employers*

Question 31

In what range is the withdrawal liability for Employer B?

- (A) Less than \$675,000
- (B) \$675,000 but less than \$750,000
- (C) \$750,000 but less than \$825,000
- (D) \$825,000 but less than \$900,000
- (E) \$900,000 or more

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Data for Question 32 (3 points)

Type of plan: Multiemployer

Method for withdrawal liability: Rolling-5

Employer A completely withdraws from the plan on 12/1/2018.

<u>Year</u>	<u>Employer A contributions</u>	<u>Total contributions*</u>	<u>Total 12/31 unfunded vested benefits</u>	<u>12/31 outstanding withdrawal liability claims expected to be collected from employers that withdrew in prior years</u>
2013	\$200,000	\$8,000,000	\$0	\$0
2014	250,000	8,500,000	0	0
2015	300,000	9,100,000	0	0
2016	350,000	9,250,000	0	0
2017	325,000	9,400,000	20,000,000	850,000
2018	200,000	9,500,000	23,000,000	1,600,000

**Contributions excluding prior withdrawn employers*

Question 32

In what range is the withdrawal liability for Employer A?

- (A) Less than \$600,000
- (B) \$600,000 but less than \$625,000
- (C) \$625,000 but less than \$650,000
- (D) \$650,000 but less than \$675,000
- (E) \$675,000 or more

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Data for Question 33 (3 points)

An employer terminated a plan that covered all its employees.

There are no former employees entitled to current or future benefits from the plan.

A plan amendment was adopted 30 days before the plan terminated to provide a *pro rata* benefit increase to all participants.

The plan transferred a portion of surplus assets to a qualified replacement plan.

95% of the active participants in the terminated plan who remain as employees of the employer after the termination are active participants in the replacement plan.

The amount transferred was the minimum needed to reduce the excise tax rate to below 50%.

The remaining surplus will revert to the employer.

Selected data as of the plan termination date:

Plan assets	\$2,000,000
Benefit liabilities before amendment	1,100,000
Increase in benefit liabilities due to amendment	100,000

$\$X$ = the excise tax due to the reversion.

Question 33

In what range is $\$X$?

- (A) Less than \$115,000
- (B) \$115,000 but less than \$130,000
- (C) \$130,000 but less than \$145,000
- (D) \$145,000 but less than \$160,000
- (E) \$160,000 or more

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Data for Question 34 (2 points)

A plan document allows a named fiduciary to designate persons who are not named fiduciaries to carry out fiduciary responsibilities.

In this capacity, the named fiduciary hires an investment advisor who is also considered a fiduciary.

The named fiduciary follows all prudent man requirements in making this selection and is unaware of any potential breaches of fiduciary responsibilities by the investment advisor.

Consider the following statements:

- I. In making a specific investment selection, the investment advisor must consider the interests of participants, employers and trustees.
- II. The investment advisor may select an economically targeted investment (ETI) if any investment return or risk downside compared to an alternative investment choice is deemed to be offset by the social or environmental benefits of the ETI.
- III. The named fiduciary is liable for an act or omission that the investment advisor may commit in carrying out their delegated responsibilities.

Question 34

Which, if any, of the above statements is (are) true?

- (A) None
- (B) I only
- (C) II only
- (D) III only
- (E) The correct answer is not given by (A), (B), (C) or (D) above.

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Data for Question 35 (3 points)

Employer A discontinues part of its business on 12/31/2017.

Selected data for all participants of Plan A:

<u>Date</u>	<u>Number of active participants</u>	<u>Number of vested and retired participants</u>
1/1/2016	1,000	500
1/1/2017	1,100	475

As of 12/31/2017 the plan does not qualify for a waiver of a reportable event as defined under ERISA section 4043.

X = the smallest possible number of active participants on 12/31/2017 that will not trigger a reportable event.

Question 35

In what range is X ?

- (A) Less than 840
- (B) 840 but less than 960
- (C) 960 but less than 1,080
- (D) 1,080 but less than 1,200
- (E) 1,200 or more

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Data for Question 36 (1 point)

Consider the following statement:

In performing an actuarial study, an enrolled actuary cannot use an assumption that is outside of the normal range of assumptions used in similar studies by other enrolled actuaries.

Question 36

Is the above statement true or false?

- (A) True
- (B) False

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Data for Question 37 (5 points)

Effective date: 1/1/2006

Benefit formula: \$5 per month, for each month of service.

<u>Plan year</u>	<u>AFTAP certification type</u>	<u>Date issued</u>	<u>AFTAP</u>
2008	Specific	2/1/2008	80%
2009	Specific	2/1/2009	50%
2010	Specific	2/1/2010	82%
2011	Specific	2/1/2011	72%
2012	Specific	7/1/2012	71%
2013	Specific	7/1/2013	72%
2014	Specific	7/1/2014	74%
2015	Specific	7/1/2015	76%
2016	Range	7/1/2016	60%-80%
2016	Specific	1/1/2017	75%
2017	Specific	7/1/2017	68%
2018	Range	9/1/2018	60%-80%
2018	Specific	12/1/2018	72%

The plan does not provide for automatic restoration of benefit accruals in the event a restriction under IRC section 436 is lifted.

The plan has never had a funding standard carryover balance or prefunding balance.

Data for participant Smith:

Date of birth 1/1/1960
Date of hire 1/1/2006

Question 37

In what range is Smith's monthly accrued benefit as of 12/31/2018?

- (A) Less than \$652
- (B) \$652 but less than \$688
- (C) \$688 but less than \$724
- (D) \$724 but less than \$760
- (E) \$760 or more

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Data for Question 38 (4 points)

Plan effective date: 1/1/1998

The plan was amended to increase benefits effective 6/30/2018.

Selected information as of 1/1/2018:

Funding standard carryover balance	\$0
Prefunding balance	120,000
Market (actuarial) value of assets	4,265,000
Funding target before amendment	4,875,000
Increase in funding target due to amendment	365,000
Effective interest rate	4.00%

History of annuity purchases:

	<u>2016</u>	<u>2017</u>	<u>2018</u>
Annuity purchases for NHCEs	\$45,000	\$0	\$30,000
Annuity purchases for HCEs	15,000	0	25,000
Total annuity purchases	60,000	0	55,000

The 2018 AFTAP was certified on 3/31/2018.

\$X = the IRC section 436 contribution that the plan sponsor must make on 6/30/2018 for the amendment to take effect.

Question 38

In what range is **\$X**?

- (A) Less than \$36,000
- (B) \$36,000 but less than \$38,500
- (C) \$38,500 but less than \$41,000
- (D) \$41,000 but less than \$43,500
- (E) \$43,500 or more

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Data for Question 39 (3 points)

Benefit formula: 10% of final 3-year average compensation for each year of service up to 10 years of service.

Data for participant Smith:

Date of birth	1/1/1955
Date of hire	1/1/2012
Date of participation	1/1/2013
2016 and prior years' compensation per year	\$150,000
2017 compensation	120,000

$\$X$ = Smith's annual accrued benefit as of 1/1/2018.

Question 39

In what range is $\$X$?

- (A) Less than \$89,000
- (B) \$89,000 but less than \$95,000
- (C) \$95,000 but less than \$101,000
- (D) \$101,000 but less than \$107,000
- (E) \$107,000 or more

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Data for Question 40 (4 points)

Plan effective date: 1/1/1992

Requirement to earn a year of service/participation: At least 1,000 hours

Normal retirement benefit: 100% of highest 3-year consecutive average compensation

Normal retirement age: 62

Selected data for Smith:

Date of hire	1/1/2009
Date of participation	1/1/2010

<u>Plan year</u>	<u>Compensation</u>	<u>Hours</u>
2009	\$350,000	2,080
2010	245,000	2,080
2011	155,000	1,050
2012	355,000	2,080
2013	160,000	975
2014	210,000	1,500
2015	140,000	800
2016	180,000	1,400
2017	110,000	1,100
2018	335,000	2,080

Smith is retiring on 12/31/2018 at normal retirement age.

Question 40

In what range is Smith's benefit?

- (A) Less than \$149,000
- (B) \$149,000 but less than \$168,000
- (C) \$168,000 but less than \$187,000
- (D) \$187,000 but less than \$206,000
- (E) \$206,000 or more

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Data for Question 41 (3 points)

Suspension of benefits notices are not provided to participants under a plan.

Plan actuarial equivalence: Applicable mortality and 5.25%

Selected data for participant Smith:

Date of late retirement	1/1/2018		
Age at late retirement	66		
Years of service at 1/1/2018	10		
Years of participation at 1/1/2018	9		
Annual compensation (every year)	\$220,000		
	Late retirement factor	Lump sum factor at	
	<u>from age 65</u>	<u>late retirement</u>	
Applicable mortality and 5.00%	1.086	11.92	
Applicable mortality and 5.25%	1.088	11.67	
Applicable mortality and 5.50%	1.090	11.43	
Applicable 417(e) assumptions	1.074	13.99	

$\$X$ = Smith's maximum lump sum benefit allowable under IRC section 415 upon late retirement.

Question 41

In what range is $\$X$?

- (A) Less than \$2,458,000
- (B) \$2,458,000 but less than \$2,618,000
- (C) \$2,618,000 but less than \$2,778,000
- (D) \$2,778,000 but less than \$2,938,000
- (E) \$2,938,000 or more

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Data for Question 42 (3 points)

Plan effective date: 1/1/2015

Benefit formula: 1% of highest consecutive three-year average compensation for each year of service

Normal form of payment: Life annuity

Selected data for non-key employee Smith:

Date of birth	1/1/1975
Date of hire	1/1/2012

<u>Plan year</u>	<u>Compensation</u>	<u>Top-heavy year</u>
2012	\$30,000	No
2013	32,000	No
2014	36,000	No
2015	32,000	Yes
2016	38,000	Yes
2017	36,000	Yes
2018	40,000	Yes

$\$X$ = the additional annual benefit required for Smith as of 12/31/2018 because of the minimum top-heavy benefit requirements.

Question 42

In what range is $\$X$?

- (A) Less than \$255
- (B) \$255 but less than \$315
- (C) \$315 but less than \$375
- (D) \$375 but less than \$435
- (E) \$435 or more

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Data for Question 43 (2 points)

Selected data for non-key employee Smith:

Date of birth	1/1/1970
Date of hire	1/1/2017
Date of participation	1/1/2018
2017 compensation	\$60,000, plus \$20,000 bonus
2018 compensation	\$60,000, plus \$20,000 bonus

The plan's benefit formula excludes bonuses from the compensation definition.

The plan has always been top-heavy.

Question 43

In what range is the minimum monthly top-heavy benefit for Smith at 12/31/2018?

- (A) Less than \$120
- (B) \$120 but less than \$170
- (C) \$170 but less than \$220
- (D) \$220 but less than \$270
- (E) \$270 or more

****END OF EXAMINATION****

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